REGIONAL FISHERIES LIVELIHOODS PROGRAMME FOR SOUTH AND SOUTHEAST ASIA (RFLP)

FINAL REPORT ON THE BASELINE SURVEY

(Activity Code: Baseline survey)

For the Regional Fisheries Livelihoods Programme for South and Southeast Asia

Prepared by

THE LEARNING INSTITUTE
IN COLLABORATION WITH THE FISHERIES ADMINISTRATION

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Baseline Survey Team
The Learning Institute
December 2010

LIST OF ACRONYMS

AFSC	: American Family Service Committee
ADB	: Asian Development Bank
CBNRM LI	: Community Based Natural Resource Management Learning Institute
CC	: Commune Councils
CDC	: Councils for Development of Cambodia
CDRI	: Cambodia Development Resource Institute
CFC	: Community Fisheries Committee
CFDD	: Community Fisheries Development Department
CFi	: Community Fisheries
CORIN	: Coastal Resource Institute
CWDCC	: Children and Women Development Centre in Cambodia
CZM	: Coastal Zone Management
Danida	: Danish International Development Agency
DFID	: Department for International Development
DFPTQ	: Department of Fisheries Post-harvest Technology and Quality Control
DoF	: Department of Fisheries
EEZs	: Exclusive Economic Zones
FAA	: Fine Art Association
FACT	: Fisheries Action Coalition Team
FAO	: Food and Agriculture Organization of the United Nations
FGD	: Focus Group Discussion
FiA	: Fisheries Administration
GTZ	: German Agency for International Development
GWG	: Gender Working Group
ICSF	: International Collective in Support of Fish workers
IDRC	: International Development Research Centre of Canada
INGO	: International Non-Government Organization
IMM	: Integrated Marine Resources Management Introduction
KIP	: Kampot Institute of Polytechnic
LI	: The Learning Institute

MAFF	: Ministry of Agriculture, Forestry and Fisheries
MCS	: Monitoring, Control and Surveillance
MoE	: Ministry of Environment
MPC	: Mlup Promvihearthor Centre
NCDD	: National Committee for Decentralization and Deconcentration
NGO	: Non-Government Organization
NREM and L	: Natural Resource and Environmental Management and Livelihoods
PMCR	: Participatory Management of Coastal Resources
RFLP	: Regional Fisheries Livelihoods Programme for South and Southeast Asia
SCW	: Save Cambodia's Wildlife
SEAFDEC	: Southeast Asian Fisheries Development Centre
UNEP	: United Nations Environment Program
WAP	: Wetlands Alliance Program

GLOSSARY

Co-management: Jock Campbell defined co-management as an important tool to manage resources in order to improve fishers' livelihoods through their participation in decision making. Users have equal rights in decision making to manage their resources with government, and play a role as consultants and advisors. This means that co-management is used to decentralize the resource management for different purposes.

Community fisheries: The Fisheries Administration Cambodia defined Community Fisheries as a group of Khmer citizens living in one or more villages in the Kingdom of Cambodia who voluntarily agree to cooperate and participate with each other for the purpose of participating in the sustainable management, conservation, development and use of fisheries resources in their local area, and protecting the rights and interests of Khmer citizens in accordance with all legal instruments related to the fisheries sector.

Community agreement: The Fisheries Administration Cambodia defined a community agreement as a written agreement between a Community Fishery and the Fisheries Administration that recognizes and ensures the rights of the Community Fishery in a specific fishing area.

Community fisheries by laws: The Fisheries Administration Cambodia defined as an "absolute terms" enacted by the congress of Community Fisheries consistent with the model of the Ministry of Agriculture, Forestry and Fisheries.

Community fishing area management plan: The Fisheries Administration Cambodia defined the community fishing area management plan as a document that is prepared by a Community Fishery and approved by the Fisheries Administration, that assesses the social and environmental impacts and detailed procedures, regulations, and measures related to the preparation for the sustainable use of the community fishing area.

Degree of participation: Refers to the level/quality of participation of the respondents. It has been classified based on Arnstein's 'ladder of participation' (1969), or similar: 1) "Nonparticipation" through manipulation and therapy; 2) "Tokenism" through informing, consultation and placation; and 3) "Citizen power" through partnership, delegated power and citizen control.

Livelihoods: DFID defined a livelihood as comprising the capabilities, assets (including both materials and social resources) and activities required for a means of living.

Livelihoods diversification: Ellis (1997) defines livelihoods diversification as the process by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standard of living.

Level of satisfaction: The level of satisfaction is defined as a subjective judgment by respondents with regard to the level of their happiness in terms of Community Fisheries development and implementation, post-harvest products, livelihoods and credit services

provision. The level of satisfaction is classified into three categories including high, medium and low. The high level means very happy and satisfied, while medium is just about satisfied. And low is very unhappy.

Level of expectation: The level of expectation is also defined as a subjective judgment by respondents to the level of their perception with regard to future outputs and outcomes of the Community Fisheries development and implementation. The level of expectation is also classified into three levels - high, medium and low.

Level of awareness: The level of awareness is also defined as a subjective judgment by respondents relating to their level of understanding about Community Fisheries development and implementation, safety at sea issues, post-harvest products and livelihoods. The level of awareness is also classified into three levels - very aware, just about aware (slightly aware) and not aware. `Very aware' suggests a good understanding, `just about aware' is satisfactory, while `not aware' means that nothing is known.

EXECUTIVE SUMMARY

A. Background

A. 1. The Regional Fisheries Livelihoods Programme (RFLP)

1. RFLP is a regional program funded by Spain, which is operating in six countries in Southeast and South Asia, including Cambodia, Indonesia, the Philippines, Sri Lanka, Timor-Leste and Viet Nam. In Cambodia, activities are being conducted in the four coastal provinces of Preah Sihanouk, Koh Kong, Kampot and Kep. Programme stakeholders are coastal fishers, processors, traders and their families, communities and organizations, such as Community Fisheries (CFis), and members of relevant government agencies at local and national levels.

2. RFLP's goal is "*Improved livelihoods and reduced vulnerability of small-scale fishing communities*" through "*Strengthened capacity among participating small-scale fishing communities and their supporting institutions towards improved livelihoods and sustainable fisheries resources management*". This outcome will be achieved through the delivery of five national-level outputs: 1) Improved fisheries co-management; 2) Improved safety at sea and reduced vulnerability to disasters for members of coastal communities; 3) Improved fishery products and marketing; 4) Strengthened fisher livelihoods; and 5) Improved access to micro-finance for fishers and post-harvest operators.

A.2. The Baseline Survey

3. In order to create a basis for monitoring the programme impact, in 2010, a start-of-project baseline study was conducted to establish the status of coastal fisheries in relation to the five planned programme outputs. A national non-governmental organization (NGO), The Learning Institute (LI), was contracted by the FAO to conduct the study from August to November, 2010, in collaboration with national and local units of the country's fisheries agency, the Fisheries Administration (FiA) of the Ministry of Agriculture, Forestry and Fisheries (MAFF).

4. The survey's coverage was 15 CFis in 40 villages of Cambodia's three coastal provinces, as well as government agencies in Phnom Penh. In conducting the survey, the LI/FiA team followed six steps, namely 1) literature review; 2) design of the baseline survey methodology; 3) presentation of the approach to the FAO and testing; 4) preparation of the action plan for the field work; 5) data entry and processing; and 6) information validation and finalization of the baseline survey report.

5. As part of the design of the baseline survey methodology, the RFLP, the Learning Institute and the FiA jointly developed 38 indicators covering 14 sub-outputs divided between the five programme outputs mentioned above. The development of indicators was based on earlier work of the RFLP at a dedicated regional workshop in Phuket, Thailand, in April 2010, and 'Baseline Survey Guidelines', which emerged from that workshop. Methods to collect information under each of these indicators include focus group discussions and individual interviews. Where applicable, the indicators provide information on a logical sequence of four items regarding each sub-output or theme: situation; awareness; satisfaction; and implementation/uptake. In exploring

respondents' degree of awareness, satisfaction and uptake, interviewees were given the choices of 'high', 'not high/not low', and 'low'.

6. A total of 778 people from 15 stakeholder groups were interviewed, of which 624 came from CFis at village level (among them 101 CFi committee members and 89 female members), and 53 respondents from government agencies at commune and provincial levels.

7. Baseline survey results were discussed at two meetings in October and December 2010. It was agreed, that the 'start-of-project baseline values' would be those relating to the 'high' scores – i.e. the percentages choosing the response `high'.
They are summarized in a table below.

B. Survey Results

B. 1. Output 1: Fisheries co-management is improved

8. Two major sub-outputs were formulated under *Output 1: Fisheries Co-management*, namely *Policies and processes applied by stakeholders to support fisheries co-management strengthened* and *Roles and functions of key fisheries stakeholders to manage resources sustainably improved*. A total of 13 indicators were developed to assess the baseline situation regarding these two sub-outputs.

9. *Strengthened policies and processes supporting fisheries co-management* relates mainly to the organizational and institutional performance of the co-management bodies (that is, CFis) supported by the project. More specifically, almost all CFis under RFLP support are officially registered by MAFF (overall 87 percent, but none in Kampot/Kep). Similarly, most CFis have a complete set of documents necessary for their operations (84 percent), CFi management and actions plans have been implemented by 28 percent, with a high implementation rate of 42 percent in Kampot/Kep. Overall, 11 percent of fishers are highly satisfied with the CFis setup, although only 4 percent of women expressed the same level of satisfaction. Similarly, women's presence in co-management decision-making bodies (CFi committees) is a low 15 percent. Although practically all government staff interviewed expressed a high level of satisfaction with policies to support fisheries co-management (100 percent), their satisfaction with regard to the implementation of such policies is less evident (0 percent).

10. *Improved roles and functions of key fisheries stakeholders* relates mainly to the actual and potential uptake of benefits from co-management by individual fishers and their families. Only around 2 percent of respondents indicated that they feel that they really participate in CFi management, while most characterize their involvement as *non-participation.* Similarly, the general awareness of fishers and their household members about CFi issues and affairs is a low 2 percent, with women scoring as low as 1 percent. However, 19 percent of fishers and their household members expressed high satisfaction with CFi activities and their implementation, and as many as 30 percent indicated that they were actually involved in them. Only 7 percent of respondents reckoned that their fisheries resource situation was good. However, a relatively high number of fishers and their household members have high hopes that the work of CFis will have a positive impact on their fisheries (48 percent).

11. The baseline value with regard to sub-output *Strengthened policies and processes* is 20 percent and *Improved roles and functions of key fisheries stakeholders* 18 percent. The overall 'start-of-project' baseline value for *Output 1: Fisheries Co-management improved* is 19 percent.

B. 2. Output 2: Safety-at-sea is improved

12. Three major sub-outputs were formulated under *Output 2: Safety at sea*, namely *Related information is accessed and used by fishers and boat builders*; *Related legal regulations are adapted and applied by fishers and boat builders*; and *Local villagers are confident in preparing for coastal disasters*. Six indicators were developed to assess the baseline situation regarding these three sub-outputs.

13. Under the sub-output *Safety-at-sea-related information is accessed and used by fishers and boat builders*, the survey team looked at four main types/reasons for fishing accidents - engine breakdown [36 percent of all accidents]; storms/weather [31 percent]; gear loss [4 percent]; boat collision [1 percent] - which are practically never reported (1 percent). There is a very low awareness of safety-at-sea issues by fishers (3 percent) and a complete lack of compliance by fishers and boat builders with safety-at-sea recommendations (0 percent).

14. Conditions for sub-output *Legal regulations for boat construction, boat equipment and boat registration are adapted and applied by boat builders and fishers* are difficult, as there is a complete lack of compliance by fishers and boat builders with legal safety-at-sea regulations (0 percent). Furthermore, there is no fishing boat registration whatsoever (0 percent).

15. With regard to sub-output *Community members/villagers are confident in preparing for coastal disasters,* the survey showed that the awareness of potential coastal disasters and measures to prepare for them by inhabitants of coastal villagers, is non-existent (0 percent). Consequently, the population's engagement in disaster mitigation is completely lacking (0 percent).

16. The baseline value with regard to sub-output *Related information is accessed and used by fishers and boat builders* is 1 percent, to sub-output *Related legal regulations are adapted and applied by fishers and boat builders* it is 0 percent, and to sub-output *Local villagers are confident in preparing for coastal disasters* it is 0 percent. The overall 'start-of-project' baseline value for *Output 2: Safety at sea improved* is 1 percent.

B. 3. Output 3: Post-harvest product and marketing are improved

17. Five major sub-outputs were formulated under *Output 3: Post-harvest and marketing*, namely *Improved access and use of post-harvest skills, knowledge and facilities*; *Reduced post-harvest loss perceived by government staff*; *Increased consumer satisfaction with fish product quality and accessibility*; *Improved fishers' access to, and influence in, the market*; and *Enhanced government capacity to support post-harvest fisheries*. A total of six indicators were developed to assess the baseline situation regarding these five sub-outputs.

18. The survey attested to the fact that only 2 percent of fishers and fish processors rate their *Awareness of post-harvest issues* as good or better.

19. Government staff interviewed did not consider existing post-harvest practices and results to be compliant with national standards.

20. High *Consumer satisfaction with fish products* in terms of quality was attested by 12 percent of respondents and in terms of accessibility by 13 percent.

21. *Improved access and increased influence in the market* was attested by 14 percent of fishers (*Access*), and 9 percent (*Influence*), respectively.

22. Enhanced government capacity to support fisheries post-harvest policies and activities is low (<1 percent), so is satisfaction among government staff with fisheries post-harvest policies and activities - 0 percent. A low amount of government budget directed at the sub-sector (<1 percent); a low number of government technical staff working on fisheries post-harvest issues (1 percent); and a complete lack of application of relevant regulations to support and/or control post harvest fisheries (0 percent).

23. The baseline value with regard to sub-output *Improved access and use of post-harvest skills, knowledge and facilities* is 2 percent. To sub-output *Reduced post-harvest loss perceived by government staff,* it is 0 percent. To sub-output *Increased consumer satisfaction with fish product quality and accessibility,* it is 13 percent. To sub-output *Improved fishers' access and influence in the market* it is 11 percent. And to sub-output *Enhanced government capacity to support post-harvest fisheries* it is 1 percent. The overall start-of-project baseline value for *Output 3:Post-harvest and marketing improved* is 6 percent.

B. 4. Output 4: Fisheries livelihoods are enhanced and diversified

24. Two major sub-outputs were formulated under *Output 4: Fisheries livelihoods are enhanced and diversified,* namely *Fishers and CFi members enhanced existing livelihoods and made use of new livelihood opportunities,* and *Capacity of service providers to support livelihood enhancement and diversification improved*. Six indicators were developed to assess the baseline situation regarding these two sub-outputs.

25. The sub-output *Fishers and CFi members enhanced existing livelihoods and made use of new livelihood opportunities* is characterized by some degree of awareness among fishers and their household members about the livelihood opportunities that currently exist (overall 9 percent, but up to 24 percent in Kampot and Kep). But there is a lack of awareness about future livelihood options (0 percent), although there is some satisfaction with existing livelihood opportunities (overall 8 percent, 13 percent in Kampot/Kep). There is a high implementation rate of 33 percent for planned livelihood improvement activities (up to 53 percent in Kampot and Kep), and a degree of 25 percent in the adoption and uptake of livelihood diversification by fishers and their household members.

26. The baseline situation of the sub-output *Improved capacity of service providers to support livelihood enhancement and diversification* is determined by a high degree of awareness of service providers about opportunities and options for livelihoods diversification (73 percent). But there was a low degree of recipient satisfaction with the actual provision of service to support livelihood enhancement and diversification (6 percent).

27. The baseline value with regard to sub-output *Fishers and CFi members enhanced existing livelihoods and made use of new livelihood opportunities* is 15 percent. With regard to sub-output *Capacity of service providers to support livelihood enhancement and diversification improved*, it is 39 percent. The overall 'start-of-project' baseline value for *Output 4: Fishers livelihoods enhanced and diversified* is 27 percent.

B. 5. Output 5: Access to micro-finance is improved

28. Two major sub-outputs were formulated under *Output 5: Access to micro-finance improved*, namely *Increased awareness of credit availability and savings mobilization*; and *Improved delivery of credit to fisher communities by government and private banks and micro-finance institutions*. Three indicators were developed to assess the baseline situation regarding these two sub-outputs.

29. With regard to the sub-output of *Increased awareness of credit availability and savings mobilization*, a relatively high percentage of 45 percent of respondents use major financial service providers, such as formal micro-credit institutions (47-76 percent), community savings and credit groups (100 percent of women in Koh Kong!) and middlemen (36-53 percent, in particular women in Preah Sihanouk province). In contrast to local informal financing arrangements, which are well known and understood, there is no (0 percent) awareness whatsoever among fishers and their household members about conditions, rights and obligations of clients interacting with formal banking services.

30. Regarding *Improved delivery of credit to fisher communities by government and private banks and micro-finance institutions*, 4 percent of respondents indicated a high degree of satisfaction with the performance of formal banks and micro-finance institutions in providing credit to fishers.

31. The baseline situation with regard to the sub-output *Increased awareness of credit availability and saving mobilization* is 22 percent, and to the sub-output *Improved delivery of credit to fisher communities by government and private banks and micro-finance institutions* it is 4 percent. The overall 'start-of-project' baseline value for *Output 5: Access to micro-finance improved* is about 16 percent.

C. Conclusions and Recommendations

C. 1. Conclusions

32. The Baseline Survey was successfully implemented, and has yielded its intended result. That is, 'start-of-project' baseline values, which can be used to measure RFLP/CAM programme

impact during its implementation, and during possible *mid-term* and/or *'end-of project' evaluations*. In addition, the baseline information as a whole, and the respective baseline values, may also be used in directing project interventions, both thematically and geographically.

33. For each of the five programme outputs, sub-outputs and indicators, average baseline values are as follows: For *Output 1: Fisheries Co-management* it is 19 percent; for *Output 2: Safety-at sea* it is 1 percent; for *Output 3: Fisheries Post-harvest and Marketing* it is 6 percent; for *Output 4: Livelihoods and Community Development* it is 27 percent; and for *Output 5: Micro-finance* it is 13 percent. The overall baseline value across all outputs of RFLP/CAM is 13 percent.

34. Average baseline values across four provinces show no great differences. They are 'highest' in Kampot and Kep (12 percent), followed by Preah Sihanouk (11 percent) and Koh Kong (8 percent). Differences in performance may be due to long-term support by several government agencies, international organizations and both national and international NGOs in some provinces (Kampot and Kep, for example), and issues such as geographical distance or institutional setups (as in Koh Kong). However, this apparent homogeneity disguises some interprovincial difference for some outputs, and even intra-provincial differences and discrepancies.

35. Reasons for differences in baseline values between outputs and provinces are not immediately clear.

C.2. Recommendations

36. On the basis of the baseline values obtained, annual target values for all indicators should be developed.

37. The baseline information and values obtained should be reflected on and interpreted, and used in (re-) directing programme interventions from a 'one size fits all' to a demand-driven and situation-specific approach.

38. Considering that the programme so far scores better on more bureaucratic issues (in fisheries co-management for example), and less with regard to genuine engagement by ordinary users/members, there is a need to formulate and implement activities for improving communication and interaction both within CFis as well as between CFis and supporting agencies and organizations.

39. As the baseline information has revealed relatively high scores on awareness about a number of issues, but low scores on satisfaction and actual uptake and/or implementation, project interventions need to be directed at strengthening local action, for instance, through facilitation of community stakeholder funding.

40. As women are clearly less satisfied with, and engaged in, fisheries management and livelihood development activities resulting from other agencies' and organizations' interventions, RFLP/CAM clearly needs to develop a special emphasis on the situation of women in coastal fisheries. Ideas should be developed with a view to addressing women's needs specifically through co-management plans and their implementation, and to strengthen women's participation in CFi decision-making bodies.

SUMMARY TABLE OF BASELINE VALUES (BVS)

Outputs/**Sub-Outputs**/Indicators	BV (2010)
CO-MANAGEMENT	**19%**
Policies and processes applied by stakeholders to support fisheries co-management have been strengthened.	**20%**
Number of CFis (or any other 'co-management mechanism') established/improved/officially recognized by MAFF.	1%
Degree/extent of completeness of CFi documentation.	84%
Degree/extent of implementation of CFi action/management plans.	28%
Degree/extent of fisher satisfaction with co-management/CFi activities.	11%
Degree/extent of women's satisfaction with co-management/CFi activities.	4%
Degree/extent of women's participation in co-management decision-making.	15%
Degree/extent of Government Officer satisfaction with policies implementation to support fisheries co-management.	0%
Roles and functions of key fisheries stakeholders to manage resources sustainably have been improved.	**18%**
High quality of CFi member participation in fisheries management.	2%
Degree/extent of fishers'/fisher household members' awareness of CFi activities and their implementation	1%
Degree/extent of fishers'/fisher household members' satisfaction with CFi activities and their implementation.	19%
Degree/extent of fishers'/fisher household members' engagement/involvement in CFi activities.	30%
Degree/extent of fisher/fisheries resource managers' (both CFi and non-CFi) satisfaction with the availability of fish resources.	7%
Degree/extent of fishers'/fisher household members' expectation of CFi impact on fish resources.	48%.
SAFETY AT SEA	**1%**
'Safety-at-sea'-related information is accessed and used by fishers and boat builders	**1%**
Number per type/reason of fishing accidents regularly reported by fishers/government fisheries officers.	0%
Degree/extent of awareness of safety-at-sea issues by fishers.	3%
Degree/extent of fishers'/boat builders' compliance with safety-at-sea recommendations.	0%
Legal regulations for boat construction, boat equipment and boat registration are adapted and applied by boat builders and fishers.	**0%**
Degree/extent of fishers'/boat builders' compliance with safety-at-sea regulations as stipulated by law.	0%
Degree/extent of fishing boat registration.	0%
Community members/villagers are confident in preparing for coastal disasters.	0%
Degree/extent of awareness about potential coastal disasters and measures to prepare for them by community members/villagers.	0%
Degree/extent of community members'/villagers' engagement in disaster preparation measures.	0%
Degree of awareness of fishers and their families about the eight listed natural coastal disasters. (They know only the `normal' ones of storm and flood.)	0%.
POST HARVEST AND MARKETING	**6%**
Post-harvest skills, knowledge and facilities are accessed and used by fishers/fish processors.	**2%**

Outputs/**Sub-Outputs**/Indicators	BV (2010)
Degree/extent of awareness about post-harvest issues by fishers and fish processors.	2%
Government officers perceive a reduction in post-harvest loss/improvement in post-harvest quality.	**0%**
Degree/extent of Government Officers' satisfaction with specific fish products meeting agreed national quality standards.	0%
Consumers' satisfaction in terms of quality and accessibility of products has increased.	**13%**
Degree/extent of consumers' satisfaction with accessibility of fish products.	13%
Degree/extent of consumers' satisfaction with the quality of fish products.	12%
Fishers have improved access and increased influence/bargaining power in the market.	**11%**
Degree/extent of fishers' satisfaction with access to the market.	14%
Degree/extent of fishers' satisfaction with their influence in the market.	9%
Government has enhanced its capacity to support post-harvest fisheries.	**1%**
Degree/extent of Government Officers' satisfaction with policies to support post-harvest fisheries.	0%
Amount/percentage of government budget available for support to post-harvest fisheries.	1%
Number/percentage of government fisheries officers working on post-harvest fisheries	1%
Number/percentage of relevant regulations applied to support/control post-harvest fisheries.	0%
LIVELIHOODS ENHANCEMENT AND DIVERSIFICATION	**27%**
Fishers and CFi members enhanced existing livelihoods and made use of new livelihood opportunities	**15%**
Degree/extent of awareness of fishers and fisher household members about present livelihoods.	9%
Degree/extent of awareness of fishers and fisher household members about future livelihood options.	0%.
Degree/extent of fishers' and fisher household members' satisfaction with their existing livelihoods.	8%
Number of livelihood improvement activities "implemented".	33%
Degree/extent of adoption/uptake of livelihood diversification by fishers and fisher household members.	25%
Capacity of service providers to support livelihood enhancement and diversification improved.	**39%**
Degree/extent of awareness of service providers about opportunities/options for livelihoods diversification.	73%.
Degree of recipient satisfaction with the provision of services to support livelihood enhancement and diversification.	6%
MICRO-FINANCE	**13%**
Increased awareness of credit availability and saving mobilization	**22%**
Percentage of fishers/fisher household members who use any of a list of major financial service providers.	45%
Awareness of fishers and fisher household members about banking services, including savings and credit facilities, rights, and responsibilities.	0%
Government and private banks and micro-finance institutions' delivery of credit to fisher communities has improved	**4%**
Degree/extent of fisher community members' satisfaction with delivery of credit by government and private banks and micro-finance institutions	4%

A. INTRODUCTION

A.1. Regional Fisheries Livelihoods Programme

The Regional Fisheries Livelihoods Programme RFLP, which began activities in September 2009, is funded by Spain (USD 19.54 million) and will operate for four years in Cambodia, Indonesia, the Philippines, Sri Lanka, Timor-Leste and Viet Nam. RFLP management, including the Regional Programme Manager, the Senior Technical Advisor and the Information Officer, are based in the FAO Asia and the Pacific Offices in Bangkok, Thailand, while each country has a national RFLP office located in the main area of RFLP geographic focus.

The primary stakeholders and target beneficiaries are (i) coastal fishers, processors, traders and their families, their organizations and their communities, including the local authorities and; (ii) government organizations and institutions responsible for the administration, management and development of the coastal fisheries at local, district/province and national levels.

The RFLP will make a contribution to: "Improved livelihoods and reduced vulnerability of small-scale fishing communities in the participating countries and in the South and Southeast Asian region".

The RFLP expected outcome is: "Strengthened capacity among participating small-scale fishing communities and their supporting institutions towards improved livelihoods and sustainable fisheries resources management".

The RFLP expected outputs are:

- Measures to improve co-management mechanisms for sustainable utilization of fishery resources
- Measures to improve safety and reduce vulnerability for fisher communities and other community members
- Measures for improved quality of fishery products and market chains to reduce health hazards and add value
- Measures to strengthen existing and diversified income opportunities for fishers
- Measures to facilitate access to micro-finance services for fishers, processors and vendors
- Measures to regionally share knowledge in support of livelihood development and reduced vulnerability for fisher communities, and of sustainable fisheries resource management.

A. 2. Baseline survey

In order to verify the achievement of the project outcomes, this baseline study will establish the current status of issues pertaining to five of the six RFLP outputs in the three coastal provinces of Cambodia including Preah Sihanouk, Koh Kong, and Kampot and Kep, against which RFLP progress and impact will be measured.

The Learning Institute was contracted by the FAO Cambodia Representation Office to implement this study from August to November 2010 in collaboration with the Fisheries Administration (FiA) and Fisheries Administration Cantonments.

A.2.1. Objectives

The main objective of the baseline study was to collect baseline data to be used by RFLP Cambodia for monitoring and evaluation, to assess project progress towards activity milestones, output indicators and overall project impact. The study gathered relevant information mainly from RFLP stakeholders in 40 pre-selected target villages in Preah Sihanouk, Koh Kong, and Kampot and Kep provinces of coastal Cambodia, and Phnom Penh.

A.2.2. Scope of the baseline survey

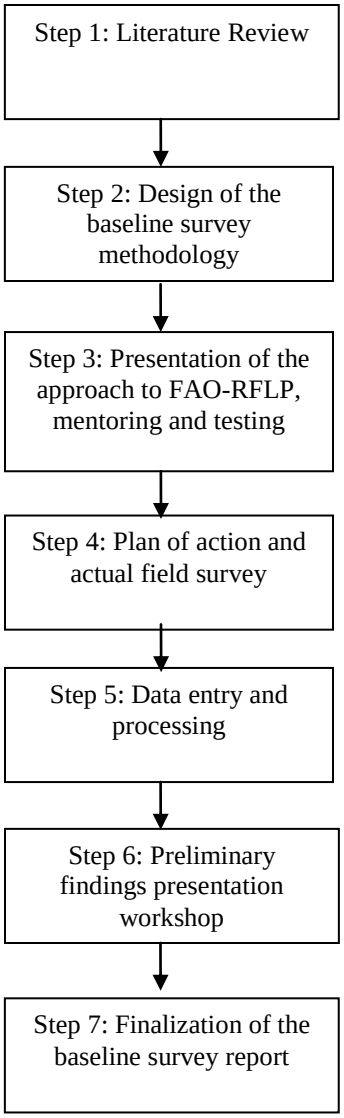
The baseline study includes the collection of secondary data, development, testing and refinement of survey materials, mentoring of the baseline survey data collection team, and mainly collection of baseline data using a variety of different participatory techniques as necessary, data entry, data analysis and baseline survey report writing. Field work was conducted in 40 target villages in Preah Sihanouk, Koh Kong, and Kompot and Kep provinces. Villagers in these 40 villages have organized themselves into 15 Community Fisheries (CFis), namely three CFis in Koh Kong, six CFis in Preah Sihanouk, four CFis in Kampot and two CFis in Kep.

A.2.3. Baseline methodology

A.2.3.1. Main steps of the survey

The survey follows seven main steps to collect information and complete this assignment including:

Diagram 1: Baseline survey main steps[1]



The baseline survey team gathered the existing data from various sources (RFLP programme documents, published statistics related to socio-economic issues and fisheries-related livelihoods in Cambodia, project reports, research papers, and government departmental data). They also referred to livelihoods information from past and current fisheries and aquaculture development projects from NGOs, INGOs and governmental agency partners, including Integrated Marine Resource Management (IMM Ltd), Fisheries Administration projects, the WorldFish Center, Southeast Asian Fisheries Development Center (SEAFDEC), NREM and Livelihoods Program (Danida), International Collective in Support of Fish-workers (ICSF), FAO funded projects, United Nations Environmental Program (UNEP) funded projects, Coastal Resource Institute, Wetlands Alliance, etc.

[1] Refers to the technical proposal submitted to FAO

The relevant information reviews, and categories for preliminary analysis and writing-up, follow the draft outline of the baseline survey final report developed by the survey team in consultation with the RFLP international consultant (co-management and baseline survey) and the RFLP Cambodia team. This information also helped to guide the primary data collection from the three provinces.

After finishing the literature review, the research team used the baseline survey guidance developed by IMM Ltd at Phuket regional workshop to design the Cambodia component indicators for monitoring and evaluation of the programme progress and impact, as well as the information framework for the baseline study. Using these indicators, the baseline survey team designed the formats for discussion, sample selection, questionnaires, checklists and also the strategy for field data collection. The approach and methodology comprised both qualitative and quantitative information gathered through different types of discussion including a series of focus group discussions (FGDs), key informant interviews, and household interviews with multi-level stakeholders - national, provincial, communal and community.

The baseline survey team presented the draft version of the baseline survey approach and methodology to the FAO team for further comment at a meeting held on the 30th and 31st August 2010. There were 10 participants, including, from the FAO RFLP Cambodia component office - Wolf Hartmann (International Consultant on co-management and the baseline survey), Thay Somony (National Project Coordinator), Nom Sophearith (National Monitoring and Evaluation Officer), and Yos Chanthana (National Consultant on co-management) - and from the Learning Institute - Sim Bunthoeun (baseline survey team leader), Chap Sopanha (baseline survey field coordinator), Ngor Pengbun (baseline survey senior researcher), Suy Serywath (baseline survey senior researcher) and another two field researchers.

After the presentation the baseline survey team, the FAO-RFLP Cambodia component team and the international consultant jointly tested the draft survey approach and methodology at Banteay Prey and Tomnob Rolok Community Fisheries in Preah Sihanouk province from 1st to 3rd September 2010.

Through testing and on-going discussion with both the international consultant and national FAO-RFLP Cambodia component project team, some refinements were made to RFLP Cambodia's component indicators, stakeholders and sample scale, and the tools for field data collection.

After designing the survey methods and tools, the survey team conducted the field work in three different provinces (Koh Kong, Preah Sihanouk, and Kampot and Kep). Once the field work had been completed, the team worked on data entry and analysis then presented the preliminary results to the FAO-RFLP team and other provincial stakeholders in Preah Sihanouk province.

Once the presentation was completed, feedback and comments emerged and were incorporated into the draft of the final report of the survey.

A.2.3.2. Stakeholder Identification

With reference to the suggestions for revision, the baseline survey team identified the stakeholders to be engaged for the field consultations and interviews. In consultation with the RFLP Cambodia project team and the international consultant, relevant stakeholders were prioritised according to outputs. Below are the key groups of relevant stakeholders for each output.

Table 1: Stakeholder groups

Stakeholder Groups/Outputs	Stakeholder Groups
Co-management	CFi fishers
	Non-CFi fishers
	CFi committee members
	Commune councillors
	FiA Cantonment and Inspectorate
	Provincial Department of Environment
	Community Fisheries Development Department (CFDD/FiA)
	Provincial based NGOs (CORIN, CWDCC, SEAFDEC, AFSC, FACT, Development Partner in Action (DPA) etc.)
Safety at sea	Boat owners/skippers
	Boat builders
	Crew members
	Commune councils
	Navy representatives
	FiA Cantonment and Inspectorate
	Provincial Department of Meteorology representatives
	Department of Fisheries Affairs representative
	Department of Transport/Ministry of Public Works, Transport, Tele-communication
Post-harvest and marketing	CFi fishers
	Non-CFi fishers
	CFi committee members
	Traders and middlemen (wholesalers, retailers and transporters)
	Commune councillors
	FiA Cantonment and Inspectorate
	Department of Fisheries Post-harvest Technology and Quality (DFPTQ)
	Provincially based NGOs (CORIN, CWDCC, SEAFDEC, AFSC, FACT, DPA etc.)
Livelihoods/income diversification	CFi fishers
	Non-CFi fishers
	CFi committee members
	Commune councillors
	FiA Cantonment and Inspectorate
	Relevant provincial agencies (Agriculture; Women's Affairs; Environment)
	Central FiA staff (CFDD; GWG; …)

Stakeholder Groups/Outputs	Stakeholder Groups
	Provincially based NGOs (CORIN, CWDCC, SEAFDEC, AFSC, FACT, DPA etc.)
Micro-finance	CFi fishers
	Non-CFi fishers
	CFi committee members
	Banks agencies representatives
	Traders and middlemen

A.2.3.3. Sample Selection

Linked to the stakeholder identification above, different levels were categorized for consultation and interview for each output of the programme. The baseline survey team divided stakeholders into four levels including national, provincial, community (fishers, traders/processors, crew members etc.) and commune.

The national level included the Community Fisheries Development Department (CFDD), the Department of Fisheries Affairs, the Department of Post-harvest Technology and Quality Control, and the Gender Working Group of the Fisheries Administration (FiA).

The provincial level included representatives from the Marine Fisheries Inspectorate, the Fisheries Administration Cantonments, the Provincial Department of Environment, the Navy, the Provincial Department of Meteorology, the Provincial Department of Agriculture, the Provincial Department of Women's Affairs, provincially-based NGOs and micro-finance institutions.

The community level included the community committee, the CFi and non-CFi fishers, crew members, boat builders, boat owners etc. and traders who were operating their businesses in the community. Lastly, the commune level included commune councillors and fisher households.

In order to ensure the accuracy and confidence level of the baseline information, in consultation with the international consultant and the RFLP Cambodia project team, the baseline survey team selected the 90 percent confidence level with a 10 percent level of error for sample calculation according to the Yamen Taro method[2].

Using this method, the team classified calculations into two types namely 1) A calculation of the total population of the three provinces and 2) A provincially-based calculation of the total population. The provincially-based total population calculation was applied to CFis and non-

[2] $n = \frac{N}{1 + N(e)2}$

n : Number of samples

N : Total number of population

e : Percentage of error

CFis fishers as it gives a representative number of samples, while the calculation relating to the total population of the three provinces was applied for the other stakeholder groups.

As indicated in the table below the total number of sample stakeholders is up to 3,106 frequencies within 1,023 people – i.e. some people were included under more than one output (see table 2: sample selection). The survey team applied the household random sampling strategy for each community to conduct the interviews with CFi fishers, non-CFi fishers, boat owners, boat builders, crew members, traders and fish processors.

Table 2: Sample selection

Stakeholder Groups/Outputs	Stakeholder Groups	Population	Preah Sihanouk	Koh Kong	Kampot & Kep	Calculated Sample[3]
Co-management	CFi fishers	9,447[4]	1,888 (95)	1,952 (95)	5,607 (98)	288
	Non-CFi fishers	18,170	5,259 (98)	10,302 (99)	2,609 (96)	293
	CFi committee members	105	20	15	16	51
	Commune councillors	80	16	12	16	44
	FiA Cantonment and Inspectorate	16	5	4	4	13
	Provincial Department of Environment	4	1	1	2	4
	Community Fisheries Development Department (CFDD/FiA)	5				5
	Provincial based NGOs (CORIN, CWDCC, SEAFDEC, AFSC, FACT, DPA etc.)	9	2	2	4	8
Sub-Total Co-management						
Safety at sea	Boat owners/skippers	800	34	34	20	88
	Boat builders	30	12	13	8	23
	Crew members	2,500	35	35	26	96
	Commune councils	80	16	12	16	44
	Navy representatives	9	3	2	3	8
	FiA Cantonment and Inspectorate	16	5	4	4	13
	Provincial Department of Meteorology representatives	4	1	1	2	4
	Department of Fisheries Affairs representative	5				2
	Department of Transport/Ministry of Public Works, Transport, Tele-communication	4				1
Sub-Total Safety at sea						

[3] 90% confidence level and 10% margin of error.

[4] Sources from the CFi management plan from the Fisheries Administration

Stakeholder Groups/Outputs	Stakeholder Groups	Population	Preah Sihanouk	Koh Kong	Kampot & Kep	Calculated Sample[3]
Post-harvest and marketing	CFi fishers	9,447	1,888 (95)	1,952 (95)	5,607 (98)	288
	Non-CFi fishers	18,170	5,259 (98)	10,302 (99)	2,609 (96)	293
	CFi committee members	105	20	15	16	51
	Traders and middlemen (wholesalers, retailers and transporters)	100	17	15	18	50
	Commune councillors	80	16	12	16	44
	FiA Cantonment and Inspectorate	16	4	4	4	13
	Department of Fisheries Post-harvest Technology and Quality (DFPTQ)	5				3
	Provincially based NGOs (CORIN, CWDCC, SEAFDEC, AFSC, FACT, DPA etc.)	9				8
Sub-Total Post-harvest and marketing						
Livelihoods/income diversification	CFi fishers	9,447	1,888 (95)	1,952 (95)	5,607 (98)	288
	Non-CFi fishers	18,170	5,259 (98)	10,302 (99)	2,609 (96)	293
	CFi committee members	105	20	15	16	51
	Commune councillors	80	16	12	16	44
	FiA Cantonment and Inspectorate	16	4	4	4	13
	Relevant provincial agencies (Agriculture; Women's Affairs; Environment)	12	4	4	4	12
	Central FiA staff (CFDD; GWG; …)	18				15
	Provincially based NGOs (CORIN, CWDCC, SEAFDEC, AFSC, FACT, DPA etc.)	9				8
Sub-Total Livelihoods/income diversification						
Micro-finance	CFi fishers	9,447	1,888 (95)	1,952 (95)	5,607 (98)	288
	Non-CFi fishers	18,170	5,259 (98)	10,302 (99)	2,609 (96)	293
	CFi committee members	105	20	15	16	51
	Bank agencies representatives	24	5	5	5	15
Sub-Total Micro-finance						

Stakeholder Groups/Outputs	Stakeholder Groups	Population	Preah Sihanouk	Koh Kong	Kampot & Kep	Calculated Sample[3]
Grand Total						**3,106**[5]

A.2.3.4. Sex Disaggregation

The survey team acknowledged gender differences within the survey. Therefore, where possible, a number of women were randomly selected from all respondents with whom interviews were conducted in order to understand the different perspectives between women and men in relation to each output. However, if the responses between women and men did not differ, or were not of special note, the analysis does not differentiate between the genders.

A.2.3.5. Methods and Tools for Data Collection

Based on the agreed revised indicators, types and sample size of stakeholders (respondents), three tools were selected for consultations and interviews during field data collection. These included Focus Group Discussions, Key Informant Interviews and Individual Household Interviews.

National level: the Key Informant Interviews with key national stakeholders at national level were conducted using the checklist and questionnaires in order to make sure that information was correct and validated regarding the above indicators (Annex 01: Questionnaires).

Provincial level: at the provincial level, for institutions such as the Marine Fisheries Inspectorate, Fisheries Administration Cantonments, the Provincial Department of Environment, Provincial Department of Meteorology, the Provincial Department of Agriculture, the Provincial Department of Women's Affairs, provincially-based NGOs and micro-finance institutions, a series of Focus Group Discussions were conducted to better understand:

1) The number of CFis established/improved/officially recognized by Fisheries Administration Cantonments

2) The degree/extent of government officers' satisfaction with policies to support fisheries co-management

3) Degree/extent of fisheries resources managers' satisfaction with the availability of fisheries resources

4) Degree/extent of fishing boat registration

5) Degree/extent of government officers' satisfaction with specific fisheries products meeting agreed national quality standards

6) Degree/extent of government officers' satisfaction with policies to support post-harvest fisheries

7) Amount/percentage of government budget available to support post-harvest fisheries

[5] 3106 samples (1023 persons)

8) Number/percentage of government fisheries officers working on post-harvest fisheries

9) Number/percentage of relevant regulations applied to support/control post-harvest fisheries, and

10) Degree/extent of awareness of service providers in respect of opportunities/options for livelihoods diversification.

Checklists and questionnaires were used to prompt these discussions (Annex 01: Questionnaires).

Community level: at the community level, Focus Group Discussions were conducted among Community Fisheries committee members in order to gain an understanding and detailed information about:

1) Degree/extent of completeness of CFi documentation

2) Degree/extent of implementation of CFi action plans/management plans

3) Quality of stakeholders'/CFi members' participation in fisheries management

4) Degree/extent of fisheries managers' satisfaction with the availability of fisheries resources

5) Degree/extent of fishing boat registration

6) Number per type of fishing accidents regularly reported by fishers and/or by government fisheries officers or by the media including newspapers etc.

7) Number of livelihood improvement activities (implemented, under implementation, or planned)

Checklists and questionnaires were used to prompt these discussions (Annex 01: Questionnaires).

Furthermore, at the community level, another three kinds of Individual Household Interviews were conducted. Firstly, these were conducted with boat owners/skippers, boat builders, and crew members in order to gather detailed information on:

1) Degree/extent of awareness of issues relating to safety at sea by boat owners/skippers, boat builders, and crew members

2) Degree/extent of boat owners'/skippers' and boat builders' compliance with safety at sea recommendations

3) Degree/extent of boat builders' compliance with safety at sea regulations as stipulated by law

4) Degree/extent of awareness of potential coastal disasters and measures to prepare for them by CFi and non-CFi fishers

5) Degree/extent of CFi and non-CFi fishers' engagement in disaster preparation measures.

Specific checklists and questionnaires for this interview were used (Annex 01: Questionnaires).

Secondly, Individual Household Interviews were conducted with fish processors and middlemen/traders in order to capture detailed information about the degree/extent of awareness about post-harvest issues among fish processors/traders.

Separate checklists and questionnaires were used for these interviews (Annex 01: Questionnaires)

Lastly, Individual Household Interviews were conducted with CFi and non-CFi fishers in order to gather detailed information about:

1) Degree/extent of fishers' satisfaction with co-management/CFi activities

2) Degree/extent of women's satisfaction with co-management/CFi activities

3) Degree/extent of women's participation in co-management decision-making

4) Degree/extent of fishers'/their household members' awareness of CFi activities and their implementation

5) Degree/extent of fishers'/their household members' satisfaction with CFi activities and their implementation

6) Degree/extent of fishers'/their household members' engagement/involvement in CFi activities

7) Degree/extent of fishers' satisfaction with the availability of fisheries resources

8) Degree/extent of fishers'/their household members' expectations of CFi impacts on fisheries resources

9) Degree/extent of awareness about issues relating to safety at sea by fishers

10) Degree/extent of fishers' compliance with safety at sea recommendations

11) Degree/extent of fishers' compliance with safety at sea regulations as stipulated by law

12) Degree/extent of awareness about potential coastal disasters and measures to prepare for them by CFi and non-CFi fishers

13) Degree/extent of CFi and non-CFi fishers' engagement in disaster preparation measures

14) Degree/extent of awareness of post-harvest issues by fishers

15) Degree/extent of fishers' (consumers') satisfaction with the accessibility of fisheries products

16) Degree/extent of fishers' (consumers') satisfaction with the quality of fisheries products

17) Degree/extent of fishers' satisfaction with access to and influence on the market

18) Degree/extent of fishers'/their household members' satisfaction about present and future livelihoods options

19) Degree/extent of fishers'/their household members' satisfaction with their existing livelihoods

20) Degree/extent of adoption/uptake of livelihoods diversification by fishers/their household members

21) Degree/extent of recipient satisfaction with the provision of services to support livelihood enhancement and diversification

22) Degree/extent of fishers/their household members who use any of a list of major financial service providers

23) Degree/extent of fishers'/their household members' awareness of banking services, including savings and credit facilities, rights, and responsibilities

24) Degree/extent of fishers' satisfaction with the delivery of credit by government and private banks and micro-finance institutions.

Checklists and questionnaires were applied for these interviews (Annex 01: Questionnaires)

Commune level: in order to validate the results of the Focus Group Discussions from the community level, Key Informant Interviews were conducted with commune councillors using the checklist and questionnaires in order to validate the information regarding the above indicators (Annex 01: Questionnaires).

A.2.4. Limitation of the Baseline Survey

September to October is the rainy season and it was quite often stormy along the coastal provinces of Cambodia. This made travel difficult for the research team so that they could not easily, or quickly, reach the villages. The timelines relating to coastal fishers were also challenging as the inshore fishers normally go fishing around 4am and come back around 3pm, while offshore fishers normally go fishing around 4pm and come back around 8am. Therefore, these time differences in schedules hampered the completion of the sample respondent interviews.

B. BASELINE SURVEY FINDINGS

B.1. Chapter 01: Coastal fisheries and fisheries co-management

This chapter includes different types of information relating to fishers' perceptions about the current status of coastal resources, coastal Community Fisheries development and their involvement in implementation, as well as the perceptions of relevant stakeholders about coastal Community Fisheries policy implementation.

B.1.1. Status and availability of coastal fisheries resources

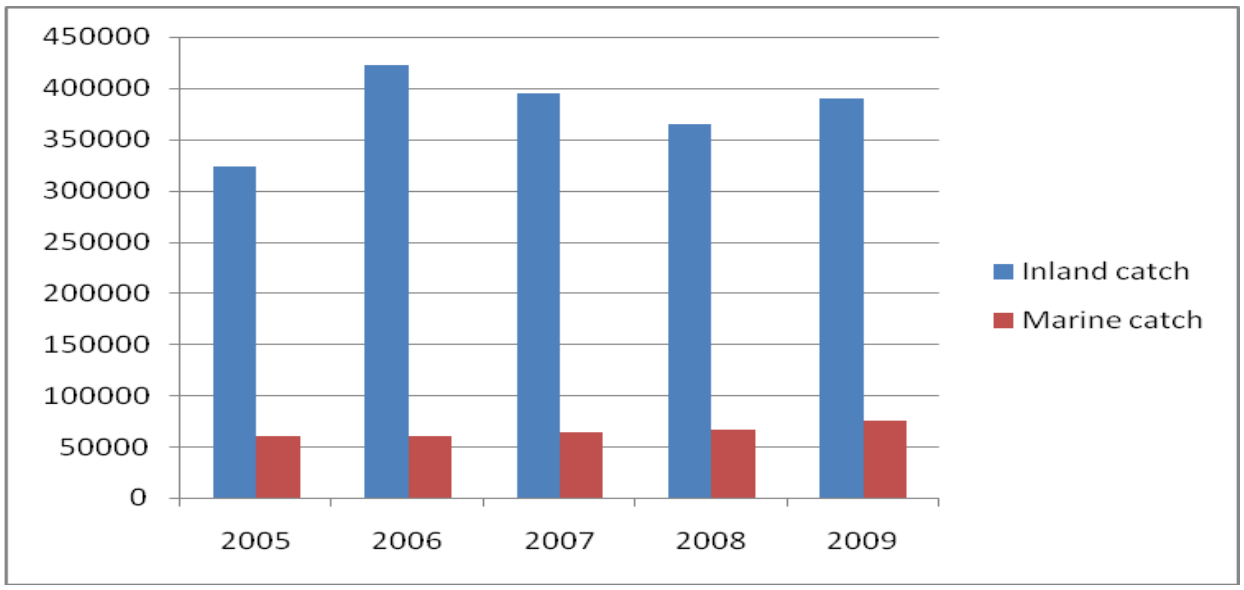
The coastal length of Cambodia is about 435 km. Mangrove forest was destroyed heavily in the 1990s, mainly for shrimp farms, and salt pans and for charcoal (totalling about 100,000 tonnes (Nasuchon, 2009).

In Cambodia, inland fisheries resources are very rich, providing animal protein for almost 75 percent of the total population of 14 million people. This takes attention away from coastal resources.

The survey confirmed that, in the coastal area of Cambodia, the socio-economic situation is very challenging. The lack of rice for food lasts for around three to six months per year, as most fishers farm on less than 0.5 ha of land. Furthermore, the literacy rate is low as 100 percent of the sample fishers were educated only to primary school level, access to public services (health and education) is quite limited, fish catches have declined, and fishers in the coastal area are facing fishing conflicts which take place mostly between small scale fishers and illegal trawling boats from both inside and outside of their communities. The capital investment of coastal fishers in Cambodia is insecure because of indebtedness (Campbell et al., 2006): fishers commonly lose their capital through an inability to pay debts to money lenders or middlemen. Therefore, they may have insufficient money to buy fishing gear, or to access markets because of substantial transaction costs including transportation costs and taxation fees at the market which reduce the benefits. In Cambodia, especially in respect of the coastal market which include both first sales and secondary sales, prices are controlled by the middlemen (ibid.). This, too, inhibits the ability of fishers to increase prices to enhance their incomes.

Coastal resources in Cambodia are being severely degraded. This is due to four factors: population growth, illegal fishing gear types, mangrove degradation and illegal fishing activities. In addition, destruction of coastal reef and sea grass is another major cause (MoE, 2009).

There are 525 species of marine fish, 20 species of marine crabs, 42 species of marine gastropods, 24 species of marine bivalves and 11 species of marine mammals (Tana 1997, Try 2003). However, among those species, only 26 are considered economic as annual catch species in the three provinces along the coastline. These include: tomato grouper (*Cephalopholis sonnerati),* whitespotted spinefoot (*Siganus canaliculatus)*, bullet tuna (*Auxis thazard*), narrowbarred (*Scomberomorus commerson*), fourfinger threadfin (*Eleutheronema tetradactylum*), obtuse barracuda (*Sphyraena obtusata*), great barracuda (*Sphyraena barracuda*), spottail shark (*Carcharhinus sorrah*), young black pomfret (*Parastromateus niger*), waigieu seaperch (*Psammoperca vaigiensis*), short mackerel (*Rastrelliger brachysoma*), yellowscale parrotfish (*Scarus ghobban*), spangled emperor (*Lethrinus mebulosus*), largescaled terapon (*Terapon theraps*), dorab wolf-herring (*Chirocentrus dorab*), malabar blood snapper (*Lutjanus malabaricus*), blood cockle (*Anadara granosa*), sulcate planaxis (*Planaxis sulcatus*), *Octopus* spp, trash fish, prawn, mud crab, swimming crab, rays, and shrimp paste or 'ky' (FiA, 2009). Marine fisheries catches have steadily increased from 60,500 tonnes in 2006 to 75,000 tonnes in 2009 (FiA 2009). Marine fisheries resources captured from the sea are: fish, trash fish, shrimp, cephalopods, slipper lobster, crab, snail, blood cockle, sea cucumber, and krill with different amounts of catch for each. The FiA report 2009 and H.E Chan Tong Yves 2010, summarized the catch as follow:



(Graphic 01: Fish catch by FiA 2009 and H.E Chan Ton Yves at CDC 2010)

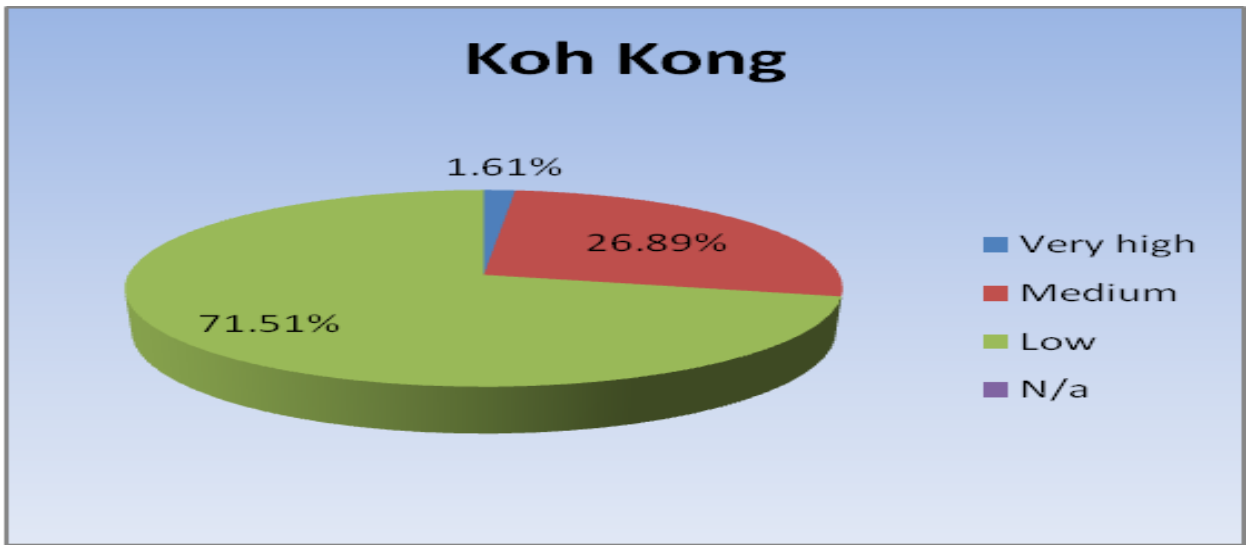
In 2001, two thirds of the total catch in the country comprised fish and trash fish. In addition, among the three provinces along the coastal resources, Sihanoukville leads in marine resources captured, followed by Koh Kong, then Kampot and Kep.

The share of inland and marine fisheries resources in GDP is around 8 to 12 percent. In 2000, Cambodia exported around 7,100 metric tonnes of marine products which were worth around USD 9.9 million (DoF, 2002). Then, in 2006, the revenue of marine fisheries was around USD 63.5 million (Puthy, 2007). However, revenue does not usually include illegal fishing from Thailand or illegal sales to other countries, because they are unreported. Also, other means of marine capture are not included, i.e. foreign fishers fishing in Cambodia who usually land their catch in neighbouring countries. In 2000, Cambodia exported fish products (marine and freshwater) worth around USD 32 million, while imports were worth only around USD 4 million.

B.1.1.1.Level of satisfaction of fishers/fisheries resource managers

KOH KONG PROVINCE

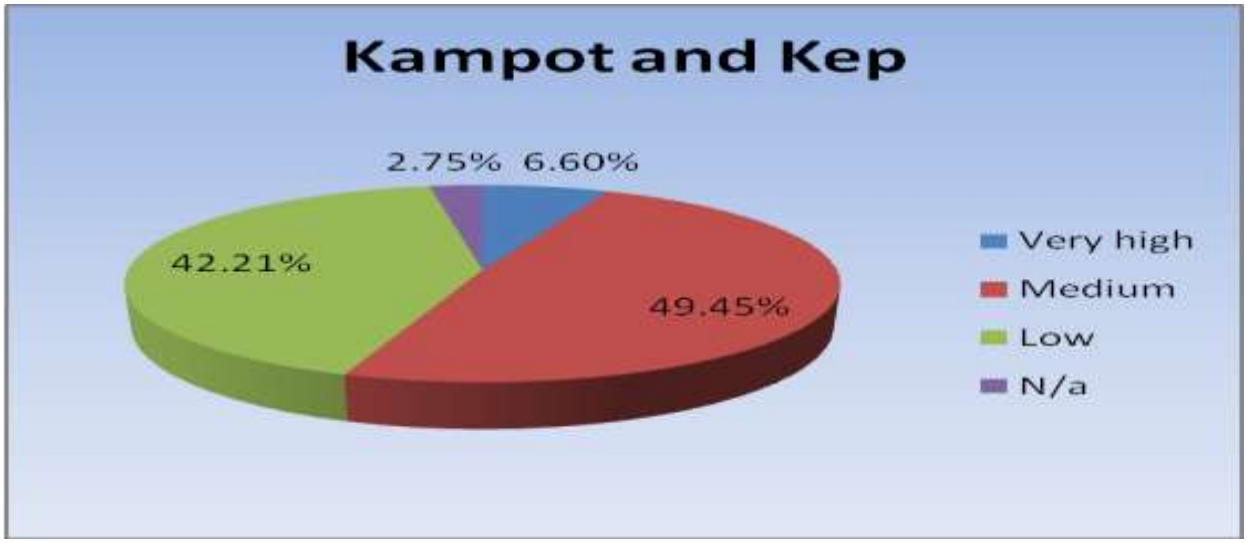
The survey confirmed that among the 186 respondents (including 23 females) in Koh Kong province, an average of 71.51 percent (133 respondents including 17 females) from both Community Fisheries and non-Community Fisheries indicated that they were not really satisfied with the status of resource availability (current catch). This is due to a depletion caused by the number of illegal fishing boats operating along the coast - including trawlers and engines pushing with small mesh sizes - as well as population growth.



(Graphic 02: Level of satisfaction of fishers with the resources available in Koh Kong province)

The factors mentioned above have led to a decrease in the level of marine resources as all sizes and types of resources can be caught, even juveniles. Small scale fishers reported that they normally catch an average of from 5 kg to 6 kg of swimming crab with the very huge crab nets - on average 1,000 m in length (10 pieces). The size of crabs is small, ranging from 4 cm to 8 cm. So these factors meant that they are not satisfied with the resources available. Only 26.89 percent (50) of respondents felt a medium level of satisfaction with these resources as they could catch, seasonally, around 17 kg to 40 of swimming crabs especially in May and October with the same fishing gears.

KAMPOT AND KEP PROVINCE



(Graphic 03: Level of satisfaction of fishers about the resources available in Kampot and Kep provinces)

In Kampot and Kep, small scale fishers mainly recognized that resources are stable or in the medium scale: around 49.45 percent - 90 of the respondents, including 12 females, among the total of 182 sampled (including 34 females) - said that they were satisfied with the availability of the resources. This was because some key NGO partners had been working since 2007 to support stock enhancement and livelihoods diversification for small scale fishers in the community. Those NGOs are Coastal Resource Institute (CORIN Asia), Kampot Institute of Polytechnic (KIP) and the Children and Women Development Center of Cambodia (CWDCC) under the Wetlands Alliance Program (WAP), GTZ, and the commune councils development project - entitled Natural Resource and Environmental Management and Livelihoods Diversification (NREM and L) - under the Danish International Development Agency (DANIDA).

One of the most successful activities employed to enhance the stock of marine resources is crab bank implementation. This activity has been complemented by others including patrolling and integrated agriculture (pig raising, chicken raising, worm culture, fish culture etc.), that have reduced the pressure on fishery resources. However, the respondents also reported that they were keen to promote even those resources currently classed in the medium level, for which the seasonal catch is between 25 kg to 60 kg with 1,000 to 1,200 crab traps. They want these, too, to become more plentiful.

However, 42.21 percent (75 respondents including 18 females) reported that they were not satisfied with the current status of marine resources because so many trawlers and other modern fishing techniques were operating without any control in many Community Fisheries. They added that the catch was also insufficient to cover the cost of gasoline and the crew members' fees. It was reported that the average catch was 12 kg with 800 crab traps. Furthermore, they were not able to pay back the interest rates on loans to middlemen and micro-finance institutions (see Chapter 5 below) because the price of crab (controlled by the middlemen) is so low.

PREAH SIHANOUK PROVINCE

(Graphic 04: Level of satisfaction of fishers with the resources available in Preah Sihanouk province)

Similar to Kampot and Kep, in Preah Sihanouk province, most fishers (about 47.68 percent - 72 respondents including 17 women) reported that the availability of resources was medium scale. This was because so many Community Fisheries had been established in Preah Sihanouk and Community members helped to conserve the resources through activities including crab banks, fish culture, mushroom production, and animal raising. These activities have been supported by AFSC, Danida and SEAFDEC. As an example from Tomnob Rolok Community Fishery, during the last ten years, the resources have been plentiful, enabling fishers to catch more than 50 kg of crab per day with 300 to 400 crab traps. Since 2000, crab resources have declined from year to year due to over-fishing; i.e. fishing methods that increase the catch, and the demands of a growing population. Fishers were able to catch only between 5 kg to 10 kg per day even though they tried to enhance their fishing efforts (with crab traps). After 2007, when the Community Fisheries were established, crab catches increased to around 10 kg to 20 kg from 500 to 750 crab traps. This accounted for their level of satisfaction in respect of the current status of marine resources. On the other hand, 35.76 percent of respondents (55, including 10 females) indicated that they were not satisfied with the current status of the resources because catches were lower than before. In 2000, they could catch more than 20 kg of shrimp per day with only 300 m shrimp nets. This decline is the result of an increase in illegal fishing boats (engine pushing nets), which have destroyed the resources, and also because of weak law enforcement in terms of foreign and domestic illegal fishers.

Provincial level respondents

Similar to the views expressed by the fishers (both women and men) in Community Fisheries, of the 29 respondents at provincial level (13 from Koh Kong, eight from Kampot, and eight from Preah Sihanouk), 75.86 percent (22, including seven females) from the Fisheries Inspectorate, Fisheries Cantonment, Provincial Department of Environment, Provincial Department of Agriculture, Provincial Department of Women Affairs etc) indicated that they were not really satisfied with the status of the coastal resources. This was due to the limitations of policy implementation at the ground level in respect of illegal fishing activities from different layers/levels as well as the overlapping roles and responsibilities between ministries – for instance, the Ministry of Environment, and Fisheries Administration - because of the lack of means and budget. On the other hand, 26.66 percent of respondents (eight) from AFSC, ACLEDA, PRASAC, the Fisheries Administration Section and the Department of Environment (Kampot province) indicated that they were satisfied with the current status of marine resources thanks to help from projects such as crab banks, conservation area establishment, fish refugia, and the implementation of patrolling activities, which had enabled them to enhance the stock.

Commune level

During the commune level interviews among the 30 respondents (three in Koh Kong, 13 in Kampot, and 14 in Preah Sihanouk), 65.52 percent (19 respondents including one female) also indicated that they were not satisfied with the recent status of marine resources and their

accessibility because there are so many illegal fishing activities with limited law enforcement by officials. They also added other reasons including a lack of real cooperation among local authorities, line department staff and local Community Fisheries committee members for patrolling and cracking down on illegal fishing activities.

In contrast, the rest of the respondents at commune level reported that they were satisfied with the level of coastal resources because there was good cooperation between NGOs, local fishers and provincial line agencies to conserve marine resources. They did not know exactly the amount of catch per unit effort, but felt that it has increased after the establishment of Community Fisheries.

Community level

As a small contradiction to the above views, among 101 respondents (46 from Preah Sihanouk, 24 from Koh Kong and 31 from Kampot) from the Community Fisheries committees (including 10 female members), only 38.61 percent (39 respondents of which 12 were from Kampot, nine were from Koh Kong, and 18 from Preah Sihanouk) were not satisfied with the level of coastal resources. Although the reasons were not so clearly reliable in terms of the amount of catch, and the number of illegal fishing activities that have been combated, they reported that the daily catch had increased and the number of illegal fishing activities had decreased. However, the rest of the respondents - at 61.39 percent (62 respondents including 10 females) - were keen to report that they were satisfied with the current status of resources because they had conducted so many activities to improve fish and crab resources through mangrove plantation, fish refugia establishment, conservation zones, mapping, patrolling and livelihoods diversification etc. They were keen to confirm that resources were increasing and that people's livelihoods had also improved. However, the observation of the research team strongly supported the opposing view that resources had not yet increased since there were unreported fishing boats from neighbouring areas and so many, illegal, engine pushing nets still operating in the communities.

B.1.2. Existing processes and practices of fisheries co-management both formal and informal

B.1.2.1. Coastal Community Fisheries

Coastal fisheries resource co-management is recognized by Campbell et al (2006) as an important tool to manage resources in order to improve fishers' livelihoods particularly by enabling fishers to participate in decision making. Indeed, users have equal rights in decision making to manage their resources with the government, acting as consultants and advisors. This means that, in Cambodia, co-management is used as a means to decentralize resource management mainly for resource sustainability, while, in Africa, it is mainly used for conflict resolution (Sverdrup-Jensen & Nielsen, 1998).

A number of discussions and consultations are involved in the creation of a co-management organisation between the government and community, especially in the design of management plans (Pomeroy and Rivera-Guieb, 2006).

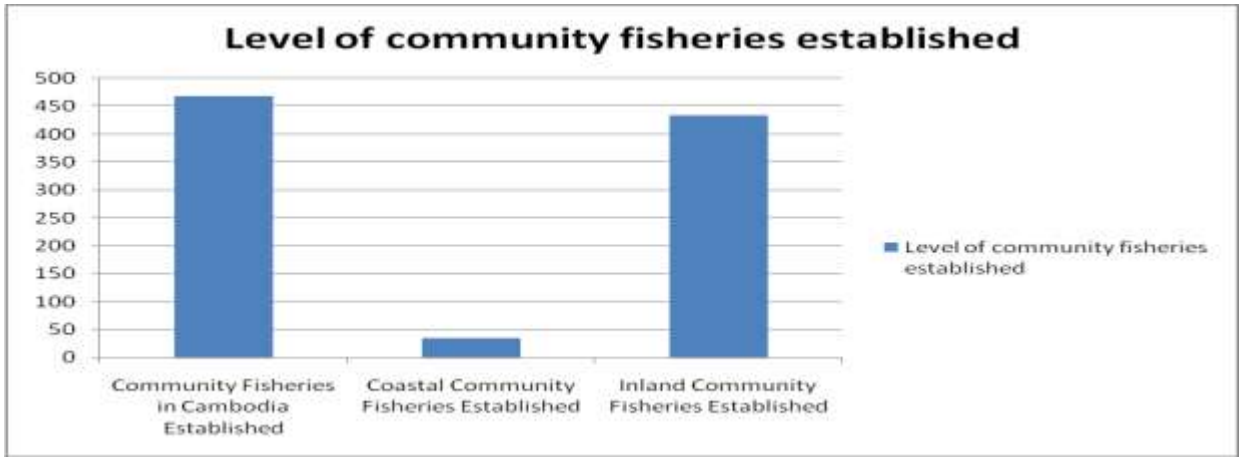
A co-management body can be formal or informal, or a temporary body to assist management plans in order to create an organisation that co-manages natural resources. Community Fisheries are an example.

The development of Community Fisheries co-management in Cambodia has been supported by many donor projects throughout the country (Blomley et al., 2010), and although it began in the 1990s, the law to support it did not come into effect until 2000.

A fully functional and legally recognised CFi is required to complete the following steps:

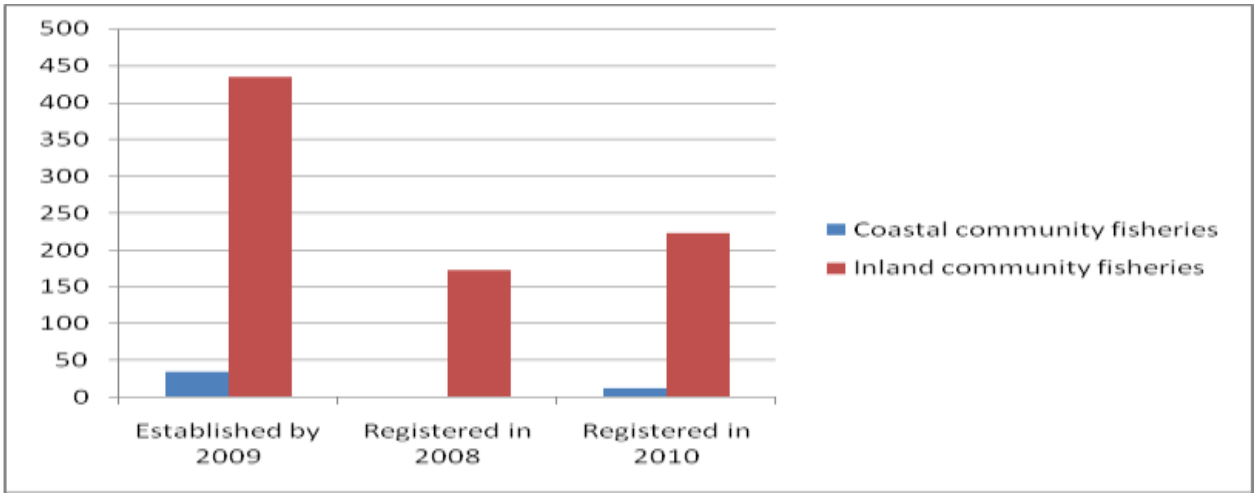
- The establishment of a community group and the lodging of a formal request to the FiA for the establishment of the CFi;
- A needs assessment of the potential CFi;
- Awareness raising and seeking registration of members;
- Preparation of relevant legal documents;
- Convening an initial meeting of the members to elect the CFi committee;
- Physical delineation and demarcation of the CFi boundary;
- Submission of the application for approval to MAFF;
- Signing the CFi agreement (commune, district, province and FiA) and registration of the CFi with MAFF;
- CFi fishing area management planning and its implementation.

Many donors and NGOs believe that Community Fisheries are one way to ensure the sustainability of resources, and they have been the means through which the government decentralized the use and management of fisheries resources. By 2009, 469 Community Fisheries had been established countrywide, of which 434 were located within freshwater areas, and 35 in coastal areas (FiA, 2010). This means that almost 93 percent of them are inland fisheries. Therefore, inland Community Fisheries management has assembled much more experience than its coastal counterpart and thus tends to have more models to apply. However, given that the inland and coastal fisheries differ, inland models cannot be fully applied to the coastal area. However, there are experiences - rather than models - that can be shared between the two (Gillet, 2004, FiA, 2009).



(Graph 05: Comparative number of coastal and inland Community Fisheries)

At present, 50.32 percent (236) of Community Fisheries are legally or officially registered with MAFF through the coordination and facilitation of the Fisheries Administration, and with support from other development partners including DFID, Danida, ASFC, ADB, Oxfam GB, GTZ etc. However, in 2010, among the officially registered communities, only 2.77 percent (13) of the Community Fisheries that had been officially registered were in coastal areas (one in Koh Kong and 12 in Preah Sihanouk). The other 223 officially registered Community Fisheries are inland. This can be compared with the figures in 2008, which show that only 36.88 percent (173) Community Fisheries were then registered with MAFF and among those there were no coastal Community Fisheries at all. Among the 12 registered Community Fisheries in Preah Sihanouk province, six operate under FAO-RFLP coordination and the rest under DFID, the Fisheries Administration and AFSC.



(Graph 06: Comparative number of registered coastal and inland Community Fisheries in 2008 and 2010)

B.1.2.2. Community Fisheries documentation

The marine Community Fisheries were established in some key areas along the zone in order to protect and raise awareness about the important role of coastal resources in everyday livelihoods. Many of these Community Fisheries have been established with support from the government, donors and NGOs that are working on coastal management in the coastal provinces.

The provincial consultation and Fisheries Administration Cantonment 2010 report, as well as the preliminary findings presentation workshop in Preah Sihanouk, confirmed that 2.34 percent (11) Community Fisheries have been established in Koh Kong province of which 1.28 percent (six) are under the management and coordination of the Fisheries Administration - namely Chhroy Svay, Koh Kchhang, Thmor Sar, Ta Meak, Prek Khsach, and Chhroy Pros. Another 1.06 percent – five Community Fisheries – are under the management and coordination of the Ministry of Environment, namely Koh Kapie, Koh Srolao, Peam Krosaob, Beoung Kachhang, and Prek Svay.

KOH KONG PROVINCE

Table 03: Degree of completeness of CFi documents in pilot site CFis in Koh Kong

Community Fisheries	Agreement	Structure and list of member	By laws	Proclamation	Map	Management Plan	Average
Chhroy Sray	0%	100%	100%	100%	60%	80%	73%
Koh Kchhong	0%	100%	100%	100%	60%	80%	73%
Thmor Sar	0%	100%	100%	100%	90%	80%	78%

Among the six Community Fisheries that are under Fisheries Administration coordination, three have been selected as pilot sites for the Regional Fisheries Livelihoods Program of the FAO. These are Chhroy Svay, Koh Kchhang, and Thmor Sar (Annex 02: Community Fisheries profiles). These communities have almost a complete set of legal and official documents (although some are still being finalised) - on average 75 percent (Chhroy Svay 73 percent, Koh Kchhong 73 percent and Thmor Sar 78 percent) - including the structure and a list of members, by-laws and proclamations, partial management plans and maps. This is all except the agreement that is still awaited for the completion of all the documentation. In detail, all of these three Community Fisheries, have only fully completed three documents, including structure and list of members, by-laws and proclamations of the community chief, while other documents such as maps and management plans are still being completed because there are some overlapping roles and responsibilities between the Ministry of Environment and the Fisheries Administration in respect of control over the resources located in Community Fisheries. In Thmor Sar Community Fishery, maps are mostly drafted (given a value of up to 60 percent) and signed by the community chief (10 percent), signed by the local authorities (commune councils, district governor and provincial governor - given up to 10 percent - and signed by the Fisheries Cantonment (10 percent). Signatures – required from the Fisheries Administration/MAFF in

Phnom Penh – have a given value of 10 percent. In Chhroy Svay and Koh Kchhong Community Fisheries, the maps have only just been drafted because they are still working in coordination with other NGOs and the Fisheries Administration to revise the boundaries and will be putting these forward for signature from all the relevant authorities. Thus, the given value is a 60 percent degree of completeness.

The management plans of these three communities seem to be mostly completed, too, since all are drafted with support from DFID/Danida, IDRC, NCDD and RFLP-FAO. However, they are still in the process of registration. The final agreement does get any value since legally this is the last document for Community Fisheries registration and cannot happen until all the other documents have been agreed by all relevant authorities. However, in practice, agreement has already been delivered to all communities in order to encourage community people to participate.

PREAH SIHANOUK PROVINCE

In Preah Sihanouk province, 3.20 percent (15 Community Fisheries) have been established including Tomnob Rolok, Boeung Raing, Bek Krong, Banteay Prey, Champou Khmao, Koh Rong Sanlem, Prek Svay, Dem Thkov, Bit Trang, Chrolong, Boeung Chum, Chong Ou, Prey Nop II, Kampong Smach, and Kampenh.

Table 04: Degree of completeness of CFi documents in pilot site CFis Preah Sihanouk

Community Fisheries	Agreement	Structure and list of member	By laws	Proclamation	Map	Management Plan	Average
Tomnub Rolok	100%	100%	100%	100%	100%	100%	100%
Boeung Raing	100%	100%	100%	100%	100%	100%	100%
Bek Krong	100%	100%	100%	100%	100%	100%	100%
Banteay Prey	100%	100%	100%	100%	100%	100%	100%
Champou Khmao	100%	100%	100%	100%	100%	100%	100%
Koh Rong Sanlem	100%	100%	100%	100%	100%	100%	100%

These communities have been supported by various NGOs and development agencies including DFID/Danida, AFSC, SEAFDEC, and NCDD. Among the 15 Community Fisheries, six have been selected as pilot sites for the Regional Fisheries Livelihoods Programme of the FAO. Those are Tomnob Rolok, Boeung Raing, Bek Krong, Banteay Prey, Champou Khmao, and Koh Rong Sanlem (Annex 02: Community Fisheries profiles). Legally, these communities have a 100 percent completed set of legal and official documents, including agreement, structure and list of members, by-laws and proclamations, management plans and maps.

KAMPOT AND KEP PROVINCE

In Kampot and Kep province, where 2.77 percent (13) of Cambodia's Community Fisheries are located , these have been established under coordination and support from the Fisheries Administration through DFID, IDRC, NREML/NCDD, CORIN-WAP, GTZ, SCW, RFLP-FAO

and CWDCC. Eight are located in Kampot, namely Changhon, Trapaing Ropov, Koh Krusna, Kampong Samaki, Trapaing Sangke, Rolous, Kep Thmey, Prek Thnot. Five are located in Kep namely Phum Thmey, Kep, Kampong Tralach, Angkoal and Ou Krosa.

According to the report from the provincial consultation, all of the 13 Community Fisheries along the coast are not yet officially registered by MAFF because a few legal documents need to be revised and improved, including the maps and management plans.

Among the 13 Community Fisheries, six have been selected as pilot sites for the Regional Fisheries Livelihoods Programme of the FAO. Those are Changhon, Trapaing Ropov, Koh Krusna, Trapaing Sangke, Angkoal and Ou Krosa (Annex 02: Community Fisheries profiles).

Table 05: Degree of completeness of CFi documents in pilot site CFis in Kampot

Community Fisheries	Agreement	Structure and list of member	By laws	Proclamation	Map	Management Plan	Average
Changhon	0%	100%	100%	100%	90%	80%	78%
Trapaing Ropov	0%	100%	100%	100%	90%	80%	78%
Koh Krusna	0%	100%	100%	100%	60%	80%	73%
Trapaing Sangke	0%	100%	100%	100%	90%	80%	78%
Angkoal	0%	100%	100%	100%	60%	80%	73%
Ou Krosa	0%	100%	100%	100%	60%	80%	73%

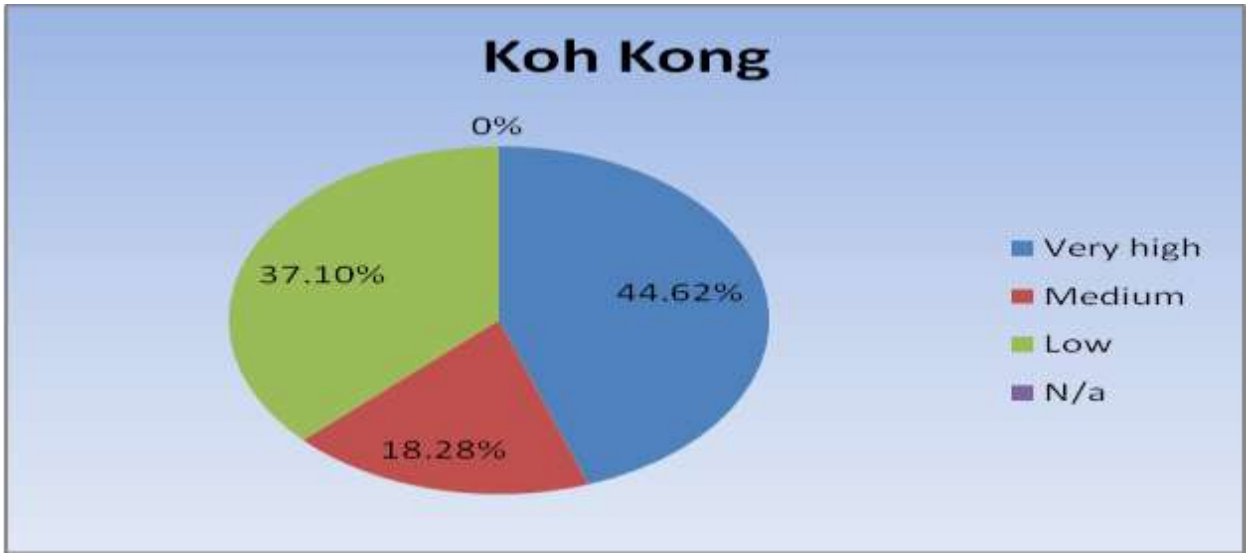
These communities have almost a complete set of legal and official documents - on average 76 percent - (Changhon 78 percent, Trapaing Ropov 78 percent, Koh Krusna 73 percent, Prek Thnout 78 percent, Angkoal 73 percent and Ou Krosa 73 percent) including structure and list of members, by-laws and proclamations, partial management plans and maps. This is everything except the final agreement that is still awaited for this documentation to be complete. In detail, in all of these six Community Fisheries, only three documents are fully completed including structure and list of members, by-laws and proclamation of the community chief. Other documents, such as maps and management plans, are still being completed because there are some overlapping roles and responsibilities between the Ministry of Environment and the Fisheries Administration in respect of control over the resources located in the Community Fisheries, and conflicts over land among the owners. In Changhon, Trapaing Ropov and Trapaing Sangke Community Fisheries, maps are mostly completed, (given a value up to 60 percent), and signed by the community chief (10 percent), signed by local authorities (commune councils, district governor and provincial governor - given up to 10 percent) - and signed by the Fisheries Cantonment (10 percent). Another signature is required from the Fisheries Administration/MAFF in Phnom Penh with a given value of 10 percent. In Koh Krusna, Angkoal and Ou Krosa Community Fisheries, the maps are in draft form because they are still working on coordination to revise the boundaries and will be putting these forward for signature from all relevant authorities. Thus, the given value is a 60 percent degree of completeness.

With reference to the management plans of these six communities, these seem to be mostly complete, too, since all are being drafted with support from CORIN-WAP, DFID/Danida, NCDD and RFLP-FAO. However, they are still in the process of registration so the given value left-over is 20 percent for the degree of completeness. Similar to the situation in Koh Kong, agreement is not been attributed a value since legally this is the last document for Community Fisheries registration and is not developed unless all other documents have been agreed by all relevant authorities. However, in practice, agreement has been already delivered to all communities in order to encourage community people to participate.

B.1.2.3.Fishers and fishers' families' expectations in respect of Community Fisheries

Although many coastal Community Fisheries have recently been established with the aim of restoring and improving coastal fisheries resources and the condition of fishers' livelihoods, only 2.77 percent (13) have been official recognized by MAFF. Even so, most of the fishers and their family members have high expectations that Community Fisheries are the only hope to improve their coastal resources through stopping, or at least reducing, illegal fishing activities both outside and inside the country. Furthermore, CFis are expected to help to improve their living standards through diversifying their livelihoods. This is because CFis are official institutions that help to facilitate and monitor external support from various government programs, NGOs and other development partners, designed to achieve this goal.

KOH KONG PROVINCE

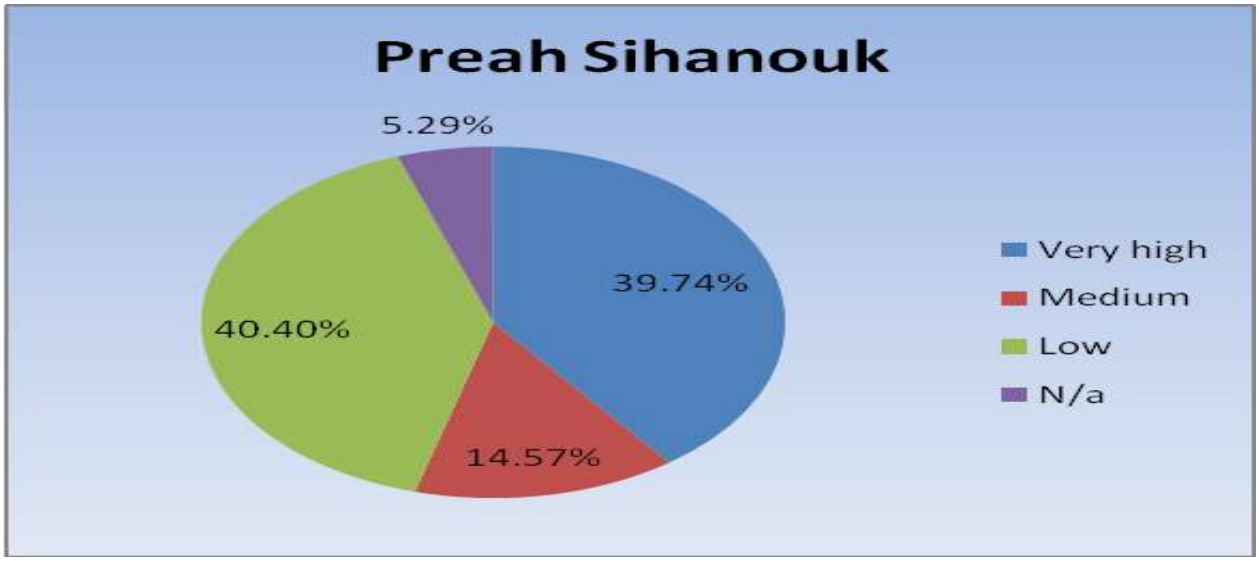


(Graphic 07: Level of expectation of fishers in respect of CFis in Koh Kong province)

The survey revealed that, in Koh Kong province, among the 186 respondents (including 23 females), 44.62 percent (83 respondents including eight females) had very high expectations that Community Fisheries would lead to improved coastal resources through many kinds of activities and that they would reduce conflicts and illegal fishing activities along the coastline. There are

many reasons supporting this optimistic belief. For instance, that Community Fisheries can empower local people and fishers to manage their resources jointly with government and that they have their own control area. Furthermore, they enhance the rights and responsibilities of the community to patrol and stop illegal fishing activities. However, many respondents (around 55.38 percent - 18.28 percent at medium scale, 37.10 percent at low scale including 15 females, equal to 103 respondents) indicated that nothing would change and that it was not, therefore, important to establish Community Fisheries unless corruption and transparency issues were taken into consideration during their implementation. They felt that Community Fisheries are a better way to improve resources but unless corruption and transparency were addressed, they did not expect that this model would help.

PREAH SIHANOUK PROVINCE

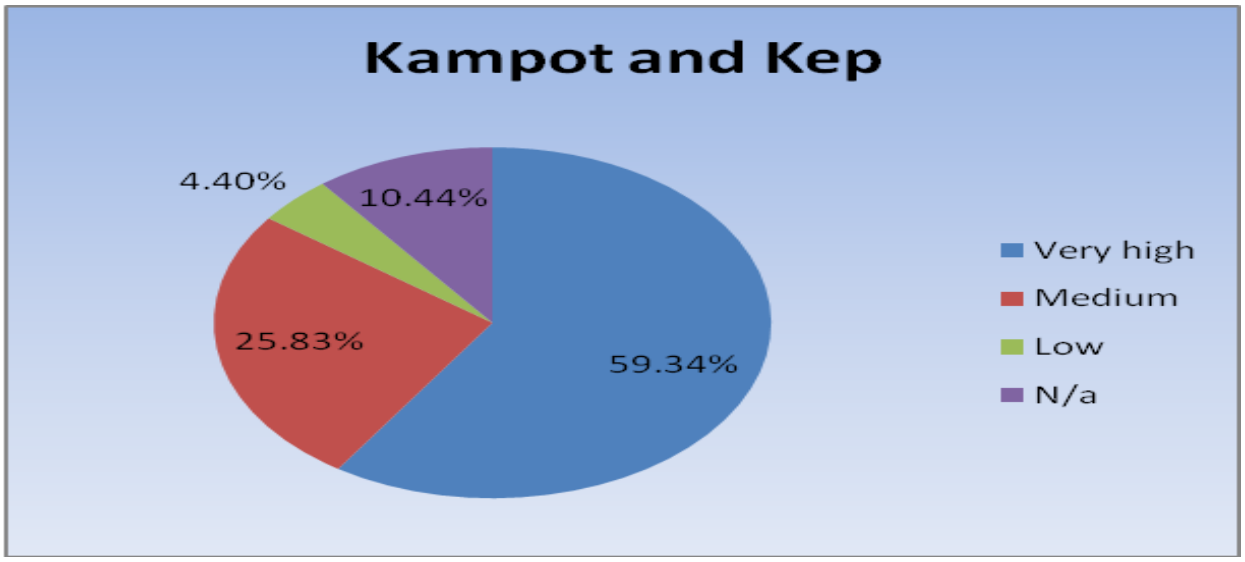


(Graphic 08: Level of expectation among fishers in respect of CFis in Preah Sihanouk province)

Similarly, in Preah Sihanouk province, most respondents expressed fewer expectations about the capacity of Community Fisheries to improve coastal fisheries resources in order to improve the livelihoods of local fishers unless there was an appropriate mechanism for implementation. The survey confirmed that among the 151 respondents (including 32 females), approximately 39.74 percent (60 respondents including 12 females) of the fishers and fishers' families have very high expectations of Community Fisheries development and management as the tool for conserving and improving marine resources. There are some reasons supporting these high expectations. Those include the fact that, theoretically, Community Fisheries are a co-management procedure that should help to reduce illegal fishing activities. They can also act to improve fisheries management through joint control over resources by implementing stock enhancement activities (fish refugia, conservation area establishment, mangrove plantation, crab banks etc.). In contrast, many fishers and fishers' families - 59.21 percent (14.57 percent at medium scale, 40.40 percent

at low scale and 5.29 percent who were not available), which equals 91 respondents including 20 females - indicated that they did not really expect that CFis could help to improve resources because there were just too many trawling boats and small mesh size nets and traps being implemented in the coastal area: since 2007, many Community Fisheries have been established but the daily catch is still low. This is also the result of weak/ limited law enforcement in the fisheries sector. However, most of the respondents expressed positive views, as long as all of the above mentioned issues (specifically enforcement) were well implemented.

KAMPOT AND KEP PROVINCE



(Graphic 09: Level of expectation of fishers in respect of CFis in Kampot and Kep province)

In contrast to the responses in Koh Kong and Preah Sihanouk, there was a very high level of expectation among fishers and their families in the Community Fisheries in Kampot and Kep. The survey showed that among 182 respondents (including 34 females), 59.34 percent (108 respondents including 19 females) expressed a high degree of expectation in terms of an improvement in coastal resources through Community Fisheries implementation. They indicated that, since CFis were established with support from various organizations, many activities had been implemented, such as mangrove restoration, crab banks, livelihoods diversification, fish refugia establishment, conservation area establishment, patrolling and combating illegal fishing etc. All of these activities supported a sound habitat of fisheries resources, preserving them from fishing (both legal and illegal). In addition, patrolling and combating illegal fishing could help to reduce the number of trawling boats inside the community. Just a small percentage of fishers and their family members felt that Community Fisheries were not important in enhancing resources in the sea: only around 25.83 percent at medium scale and 4.40 percent at the low scale did not have any positive expectations, while 10.44 percent did not give a response. This is

because Community Fisheries cannot stop large-scale illegal fishing boats and the respondents observed that fishing catches were gradually decreasing.

B.1.2.4. Other existing formal and informal processes for co-management

Besides Community Fisheries, there are three other mechanisms – two official and one unofficial - that have been established to support coastal resources co-management. Those include: the formulation of district commander groups to combat illegal activities; the existing government bodies – so-called Fisheries Administration from the central to local level; and the establishment of the Community Fisheries alliance along the coastal provinces. However, the formulations of the district commander group to combat illegal activities, and the establishment of the Community Fisheries alliance, have specifically taken place in Koh Kong province.

The district commander group comprises members from different sectors including the Fisheries Administration Cantonment, the Forestry Administration Cantonment, the District Military Police, the District National Police and the District Councils and Executive. The chief of the commander team is the district governor. This group was established in 2008 under the regulation of the provincial governor.

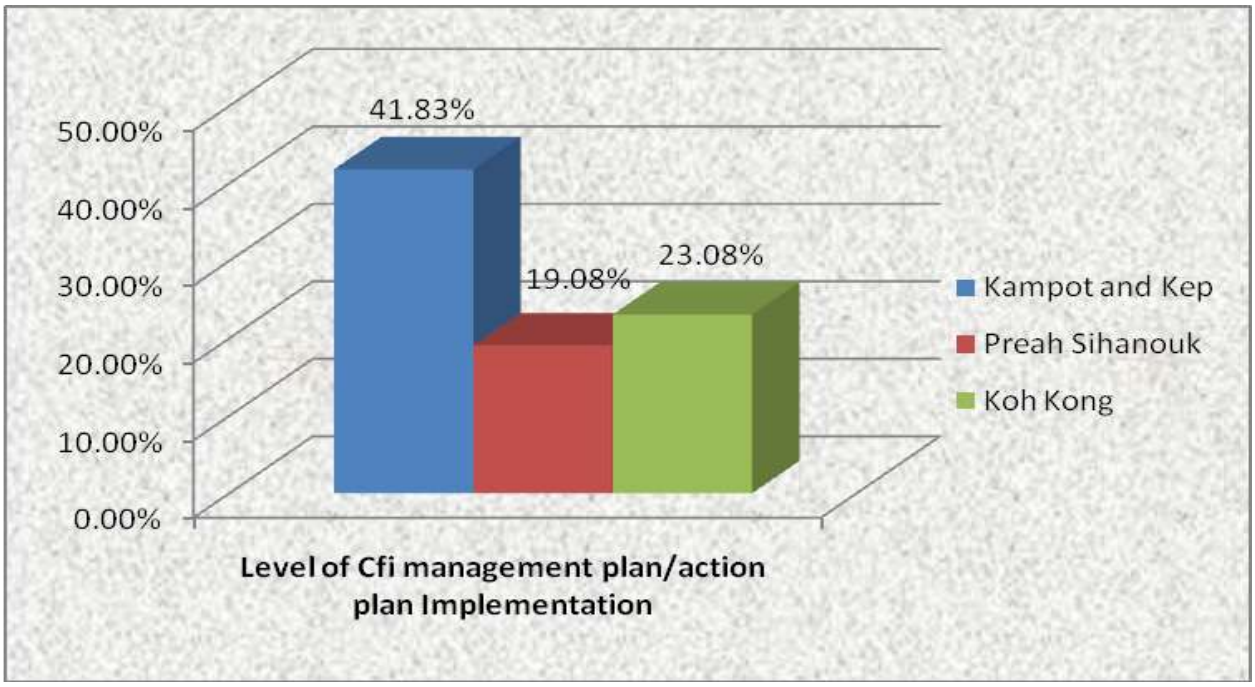
The Community Fisheries alliance was established by AFSC in 2008 with four Community Fisheries between Preah Sihanouk and Koh Kong provinces, namely Thmor Sar, Koh Kchhang, Chhroy Svay and Stung Hav. This alliance aims to reduce conflicts and improve coordination and facilitation of actions to deter illegal fishing activities. The composition of this alliance includes the chief of each Community Fishery, the commune council chief, representatives from the Fisheries Administration Cantonment, and the project officer in charge from AFSC. According to the AFSC project officers, most of the conflicts between the CFi in Stung Hav and its counterpart in Srei Ambel have been gradually reduced, although there are no formal records to support this.

Turning to the Fisheries Administration, according to Article 6 of the Fisheries Law of Cambodia, this is the government authority under the Ministry of Agriculture, Forestry and Fisheries which is responsible for the management of fisheries and fishery resources. In doing this, it complies with the National Fisheries Policies and the Fisheries Law. The FiA has a nation-wide organizational structure, in the form of a vertical hierarchy which is organized into central level, inspectorate, cantonment, division and Sangkat level units.

Over the years, the Fisheries Administration (FiA) has been one of the most consistent and significant providers of a wide array of services that operate from international to community level. It creates the regulatory and policy environment which ensures that the resources are used sustainably and equitably. It also provides technical support to improve the production, processing and management of fisheries and aquaculture.

B.1.2.5. Level of implementation of management plans or action plans

Many of the Community Fisheries along the coastal provinces of Cambodia were established in 2000 by the Coastal Zone Management (CZM) project funded by Danida. The rest were established in the following years. Before 2005, many of those Community Fisheries implemented their activities through NGO programme action plans including the CZM project, the AFSC Community Fisheries programme, the Seila programme, etc. However, in the last five years there have been many governmental intervention programmes such as NREM and Livelihoods (Danida), DFID, FAO capacity building for Community Fisheries management, and the GTZ natural resource management programme. There have also been other NGO projects including CORIN-WAP, SEAFDEC-ICRM, FACT, CWDCC, KIP, SCW, and Development Partner in Action etc. Although many NGO and governmental intervention programmes have been conducted over the years, the level of implementation of the whole management plans/action plans of Community Fisheries are at a low level because of gaps in financial and human resources, feasibility studies, technology and a lack of practical lessons learned from those activities by the implementing agencies. Overall, the implementation level in each province is explained through the following graph:



(Graphic 10: Level of CFi management plan/action plan implementation)

KOH KONG PROVINCE

Table 06: Degree of Community Fisheries management plan/action plan implementation in Koh Kong

	Koh Kong province			
Level of CFi management plan/action plan implementation	Chhroy Svay	Koh Kchhong	Thmor Sar	Average
	Progress	Progress	Progress	
Fishing area restoration (m^3)	0.00%	0.00%	0.00%	0.00%
Conservation area (ha)	0.00%	4.00%	70.00%	24.67%
Flooded forest management (ha)	100.00%	7.00%	100.00%	69.00%
Aquaculture development (h/h)	15.50%	0.00%	0.00%	5.17%
Fish refuge pond (ha)	0.00%	0.00%	0.00%	0.00%
Crab bank (cage)	0.00%	0.00%	50.00%	16.67%
Community development (Collecting money, Post-harvest and activities)	0.00%	0.00%	100.00%	33.33%
Livelihoods diversification (activities)	40.00%	25.00%	40.00%	35.00%
Capacity building for CFi committee (w/s and small grant)	0.00%	0.00%	0.00%	0.00%
Enhanced patrolling capacity (frequency)	10.00%	100.00%	100.00%	70.00%
Total percentage	**15.05%**	**12.36%**	**41.82%**	**23.08%**

The survey confirmed that, in Koh Kong province, the average level of implementation of action plans for the three pilot Community Fisheries under the RFLP programme is around 23.08 percent (15.05 percent in Chhroy Svay, 12.36 percent in Koh Kchhong, and 41.82 percent in Thmor Sar). The activities most often conducted have focused on *patrolling capacity (70 percent), mangrove re-plantation (69.00 percent) and livelihoods diversification (35.00 percent).* Patrolling activity is the favourite activity for community members. They are willing to participate because local people perceive that Community Fisheries can help to reduce illegal fishing activities and preserve marine resources through activities such as patrolling. Therefore, community member always participate in these, which are led by the community committee in collaboration with local authorities and Fisheries Administration staff. This collaborative action, supported by adequate equipment, encourages full participation among the three communities, and has financial support and technical guidance from IDRC, DFID, AFSC, and NREM and Livelihoods (Danida).

Mangrove re-plantation is also a key activity in Community Fisheries, and a high achievement is indicated here - on average around 69.00 percent (100 percent in Chhroy Svay, 7.00 percent in Koh Kchhong, and 100 percent in Thmor Sar). This is because many people in the village fully understand the importance of mangrove forests as the main habitats for crab, fish and blood cockle etc. To date, 8.50 ha of mangrove has been re-planted around the degraded areas of Community Fisheries - Chhroy Svay 1 ha, Koh Kchhong 2 ha and Thmor Sar 5 ha. This activity has been supported by AFSC, IDRC, NREM and Livelihoods (Danida) and the Fine Art Association (FAA).

Livelihoods diversification is the third greatest achievement of the Community Fisheries and is, on average, around 35.00 percent (40 percent in Chhroy Svay, 25 percent in Koh Kchhong, and 40 percent in Thmor Sar). The five planned livelihoods activities are fish culture, chicken raising, pig raising, rice banks, and shrimp processing. These have been supported by AFSC, DFID, IDRC and NREM and Livelihoods (Danida). For financial reasons, only two activities (fish culture and rice banks) have been implemented in Chhroy Svay, one activity (chicken raising) has been implemented in Koh Kchhong, and two activities (chicken raising and shrimp processing) have been implemented in Thmor Sar. The criteria for selecting the sample families in terms of providing livelihoods assistance from the projects are unclear, and this is based on the proposed figures from the community chief and commune councils. Even though these activities have been implemented, there have been many failures in attempts at livelihoods diversification. For example, chicken raising in Thmor Sar failed because of climatic problems and temperature. These failures need in-depth analysis to improve the situation.

Those activities classed as `no progress' include *fishing area restoration and fish refuge pond establishment, and capacity building for community committee for resources mobilization.* There has been no action as yet in respect of restoring fishing areas, or of small grant capacity building for the community committee members, although plans have been formulated. There are limited financial resources for implementation and these activities have been given a lower priority by the community.

However, some activities have been implemented at the medium level such as *conservation area establishment* and *community development* (collective money for community membership and post-harvest activities etc). The figures indicate around 24.67 percent for conservation area establishment, and 33.33 percent for community development. Up to now, 384 ha of the fishing areas have been designated conservation zones (2 ha in Koh Kchhong, and 120 ha and 262 ha of fish refuge pond in Thmor Sar). These activities are also supported by IDRC, DFID, and NREM and Livelihoods (Danida).

PREAH SIHANOUK PROVINCE

Table 07: Degree of Community Fisheries management plan/action plan implementation in Preah Sihanouk

Level of Cfi management plan/action plan implementation	Preah Sihanouk						
	Banteay Prey	Bek Krong	Chompou Khmao	Boeung Raing	Koh Rong Sonlem	Tumnob Rolok	Average
	Progress	Progress	Progress	Progress	Progress	Progress	
Fishing area restoration	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Conservation area	15.00%	65.00%	158.00%	25.00%	100.00%	60.00%	70.50%
Flooded forest management (mangrove)	10.00%	0.30%	0.25%	0.02%	n/a	0.05%	1.77%
Aquaculture development	0.00%	0.00%	0.00%	0.00%	0.00%	15.00%	2.50%
Fish refuge pond (fish release)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Crab bank	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	16.67%

Community development (collecting money etc.)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Livelihoods diversification (rice bank)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Capacity building for CFi committee (w/s, training, extension)	65.00%	100%	100%	100%	100.00%	0.00%	77.50%
Enhanced patrolling capacity	60.00%	100%	100%	100%	0.00%	0.00%	60.00%
Eco-tourism	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total percentage	**12.50%**	**22.11%**	**29.85%**	**18.75%**	**16.67%**	**14.59%**	**19.08%**

In Preah Sihanouk, the level of management plan/action implementation is very low. Some possible reasons include the lack of projects/programme support for all of the targeted Community Fisheries while many projects have concluded in an unsustainable manner. Furthermore, participation from, and commitment of, local people to implement the Community Fisheries activities are limited due to the lack of livelihoods subsistence. The survey confirmed that, on average, the level of implementation is around 19.08 percent (Banteay Prey 12.50 percent, Bek Krong 22.11 percent, Chompou Khmao 29.85 percent, Boeung Raing 18.75 percent, Koh Rong Sanlem 16.67 percent and Tumnob Rolok 14.59 percent). The activities that have been most effectively implemented are firstly *capacity building for Community Fisheries committees (workshops, extension, and training)* in relation to the Fisheries Law, gender, fish culture, etc. Secondly *conservation area establishment* has also been actively implemented because many community members expect that this will help to increase coastal fisheries resources. The average is around 70.50 percent. Up to now, 331.75 ha of conservation areas have been established in these six communities. Finally, another popular activity is *patrolling*. The average for that is up to 60.00 percent: the community committee and members implement patrolling activity around three to five times per month for all of these six communities.

At the medium implementation level there are only *crab banks* (stock enhancement) - with an average of 16.67 percent. Among the six, only one community has established crab cages and implemented a crab bank initiative (Tomnub Rolok community). The other five Community Fisheries have no plans to implement crab banks at present. This activity has been supported by the Fisheries Administration in order to improve the stock biomass of mud crabs in the sea.

The four activities above have also been partly supported by DFID and partly by NREM and Livelihoods (Danida), as well as by AFSC specifically in Tomnub Rolok community.

Non-implemented activities include *fishing area restoration*, *community development* (collecting community membership fees), *livelihoods diversification and eco-tourism*

KAMPOT AND KEP PROVINCE

Table 08: Degree of Community Fisheries management plan/action plan implementation in Kampot

Level of CFi management plan/action plan implementation	**Kampot and kep**						
	Changhon	Koh Kreusna	Trapeang Ropov	Trapeang Sangke	Angkol	Ou Krasar	
	Progress	Progress	Progress	Progress	Progress	Progress	Average

CFi documents completion (maps, by-laws, agreements, etc. set)	78.00%	78.00%	78.00%	78.00%	73.00%	73.00%	76.33%
Boundary demarcation for conservation area (pole)	100.00%	0.00%	0.00%	100.00%	0.00%	33.33%	38.89%
Conservation area for crab and mangrove (ha)	100.00%	100.00%	0.00%	100.00%	0.00%	33.33%	55.56%
Fish refuge pond (ha)	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	16.67%
Mangrove plantation (ha)	100.00%	100.00%	0.00%	20.00%	0.00%	50.00%	45.00%
Crab bank (cage)	100.00%	0.00%	100.00%	0.00%	0.00%	0.00%	33.33%
Fish culture (pond or cage)	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.33%
Village research (study)	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.67%
Livelihoods diversification (activity) - chickens, vegetables, mushrooms	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.67%
Community development (activity) - Saving group	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	50.00%
Eco-tourism (place)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Blood cockles (place)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Enhanced patrolling capacity (frequency)	100.00%	100.00%	100.00%	100.00%	25.00%	100.00%	87.50%
Capacity building	0.00%	100.00%	66.66%	33.33%	0.00%	100.00%	50.00%
Monthly meeting	100.00%	0.00%	100.00%	100.00%	100.00%	100.00%	83.33%
Total percentage	**79.17%**	**41.67%**	**38.89%**	**46.11%**	**10.42%**	**34.72%**	**41.83%**

Different from Koh Kong and Preah Sihanouk, the level of Community Fisheries management plan/action plan implementation in Kampot and Kep is a little higher. This is because there are so many NGOs and governmental programmes running projects to support both Community Fisheries and Forestry and Protected Areas including DFID, NREM and Livelihoods (Danida), CORIN-WAP, CWDCC, KIP GTZ, and SCW etc. The survey confirmed that, on average, around 41.83 percent of the management plans/action plans of the six targeted Community Fisheries have been implemented, which is 79.17 percent at Changhon, 41.67 percent at Koh Krusna, 38.89 percent at Trapaing Ropov, 46.11 percent at Trapaing Sangke, 10.42 percent at Angkoal, and 34.72 percent at Ou Krosar communities. The activity that is conducted the most is patrolling – with an average of 87.50 percent - as the community have planned well to implement this activity and conduct patrols four times each month. This is because they have enough time and capacity, and both the equipment and motivation. This next most popular activity is monthly meetings - at 83.33 percent – at which all of these six Community Fisheries get together to discuss problems that have occurred, with participation from committee members and sometimes from the local authorities (commune councils) and NGOs who are working closely with them. Lastly, the documentation coordination for community registration is 76.33 percent as the Fisheries Administration and facilitating NGOs have already put a lot of effort into completing this, including by-laws, draft maps, proclamations and draft management plans.

Conservation area establishment, capacity building and community development have been identified as being at the medium level of activity in Community Fisheries management/action plans. The level of conservation area establishment goes up to 55.66 percent, meaning that all of these communities have at least established around 59 ha (a total of 354 ha for the six communities). This activity has been supported both technically and financially by CORIN, KIP,

DFID, NREM and Livelihoods (Danida) and the Fisheries Administration, and there has been appropriate participation from community members. Capacity building for community members and committees is also found to be at the medium level of implementation. That is, at around 50.00 percent because most of the communities have organized workshops and training courses many times and on many topics for their members (both women and men) and for the committee themselves. In summary, 16 training workshops have been organized by CORIN, NREM and Livelihoods (Danida) and the Fisheries Administration through the DFID programme. Various topics have been covered relating to fish culture, Fisheries Law, gender in fisheries and Community Fisheries management, environmental management, coastal resources management, etc. Although the capacity building activities have been delivered to an average degree of 50.00 percent, only four Community Fisheries have implemented this, namely Koh Krusna, Trapaing Ropov, Trapaing Sangke, and Angkoal. The other two communities' plans are still pending because of time constraints and budget limitations.

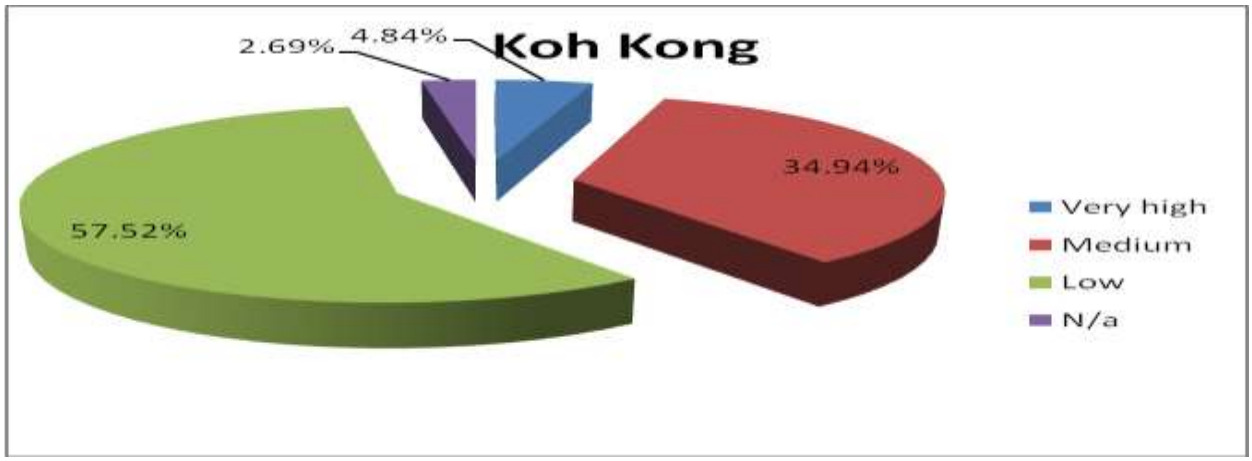
Community development, including savings group establishment, is also considered as a medium level activity in terms of implementation. On average, this is at 50.00 percent, even though this activity is important for supporting livelihoods and vulnerable people in the community, and also specifically contributes to an improvement in the participation of women in Community Fisheries management. However, savings groups appear in only three communities including Changhon, Koh Kreusna and Trapaing Ropov, while the other three have not yet formed any.

Other activities are at a lower level of implementation including crab banks, fish refuge ponds, boundary demarcation, fish culture, livelihoods diversification (chicken and pig raising). Two activities have yet to be implemented. Those are blood cockle culture and eco-tourism because the communities still need to learn more about the feasibility status of these two activities.

B.1.2.6. Fishers' satisfaction with co-management activities (CFi)

Although the six Community Fisheries committee discussions indicated some progress at the level of management plan/action plan implementation, there are some different perceptions from fishers regarding their acceptance of, or satisfaction with, all the activities that have been proposed in the Community Fisheries management/action plans.

KOH KONG PROVINCE



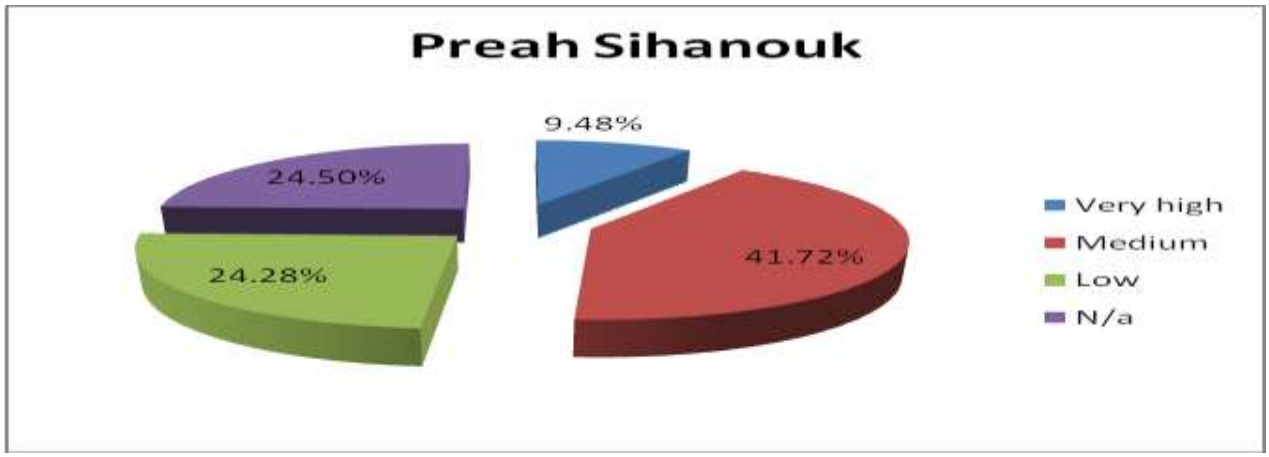
(Graphic 11: Level of satisfaction of fishers with CFi activities in Koh Kong province)

The survey indicated that, in Koh Kong province, among the sample respondents (186, including 23 females), 106 - equal to 57.52 percent (females 5.91 percent) - are not really satisfied with the Community Fisheries activities that have been proposed. There are several reasons to support respondents' perceptions including the lack of full participation from all community members in defining the real needs for the community. The perception is that they are just working with government officials and NGO staff to propose activities that fit their programmes or projects, rather than the community's needs. Furthermore, the activities that have been proposed are not fully implemented sometimes due to a lack of financial resource support from facilitating organizations, and gaps in coordination among multi-stakeholders in terms of mapping and small grants to support the Community Fisheries implementation etc.

However, approximately 34.94 percent (65 respondents) felt that Community Fisheries activities were about at the medium level since they did at least include some good things, such as mangrove re-plantation, conservation area establishment, fish refugia establishment and quite often patrolling for which they receive no supplementary salary.

Female respondents - who are community and non-community members - also indicated their level of satisfaction to be within the medium scale - approximately 6.45 percent (12 respondents). The rest - approximately 5.91 percent (11 respondents) – reported a very low level of satisfaction with the current activities of Community Fisheries management because they felt that they had never been involved within the Community Fisheries planning process and knew nothing about the activities. Only 4.84 percent of male fishers were really satisfied with these as they had been involved and had received so many benefits from the community activities.

PREAH SIHANOUK PROVINCE



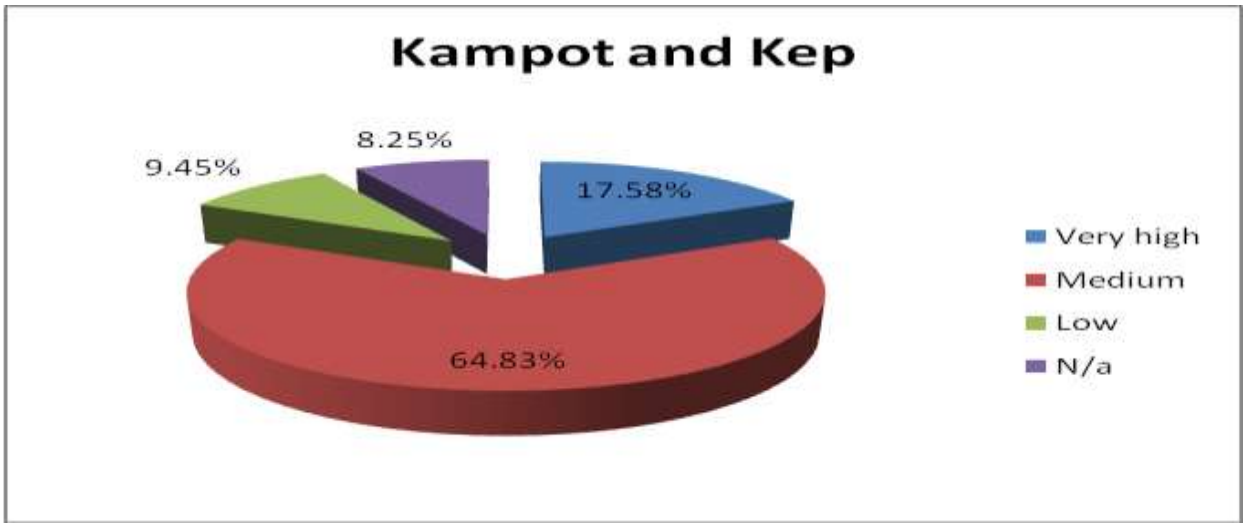
(Graphic 12: Level of satisfaction of fishers with CFi activities in Preah Sihanouk province)

Similarly, in Preah Sihanouk province, the majority of responses from all respondents fell into the medium scale - approximately 41.72 percent, equal to 63 respondents, including 9.27 percent, equal to 14 respondents (female). They were, therefore, moderately happy with the Community Fisheries activities. This was because they considered some activities good, like crab bank establishment, fish conservation area establishment and mangrove re-plantation, in that they ought to help to improve the stock biomass of the crab and other fisheries resources. So these would, therefore, benefit the livelihoods of the Community Fisheries members. However, there was also some disappointment because there were not enough proposed activities to curb illegal fishing through coordination with other stakeholders including the police, military and district level officials: there were still many engine pushing boats operating along the community boundary, and no group was combating this effectively.

Less than 10 percent of respondents were very happy with the current Community Fisheries activities - approximately 9.48 percent equal to 15 respondents including 4.64 percent equal to seven respondents who were female. These very satisfied respondents reported that Community Fisheries activities consisted of many initiatives that would help to combat illegal fishing activities and help small scale fishers. In addition, Community Fisheries would help to improve the mangrove and other flooded forest areas by replanting those species which are really important for the conservation of fish and crab.

Although many community people provided feedback about the Community Fisheries activities planning process, around 24.50 percent did not give any answers as they were not really aware about these activities and their implementation. This is because they had less chance to be involved with the associated planning and implementation.

KAMPOT AND KEP PROVINCE



(Graphic 13: Level of satisfaction of fishers with CFi activities in Kampot and Kep province)

Kampot did not differ from Koh Kong and Preah Sihanouk, as, among the 182 respondents, more than 64.83 percent (equal to 118 respondents) including 8.79 percent (equal to 16) female respondents; felt that their satisfaction level with Community Fisheries activities was just about medium. Compared with the other two provinces, Kampot is the one that has had better planning of Community Fisheries activities because there is a lot of support from both the government and NGOs who are working to support these. Respondents also reported that Community Fisheries had planned some important activities including mangrove replantation, crab banks, integrated agriculture, savings groups, conservation area establishment, fish refugia etc. This could help to improve the stock biomass of marine species.

Furthermore, approximately 17.58 percent (equal to 32 respondents) including 6.04 percent (equal to 11) female respondents were really satisfied with the Community Fisheries activities. They added that Community Fisheries had planned many activities with NGOs and the Fisheries Administration that help to improve people's well-being such as crab banks, fish refugia, conservation areas, integrated agriculture for livelihoods improvement etc. There were fewer respondents who were not satisfied with the Community Fisheries activities. This was at least partly because they observed a level of non-transparency in respect of some issues taking place relating to crab bank loans for members and crab bank management.

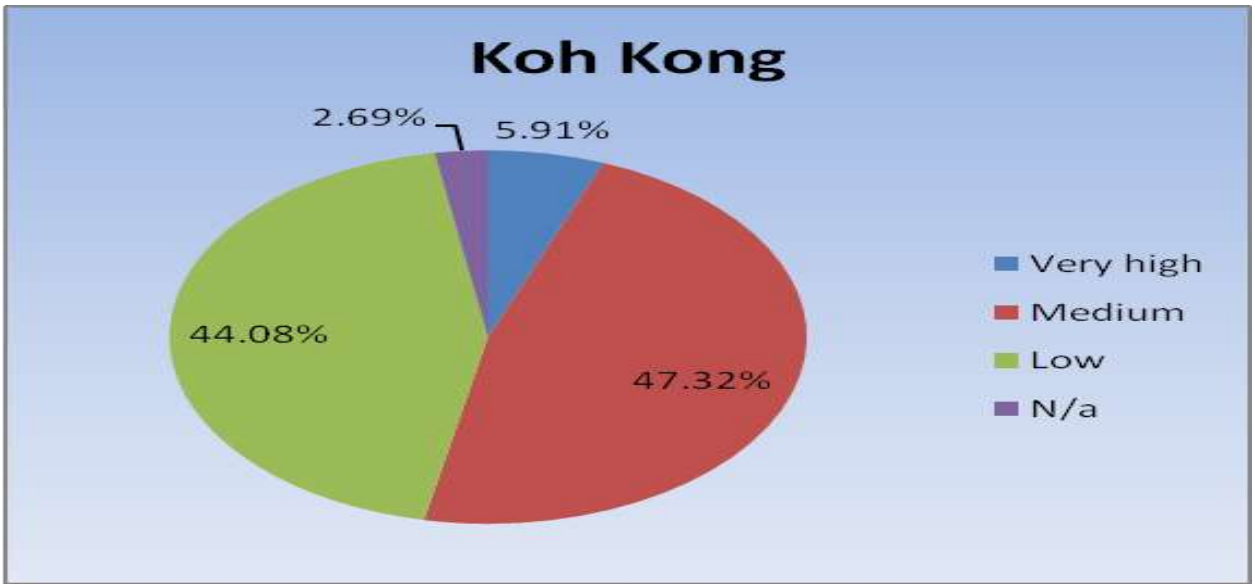
B.1.2.7. Fishers' and their family members' satisfaction with co-management activities (CFi) implementation

Again, coastal fisheries resource co-management is recognized by Campbell et al (2006) as an important tool to manage resources in order to improve fishers' livelihoods by encouraging their participation in decision making. It is endorsed by donors and many NGOs that Community

Fisheries are one way that can ensure the sustainability of resources. The Royal Government of Cambodia has decentralized fisheries resources management by establishing Community Fisheries across the country, and, by 2009, 469 had been established countrywide of which 434 were located at freshwater sites and 35 in the coastal area (FiA, 2009).

Although almost 500 Community Fisheries have been established countrywide, implementation is still considered to be at the medium scale, especially in the coastal areas, while the inland Community Fisheries seem to be more experienced and to have a lot of good practices.

KOH KONG PROVINCE



(Graphic 14: Level of satisfaction of fishers with CFi activities implementation in Koh Kong province)

The survey indicated that, in Koh Kong province, among the 186 sample respondents (including 23 females) (and analysing first the answers of the **male respondents**) 82 - equal to 44.08 percent - were not really satisfied with the Community Fisheries management and implementation. There are several reasons to support respondents' perceptions including a lack of transparency with Community Fisheries patrolling, livelihoods diversification benefit sharing, and inadequate mobilization for the implementation of Community Fisheries activities.

The lack of transparency was found to be a major cause of this loss of trust among community members and has led to very low level of satisfaction. Respondents, who were both community members and non-members from Chhroy Svay, Koh Kchhong and Thmor Sar, reported that many perpetrators of illegal fishing activities come from other areas (Stung Hav) or are fishers from inside the community come to operate in the conservation zone or near to the shore, while the patrolling team receive payments for their permission to do so.

Regarding the inequity in benefit sharing in terms of livelihoods diversification activities provided by NGOs or governmental programmes, it was also a challenge for local community members and non-members to give a high score. For instance, the opportunity of chicken raising, given to some of the families in the community, was based only on a decision made by the committee. Normally, committee members have the right to decide who should get support from the NGOs or government programmes.

Lastly, the limited capacity for mobilizing the people to engage in many kinds of Community Fisheries activities implementation was a crucial aspect for consideration. Mostly, the committees just implement activities among the community committee themselves, or other families who have a close relationship with them. This non-inclusive practice is a cause of weak Community Fisheries management and implementation, it was reported.

However, approximately 47.32 percent (88 male respondents) felt that Community Fisheries implementation was about at the medium level since at least they had done some good things within the plan such as mangrove re-plantation, conservation area establishment, fish refugia establishment, and quite often patrolling for which they received no supplementary salary.

Of the **female respondents**, who are community and non-community members, approximately 5.38 percent (10 respondents) also indicated their level of satisfaction as being at the medium scale. The rest - approximately 5.90 percent (11 respondents) – indicated a very low level of satisfaction with the current implementation of Community Fisheries management because they thought that Community Fisheries could not fully and effectively implement activities for improving the coastal fisheries resources in a sustainable manner.

PREAH SIHANOUK PROVINCE

(Graphic 15: Level of satisfaction of fishers with CFi activities implementation in Preah Sihanouk province)

Similarly, in Preah Sihanouk province, 33.11 percent of responses from all of the respondents (151), including 9.27 percent of female respondents, indicated between a low and high level of satisfaction with the Community Fisheries implementation. This was because they had found

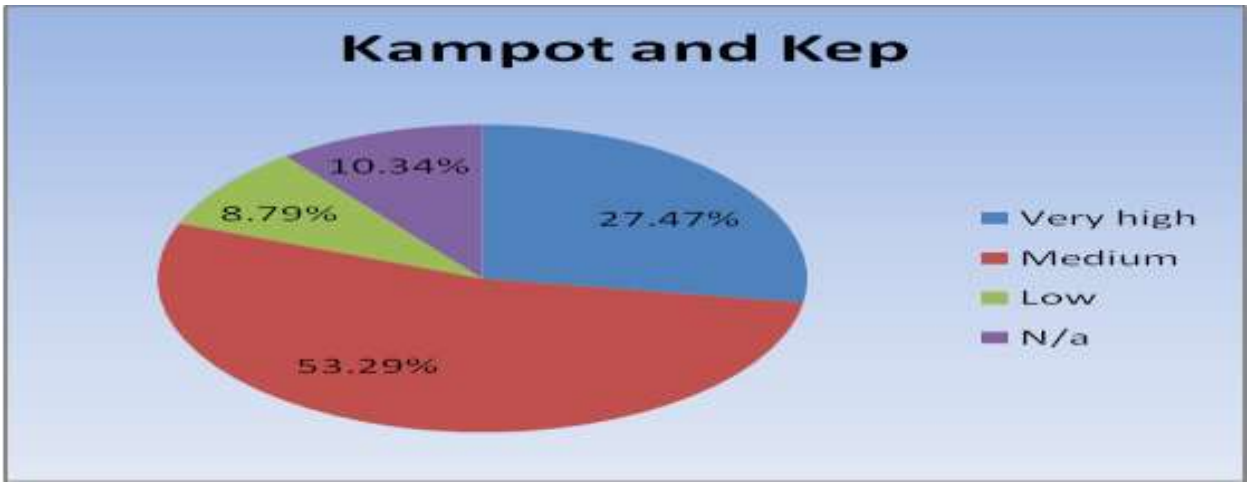
some good things, like crab bank establishment, fish conservation area establishment and mangrove re-plantation, that could help to improve the stock biomass of the crab and other fisheries resources. This will benefit the Community Fisheries members' livelihoods. However, there was also some disappointment relating to the management of the Community Fisheries, given that there are still many engine pushing boats operating along the community boundary and there is no one who can combat this effectively.

Approximately 36.42 percent, equal to 55 respondents, including 3.97 percent, equal to six, female respondents, knew nothing about Community Fisheries implementation and did not care about the existing work in their own area.

Only 23.18 percent - equal to 35 respondents, including 3.31 percent, equal to five female respondents - were very satisfied with the current Community Fisheries activities and their implementation level. Respondents in this category reported that Community Fisheries combat illegal fishing activities and help small-scale fishers. In addition, Community Fisheries help to improve the mangrove and other flooded forest areas by trying to replant those kinds of species that are important as habitats for fish and crab.

Although many community people provided feedback in respect of the Community Fisheries activities management and implementation, around 7.29 percent were not really satisfied with the Community Fisheries implementation. This is because they had less chance to be involved, and some thought that there was a degree of non-transparency attached to this.

KAMPOT AND KEP PROVINCE



(Graphic 16: Level of satisfaction of fishers with CFi activities implementation in Kampot and Kep province)

This group did not differ from those from Koh Kong and Preah Sihanouk, in that 53.29 percent (equal to 97 respondents, including, 8.24 percent equal to 15 female respondents) felt that the level of implementation of Community Fisheries activities was about at the medium level.

Compared with the other two provinces, Kampot is the one that has better implementation of Community Fisheries because there is a lot of support from both government and NGOs. Respondents also reported that Community Fisheries have conducted some important activities including mangrove replantation, crab banks, integrated agriculture, savings groups, conservation area establishment, fish refugia etc. This could help to improve the stock biomass of marine species.

Furthermore, approximately 27.47 percent (equal to 50 respondents including 7.14 percent, equal to 13, female respondents) were really satisfied with the Community Fisheries management and implementation. They added that CFis had completed many kinds of activities that help to improve people's well-being. There were fewer respondents who were not really satisfied (or who did not know about Community Fisheries activities implementation). Dissatisfied respondents blamed issues relating to non-transparency in allocating crab bank loans for members, and crab bank management, which discouraged them from joining in.

B.1.2.8. Women's participation in co-management

In Cambodia, 29.2 percent of the 2.5 million households were headed by females in 2004, an increase from 25.7 percent in 1998. This, however is slightly higher in rural areas than in urban areas (NIS 2004). About 65.5 percent of Cambodian people are considered economically active, and the statistics show that women are equal to men in this respect. The contribution of many hardworking women engaged in agriculture-related livelihoods is under-appreciated; four out of 10 employed people are unpaid family workers, and women are more likely to be unpaid (52 percent) than men (34.8 percent). (The remaining percentages encompass other people including elders and children.)

Many studies have described the different involvement of women in every aspect of rural livelihoods in Cambodia, from farming to trading, to fishing (CBNRM LI 2008; FAO 1997; IFM 2007; Keang Seng 2001; Khim et al. 2002; STREAM 2000). The involvement of women in fisheries also plays a part in their everyday livelihoods, and in the household and national economy. This sector contributes significantly to nutritional needs - for instance, more than 75 percent of the total animal protein intake in people's diets. In the economic sphere, the fisheries sector alone contributes 10 percent to the GDP of Cambodia, with 1.5 million people employed full-time and at least 6 million, part-time.

Although national statistics are unpublished, micro-level and regional studies indicate that 57 percent of the fisheries labor force is women. In this context, the Fisheries Administration (2009) suggests that promoting gender equity within this sector is important to ensure that rights and entitlements to resources, assets and services, as well as to decision-making processes, are equitable. Women's role in directly supporting men's fishing through activities such as repairing fishing gears and nets is also reported (Ahmed et al., 1998; Thay et al., 2005; Chap et al., 2008). The CBNRM Learning Institute research in 2008 supported these earlier studies, maintaining

that, without women's involvement in cleaning, preserving, and marketing the fish, fisheries-based livelihoods in rural communities could not be sustained. This is why women's involvement in household decision-making about fishing-related livelihoods, and in the management of fisheries at community level, is so important.

However, the current involvement of women in decision making about fisheries is poorly documented (Oxfam-GB, 2006; Yin, 2007; CBNRM LI, 2008). Some studies indicate that decision-making positions relating to economic issues are dominated by men. When women do take on leadership roles, it is often in less influential positions such as secretary or treasurer, which are those traditionally assigned to them because of the view that they pay more attention to detail and are better at budgeting (Oxfam-GB 2008). Community Fisheries are sometimes seen as a mechanism to provide assistance to vulnerable groups in the community, including women. While some progress has been observed it has so far been limited (Oxfam-GB 2006; Yin Dara 2007; CBNRM LI 2008). The level of meaningful involvement of women in the management of Community Fisheries, including participatory planning, decision making, and benefit sharing, has yet to be assessed in depth (IFM 2007).

The CBNRM Learning Institute (2008) indicated that women and men have different roles, needs and interests in terms of individual household and Community Fisheries work. In the context of decision making, men are more likely to dominate in terms of the heavy activities within the household and Community Fisheries, including fishing, patrolling, boundary demarcation, cracking down on illegal fishing activity and meetings. Women mostly dominate in cooking food, taking care of children, and in savings and self-help groups. In the Community Fisheries, during meetings, since most of the community committee are men and they are the ones who will be implementing most of the activities and are usually more knowledgeable than women on fishing activities, they are more likely to be the main decision makers.

Table 09: Degree of women's involvement in decision making (Community Fisheries committee)

Province	**Koh Kong**	**Kampot**	**Preah Sihanouk**
N# of committee members	33	36	64
N# of women committee members	2	8	12
Percentage	6.06 %	22.22 %	17.19 %

The survey confirmed that among the three Community Fisheries in **Koh Kong** province, only 6.06 percent (equal to two) among the 33 community committee members holding positions at committee level where they could influence any decision making in the Community Fisheries, are women. Similarly, in **Kampot** province, only 22.22 percent (equal to eight) of the 36 Community Fisheries committee members holding positions as committee members are women. There are many reasons why fewer women than men participate in decision making at the community committee level: for instance, they are not confident enough to hold such high

positions, and also they have housework to perform and therefore insufficient time to commit to Community Fisheries committee positions.

Different from Koh Kong, 17.19 percent (equal to 12) females among the 64 people who hold positions as community committee members in **Preah Sihanouk** province are women. Some possible reasons for this are their own motivation during the election to become leading Community Fisheries committee members, and their wish to have better management of fisheries resources.

B.1.3. Existing legal instruments to support coastal fisheries co-management

B.1.3.1. Background of the co-management legal instruments

Co-management, or community based management, in Cambodia does not exist in reality because of historical and political challenges (Marschke and Nong, 2006). The history of Cambodian Community Fisheries legislation is quite new. Before 2000, a number of Community Fisheries were established by NGOs in Cambodia, especially in provinces along the Mekong and in Siem Reap (FiA, 2008). But without legal backing or policies on Community Fisheries, those Community Fisheries, when they were established, were not aligned with government strategy. Despite this many were set-up in the coastal area to protect marine and inland resources, especially fisheries. Only in 2000 did the Royal Government of Cambodia recognize the importance of fisheries resources and, in order to manage them in a sustainable manner, it established new legislation on Community Fisheries groups to decentralize the resources by eliminating 56 percent (about 532 582 hectares) of fishing lots in the country (FiA, 2008). After 2000, with the announcement from the government about organizing Community Fisheries by following political lines, Community Fisheries were established in accordance with the guidelines. The management of the resources then became the role and responsibility of communities. However, it was only in 2005 that the sub-decree on Community Fisheries was approved. This was adapted from the Royal Decree and the Fisheries Law, which was officially promulgated in 2006. Again, in 2007, the sub-decree on Community Fisheries management was revised to be consistent with Fisheries Law and has come into effect since then. This sub-decree basically consists of 14 chapters that provide the steps in the establishment of Community Fisheries. Although, in 2009, 469 Community fisheries were established countrywide, of which 434 are located at freshwater sites and 35 are located at the coastal area (FiA, 2009), communities have experienced a lot of challenges in managing these, primarilty because of limited financial management capacity and coordination, and limited support from stakeholders (Nasuchon, 2009).

B.1.3.2.Fisheries legislation

The oldest Fisheries Law in Cambodia came into effect in 1987. It was then updated and revised to the new version in 2006 by the Ministry of Agriculture, Forestry and Fisheries with participation from government agencies and other stakeholders, including NGOs, IOs, and other

research projects. In addition, in the coastal zone, two management strategies were set up - Community Fisheries management and commercial fisheries management.

In summary, the current existing legal instruments to support coastal fisheries co-management are formulated into three levels - national, provincial and local.

At the national level, according to the FiA 2008, there are eight legal instruments that directly support coastal co-management of fisheries. These include:

- Fisheries Law
- Royal Decree on the Establishment of Community Fisheries
- Sub-decree on Community Fisheries Management
- Prakas on the Community Fisheries Guidelines, Prakas No.316 Brokor.KorSorKor dated 13 July 2007 on the Model of Community Fishing By-laws
- Prakas No. 316 BroKor.KorSorKor dated 13 July 2007 on the Model of Community Fisheries Internal Rules
- Prakas No. 316 Brokor.KorSorKor dated 13 July 2007 on the Community Fishing Area Agreements and;
- Prakas No.316 Brokor.KorSorKor dated 13 July 2007 on the Model of Community Fishing Area Management Plans.

At the provincial level, there is no clear indication of the legal instruments that specifically support the coastal Community Fisheries management besides the series of supporting regulations issued by the provincial governors, aligned with the national legal instruments. At the local level, there is only one instrument that directly supports the Community Fisheries implementation - the so-called Deka of the commune councils to recognize the membership and activities plans of Community Fisheries.

B.1.4. Level of satisfaction with co-management policy implementation

The existing legal instruments in Community Fisheries seem to offer uneven support (Blomley et al., 2010), and the regulations support only those who have the means. Mosquito nets and small boats, for example, which are used by the poor fishers to fish around the shore, are illegal. As a result, they cannot be members of the Community.

The implementation of the Community rules overlap with those of other institutions especially MoE and MAFF. The weakness of this unclear state of affairs is a burden to conflict resolution and the effectiveness of law enforcement.

Cambodia is very young in terms of implementing the law on coastal fisheries management in an effective manner (Nasuchon, 2009). The law on marine fisheries management in Cambodia is

under an open access framework where there is no clear definition about how many gears fishers can use, or at what level they can operate, how long they can fish, and the amount of resources that can be captured (Puthy, 2007). The implementation of Fisheries Law against illegal fishing activities for national and international fishers thus needs to be enforced and this requires more time to achieve (Nasuchon, 2007; Puthy, 2007).

Legislation on fisheries management in Cambodia is mainly focused on inland fisheries, leaving only a weak strategy in respect of coastal fisheries (Nasuchon, 2009). The law on coastal management and its enforcement is weak because government action here has only just started: the law has only been in place for the last few years (Nasuchon, 2009).

The survey confirmed that at the provincial level, 29 respondents including seven females from various government institutions, NGOs and micro-finance institutions (13 respondents from Kong Kong, eight from Kampot, and eight from Preah Sihanouk) felt that all policies and legal instruments such as Law, Royal Decrees, Sub-decrees and relevant Prakas and Guidelines were very good. However, they hesitated to say that those legal instruments had been well or badly implemented due to limited capacity among both government officers and local communities to collaborate, and the low level of extension training. Furthermore, a common understanding about coastal resources is yet to be fully reached among many stakeholders. The average level of their satisfaction with policy implementation is in the medium scale - approximately 44.83 percent (equal to 13 respondents - three respondents from Koh Kong, five from Kampot, and five from Preah Siahnouk) - while most responses fell into the very weak categories - around 55.17 percent (equal to 16 respondents -10 respondents in Koh Kong, three in Preah Sihanouk and three in Kampot).

B.1.5. Relevant government agencies and stakeholders that support fisheries co-management

B.1.5.1. Stakeholders involved in coastal fisheries co-management

The survey indicates that there are a number of stakeholders involved in coastal fisheries co-management in different provinces including government agencies, non-government organizations, local authorities and development partners. The table below explains in detail about the stakeholders who support marine fisheries co-management and their roles and responsibilities.

Table 10: Stakeholders involvement in Community Fisheries

List	***Name***	***Types of stakeholder and support***	***Roles and Responsibilities***
1	*Fisheries Administration and Inspectorate*	*As a government agency and support both technical and financial*	*Provides services on development and implementation of wider policies as well as seeking financial support from development partners.*
2	*Fisheries Administration Cantonments, Division*	*As a sub-government agency and support both*	*Provides technical coordination including Community Fisheries establishment, registration and seeking for financial support and conflict*

	and Sangkat	*technical and coordination*	*resolution mediation. Also provides capacity building and livelihoods alternatives for local Community Fisheries people.*
3	*Provincial Department of Environment*	*As a government agency and technical contribution*	*Provides consultation on environmental impact of the associated Community Fisheries management activities and some livelihoods enhancement and diversification.*
4	*Provincial Department of Agriculture*	*As a government agency*	*No support to Community Fisheries*
5	*Provincial Department of Water Resources and Meteorology*	*As a government agency*	*No support to Community Fisheries*
6	*Provincial Department of Women's Affairs*	*As a government agency and advisory support*	*Extension work on gender, domestic violence, roles and gender analysis, roles of spouse in families and community work and advice on sources of micro-credit*
7	*Provincial Department of Transportation*	*As a government agency*	*Not support to Community Fisheries*
8	*Provincial Department of Labour and Vocational Training*	*As a government agency*	*Support livelihoods activities diversification for community members such as pig raising, chicken raising, etc.*
9	*Communal police*	*As a security agency*	*Illegal fishing activities combat*
10	*Commune councils*	*As the local authority*	*Issue Deka for supporting the Community Fisheries members and committee as well as illegal fishing activities combat, and integrating Community Fisheries into communes development plans (NREM and L)*
11	*District councils and executive and police military*	*As the local authority*	*Combatting illegal activities*
12	*FAO*	*As UN agency*	*Establishment, capacity building and preparation of management plans for Community Fisheries*
13	*CZM/Danida*	*As development project funded by Danida ended by 2005*	*Livelihoods activities diversification and conservation area establishment*
14	*NREM and L Danida*	*As development project funded by Danida*	*Commune councils development plan in which support given to the infrastructure, and livelihoods activities of the Community Fisheries etc.*
15	*AFSC*	*As an international NGO*	*Establishment of Community Fisheries, Community Fisheries alliance, livelihoods diversification (livestock), crab banks, micro-finance services, mangrove replantation*
16	*Fine Art Association (FAA)*	*As a local NGO*	*Capacity building and mangrove replantation*
17	*Coastal Resource Institute (CORIN)/Wetlands Alliances*	*As an international NGO*	*Backstopping support to Fisheries Cantonments to implement Community Fisheries including livelihoods activities (chicken raising, pig raising, etc.), crab banks, etc.*
18	*IDRC*	*As an international NGO*	*Establishment and implementation of Community Fisheries*
19	*SEAFDEC*	*As an inter-governmental organization*	*Establishment and implementation of Community Fisheries through establishment of fish refugia, diversification of livelihoods, trans-boundary*

			coordination etc.
20	*Mlup Promvihearthor Center (MPC)*	*As a local NGO*	*Support meetings and discussion activities within Community Fisheries*
21	*Children and Women Development Centre of Cambodia (CWDCC)*	*As a local NGO*	*Support patrolling and stock enhancement within Community Fisheries through crab banks, mangrove replantation etc.*
22	*UNDP Small Grants*	*Development program*	*Small grants to Community Fisheries directly to implement the management plan.*
23	*Local fishers and people*	*Local people*	*Manage, conserve and use the resources sustainably under technical support from government agencies and local authority and police*

B.1.5.2. Quality of Community Fisheries members' participation

B.1.5.2.1. Definition of participation

The term participation is very broad, and is not often well defined. Hence it remains a vague "catch-all" to define many things depending on who participates and at what level (White, 1996:7). For instance, participation is defined in many ways by different scholars. Ribot (2000:31) says participation "… depends on the devolution of decisions over valuable resources (natural and financial) to local representative structures". Meaningful participation is when power is given to local people to make decisions which respond to their needs.

Participation plays a very important role in implementing projects which includes coastal Community Fisheries. Participation places people at the centre of decision making. The concept of participation has been used for many years, although the implementation of participation has not always seriously considered how much power is given to local people. Arnstein (1969) critiques the different ways the term participation has been applied. She describes eight levels of participation based on the degree of power given to citizens in the decision making process (ibid: 217). The eight levels are grouped under three types of participation: non-participation (manipulation and therapy); tokenism participation (informing, consultation and placation); and citizen power (partnership, delegation and citizen control). These levels highlight how participation is understood differently by different people. The failure of participation is not only about how it is understood, but also the various ways people put it into practice.

Arnstein (1969) observes that some implementers have a different understanding about the role of participation in projects. She gives an example of when participation is measured by how many people are present in a meeting, how many take documents home and/or how many questions have been answered. Sustainable development, however, does not depend on the number of people involved in a project, but rather the degree of empowerment given to local people to make decisions based on their needs. There are many ways that implementers interpret the participatory approach in practice, and this remains a challenge.

B.1.5.2.2. Importance of participation

Although participation is not a new term, it is still considered an important factor when implementing projects or decision making processes. To give rights to local people means to empower them and to give them the chance to be involved in their own communities. The participatory approach has been believed by donors for many decades to be an essential component to improve governance. The World Bank (1994) uses the participatory approach to share and integrate ideas about development projects from all relevant actors towards common resources management.

Community participation aims to give a voice to local communities. The greater involvement from participants, the better the result. An important point to consider is how participation affects outcomes in development projects. Vandersypen et al. (2006) suggest that as participation engages local people in development projects, they become central to decision making processes. Participation allows local people to have a sense of ownership of the project (Sheldon, 2005; Sedara and Öjendal, 2007).

Table 11: Quality of fishers' and their families' participation in Community Fisheries

Province	**Koh Kong**		**Preah Sihanouk**		**Kampot**	
	Women	Men	Women	Men	Women	Men
Non-participative	23	163	16	84	18	45
Participative (medium)	0	0	16	35	16	93
Very participative (high)	0	0	0	0	0	9

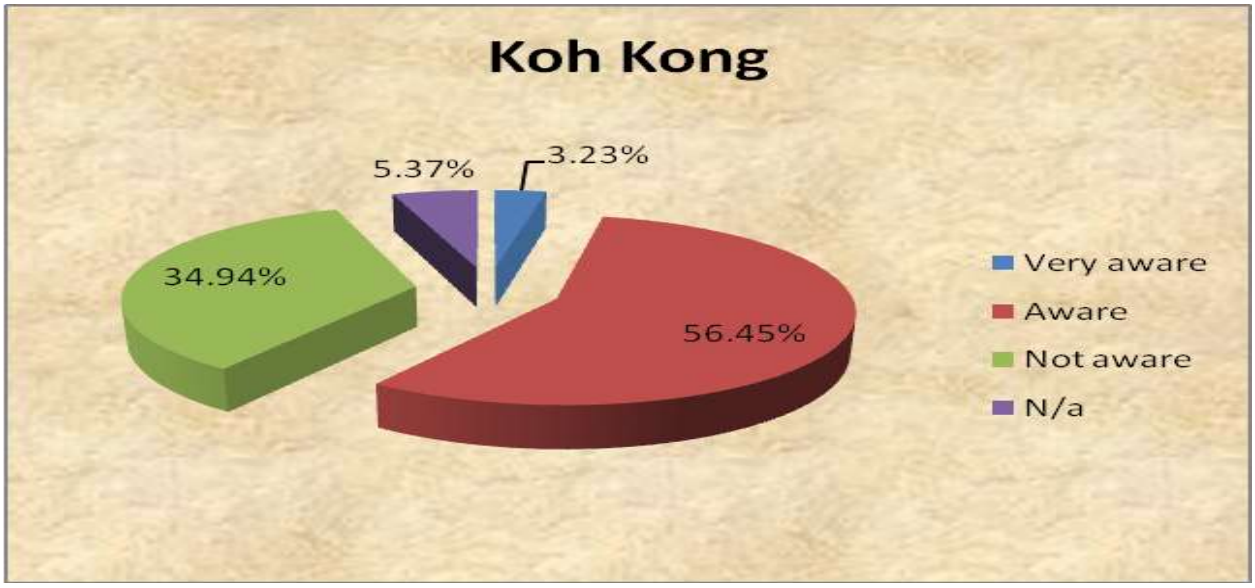
In practice, participation is often used to meet donors' requirements in order to get funding for development projects, and this is especially the case in developing countries. Consistent with the literature review, the survey confirmed that most of the coastal Community Fisheries do not have real participation from their own members. Using the Arnstein's ladder of participation to measure the level of people's engagement in Community Fisheries activities management and implementation, it is shown that, in **Koh Kong** province, 100 percent of both female and male respondents among Community Fisheries members have been asked to participate in various activities but without any powers for consultation or decision making. In **Kampot**, about 59.89 percent (equal to 109 respondents, including 16 females) and in **Preah Sihanouk**, 33.80 percent (equal to 51 respondents, including 16 females), have also been allowed a level of participation which can be described as `medium` (Tokenism). This means that they are just informed about interventions, and partially consulted, but do not have decision making powers. In **Preah Sihanouk provinces**, some respondents - around 66.20 percent, equal to 100 respondents including 16 females - and 34.61 percent, equal to 63 respondents, including 18 females, respectively, reported the same as their counterparts in **Koh Kong** province. They said that they were not informed or consulted about many activities because they are very busy generating income and did not have enough time to join meetings or discussions at the community level.

Therefore, they did not really participate in the decision making about, or implementation of, Community Fisheries activities. Only 4.95 percent (nine respondents) were very participative in meetings or Community Fisheries activities because they had been involved since 2004.

B.1.5.3. Fishers' and their household members' awareness about Community Fisheries activities

Many studies indicate that many fishers and fishers' household members understand or are mostly aware of the planning and implementation of Community Fisheries activities. Coastal fishers in Cambodia do not really have enough time to frequently engage with Community Fisheries activities planning and implementation because most of their time is allocated to their own family income generation.

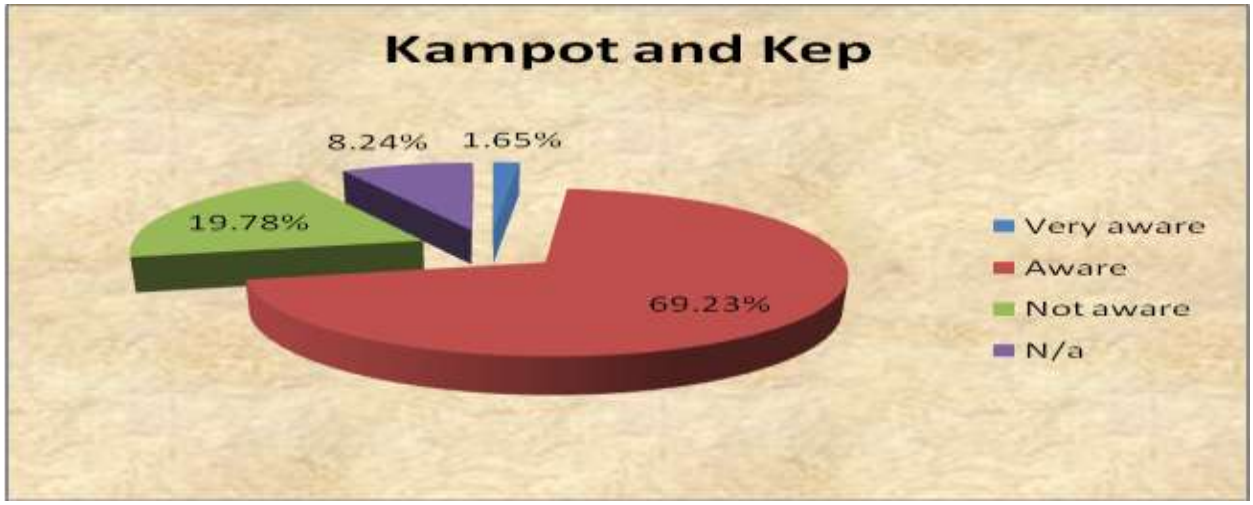
KOH KONG PROVINCE



(Graphic 17: Level of awareness of fishers/their family members about CFi activities Koh Kong province)

The survey in Koh Kong confirmed that, among the 186 respondents (including 23 females), 56.45 percent (6.45 percent female and 50.00 percent male - equal to 105 respondents) were aware of Community Fisheries activities in management plans/action plans because they knew at least three activities among the 11 listed in the survey. These include mangrove replantation, illegal fishing combat, and patrolling. This is because they have been informed by the community committee and invited to join in, and sometimes they have heard from other villagers who take part. However, 34.94 percent (3.76 percent female and 31.81 percent male, equal to 65 respondents) indicated that they did not really know what kinds of activities Community Fisheries were implementing because there was a gap in the consultation and information processes about the Community Fisheries planning process.

KAMPOT AND KEP PROVINCE



(Graphic 18: Level of awareness of fishers/their family members about CFi activities in Kampot and Kep province)

Consistent with Koh Kong province, the average level of awareness about Community Fisheries activities in Kampot province is in the medium scale. Among the 182 respondents (including 34 females), 69.23 percent (females = 12.09 percent, and males = 57.14 percent), which totals 126 respondents, gave this score. Most of the six Community Fisheries in Kampot are supported by many NGOs and projects. This means that community members have a good chance to be involved with planning in the meetings and discussions during the extension and dissemination sessions held by the Community Fisheries committee.

PREAH SIHANOUK PROVINCE

(Graphic 19: Level of awareness of fishers/their family members about CFi activities in Preah Sihanouk province)

Different from Koh Kong and Kampot province, in Preah Sihanouk the level of awareness of the fishers and their family members about Community Fisheries activities is mainly low. In total, among the 151 respondents (including 32 females), 57.62 percent (10.62 percent female and 47 percent male, equalling 87 respondents), indicated that they knew nothing about this. On average they had heard about only one or two activities, including mangrove replantation and the combating of illegal fishing activity. This is because less attention is paid by the Community Fisheries committee to the participatory approach for planning and dissemination, as well as a lack of NGO and projects support for Community Fisheries management in this province. However, some respondents indicated that they are about at the medium level of awareness about Community Fisheries activities: that is, around 41.06 percent (9.93 percent female and 31.13 percent male) which equals 62 respondents in this category. Specifically, most of the fishers and their family members who partly know about the Community Fisheries activities are from Koh Rong Sanlem and Tomnub Rolok because these two Communities are more active and currently have some support from AFSC, and NREM and Livelihoods (Danida).

B.1.5.4. Involvement of fishers and their family members in Community Fisheries

Regarding the level of involvement of the fishers and their family members in the implementation of Community Fisheries activities, the survey indicated that there is a very low engagement for two provinces (**Koh Kong** and **Preah Sihanouk**), but in **Kampot**, more fishers and their family members are occasionally involved with some activities. In general, the reason for this is not very different to that given in respect of the level of satisfaction about Community Fisheries implementation: fishers and their family members are not really happy because they do not have enough time to join in, there is limited dissemination and extension about the importance of Community Fisheries participation, and there are trust issues with the Community Fisheries committee in terms of benefit sharing and transparency of work. In **Koh Kong** province, among the 186 respondents (including 23 females), 98.92 percent (11.29 percent female - equal to 184 respondents) indicated that they have not been involved in many activities except mangrove replantation and occasional meetings. In **Preah Sihanouk** province, among the 151 respondents (including 32 females), 88.08 percent (18.54 percent female and 69.54 percent male - equal to 133 respondents) confirmed that they had only been involved in conservation area establishment and occasional meetings. This means that the level of involvement of most of the fishers and their family members is less than 25 percent (18.18 percent) in terms of the 11 activities.

In Kampot province, however, besides around 32.00 percent (7.69 percent females) of all respondents who are less involved with Community Fisheries activities implementation, there are approximately 20 percent (4.95 percent female) who are quite often involved with many kinds of activities including crab banks, community meetings, patrolling, illegal fishing combat, mangrove replantation and conservation area establishment. The level of involvement in these activities is around 25 percent to 75 percent (54.54 percent of 11 activities).

B.2. Chapter 02: Safety at sea of coastal fishing community

This chapter provides comprehensive information relating to the status of safety at sea among small-scale fishing community members. It covers coastal accidents, boat registration, and the level awareness of, and compliance of small scale fishers with, recommendations relating to safety at sea. In addition, it provides detailed information about the level of awareness and engagement of fishers/their family members in coastal disasters, and in preparedness for such events.

B.2.1. Current status of safety at sea among coastal small scale fishing community members

B.2.1.1. Types and numbers of fishing accidents and reporting systems

Coastal fishing is probably one of the most dangerous jobs in the world (FAO, 2007). Fishing in the ocean or open sea requires a lot of preparation, and it is vital that the construction of the vessels and boats meets the required safety standards. However, many vessels in Asia do not meet these requirements (FAO, 2007).

Safety at sea has a long history and reputation for fishers, and, in many countries, it is not considered an important obligation. In developed countries, it was initially implemented on a voluntary basis and has taken many years to come into effect. The United Nations Convention on the Law of the Sea, which came into force in 1994, states that each government not only has the right of access to its own (200 mile) Exclusive Economic Zone (EEZ), but also has the responsibility to manage that zone. In 1995, the code of conduct for fisheries management was created under the facilitation of the FAO. The main element of this was to include safety at sea as an important factor for general fisheries management, and all fishers must be trained accordingly (Petursdottir et al., 2001). This comes under the topic of maritime security and safety for fishing vessels and fishermen.

However, the conditions stated in the code of conduct are rarely put into practice especially in developing countries. Different countries use different equipment, of different sizes and specifications. For example, in the statement on the code of conduct, the international conditions set by the UN are very high compared with the ones used in developing countries. The majority of fishers in developing countries, such as Cambodia, use small-scale vessels for fishing. Therefore, it is important for the government to adapt the standard so that it is appropriate for local use (SEAFDEC, 2000) and everyone has the right to be appropriately protected.

Petursdottir et al (2001) argued that safety at sea in developing countries is a problem because it does not include management issues, and conditions are not obligatory. Safety regulations in Cambodia focus only on construction work, and safety at sea is not considered seriously. Vannarith (2010) concludes that the legal framework for maritime navigation in Cambodia is limited because of the lack of financial and human resources, as well as the lack of cooperation

among relevant ministries. Therefore, many accidents are experienced by small scale fishers along the coastal provinces of Cambodia.

Table 12: Interviewed safety at sea problems along the coastal provinces between 2008 and 2010

Type of safety at sea problems	Kampot and Kep	Koh Kong	Preah Sihanouk
	Number	Number	Number
Storm	74	67	79
Engine breakdown	67	87	97
Boat colliding	14	28	29
Materials loss	27	56	79
Injury	8	3	3
Loss of life	2	2	8
Capsizing	7	0	0
Stranding	0	1	1
Grounding	0	2	8
Fire, cooking area	3	1	1
Explosion	3	1	1
Loss of hull integrity	9	4	4
Boat sinking	6	8	28
Man overboard	10	1	11
Boat is missing	5	0	0
Piracy	4	0	0

The survey of 624 respondents (Community Fisheries fishers, non-Community Fisheries fishers and boat owners and crew members (see Annex 03: lists of sample respondents) confirmed that there were four main safety at sea problems occurred in the three targeted provinces of the RFLP programme. These included: engine failure or breakdown = 251 cases (Kampot and Kep 67 cases, Koh Kong 87 cases and Preah Sihanouk 97 cases); storm damage during the rainy season = 220 cases (Kampot and Kep 74, Koh Kong 67 and Preah Sihanouk 79); fishing gear loss = 162 cases (Kampot and Kep 27, Koh Kong 56 and Preah Sihanouk 79); and boat collisions = 71 cases (Kampot and Kep 14, Koh Kong 28 and Preah Sihanouk 29).

In cases of engine breakdown, all respondents reported that this was because the engine was very old and fishers cannot normally afford to buy a new one. Storm damage was seen as inevitable in coastal areas during the rainy season. Normal storms can give rise to waves around 0.5 m to 1m high, but there have only been two cases of strong storms during the last two years (i.e. since 2008).

Fishing gear loss is normally the result of theft or conflicts between engine pushing boats and trawlers, and small scale fishers who use crab/shrimp nets and crab traps. The engine pushing boats and trawlers always destroy the nets and traps of the small scale fishers. Fishers reported that sometimes they lose around 100 m of crab net and 20 to 30 crab traps. Boat collisions also

occur because of conflicts between small scale and medium scale fishers, but only in respect of the engine trawler boats.

Although fishers, boat owners and crew members face many challenges in terms of accidents during fishing, they have never reported these officially to the local authorities (including the commune councils), fisheries officers, police or navy because they think that, even if they do inform all of these agencies, they will not receive any assistance. So they just talk about them with their families, villagers and other people in the community because there is no reporting system in place to ensure that safety at sea issues are officially dealt with. The survey confirmed that, in **Koh Kong** province, among the 231 respondents, only one crew member had submitted an official report about a boat collision between a trawler engine boat and crab fishers. When the other 230 respondents (around 99.57 percent) had problems, they solved them by themselves or just asked for help from the fishers in boats nearby.

Similarly, in **Preah Sihanouk** province, among the 170 respondents only one woman had reported a fishing accident to the community committee. This was because she thought that the community committee would help in asking the owner of the big trawler boat that had damaged her fishing nets, to replace them. The other 169 respondents (99.41 percent) did not report incidents to the relevant agencies because they thought that reporting was not necessary and did not feel obliged to do this because they felt that nobody would help them.

Likewise, in **Kampot/Kep** province, the great majority of cases relating to accidents at sea were not reported to the relevant authorities. The survey findings indicate that, among 225 respondents interviewed, about 92 percent did not report accidents at sea, and around 8 percent gave no answer at all to this question. Of those who confirmed that accidents at sea were not usually reported, 14 percent were women and about 79 percent were men. One of the main reasons reported by most fishers and coastal dwellers is that 'reporting' seemed to make no difference, because they expected that there would be no intervention from local authorities. Most often, fishers tended to call their relatives, family members or other fishers who were fishing nearby them to help. It was observed that accidents-at-sea were known about by word of mouth from one fisher or villager to another. During field consultations and interviews, very little intervention by relevant local authorities was observed to assist local fishers when accidents at sea were reported.

Chokesaguan et al (2010) suggest that in order to improve safety at sea for coastal small-scale fishing in Southeast Asia, each country should apply some specifications. The government plays an important role in applying and coordinating relevant authorities. The strengthening of the Fisheries Law, particularly the registration of the vessels that fish at sea, would help the fishers use appropriate engines. Also, communications or warning signs for fishers should be more accessible and appropriate enough to convey accurate information. However, all of these conditions can be put into practice only when there is a strong commitment from government.

B.2.1.2. Awareness of safety at sea items

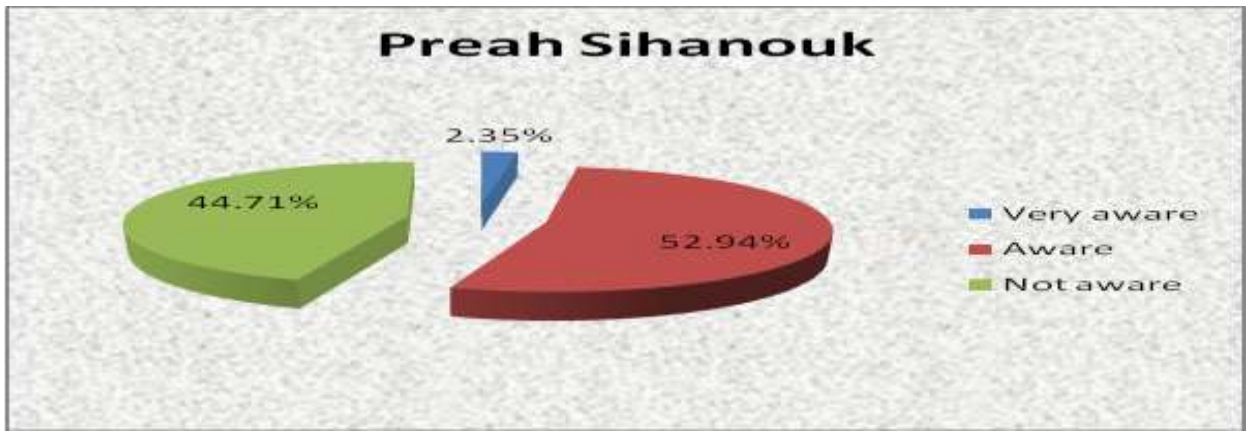
Linked to lack of reporting mechanisms for fishing accidents, the survey also indicated that most small scale fishers did not fully understand, or were not aware of the safety at sea items (recommended by MAFF) that should be used when they are going to fish offshore or inshore. The customary fishing practices, limited financial resources and the scale of fishing operations are the main reasons. Fishers, boat owners and crew members normally observe practices handed down from previous fishing generations in terms of both technical issues and ways of fishing.

KOH KONG PROVINCE

(Graphic 20: Level of awareness of fishers/boat owners, boat builders and crew members about safety at sea items in Koh Kong province)

The survey indicated that, in Koh Kong, among the 231 respondents, 69.27 percent (53.25 percent fishers and 16.02 percent boat owners and crew members - equal to 160 respondents comprising 123 fishers and 37 boat owners and crew members) were not well aware of issues relating to safety at sea and were familiar with only six to 16 items from a total of 21. This is classified as an awareness level from 25 percent to 75 percent. However, there were also 30.73 percent (27.27 percent fishers and 3.46 percent boat owners and crew members, equal to 71 respondents comprising 63 fishers and eight boat owners and crew members) who were familiar with less than six items (an awareness level of approximately 25 percent).

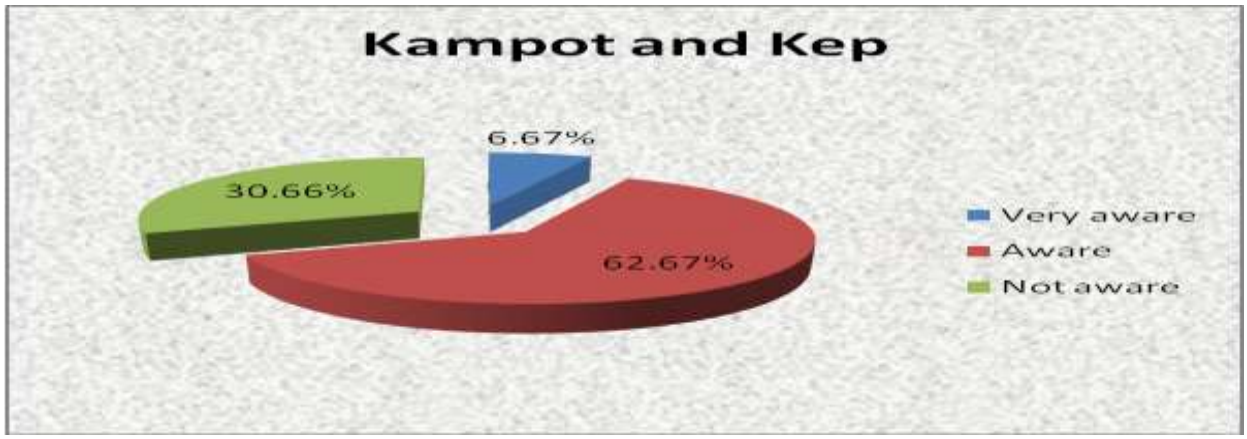
PREAH SIHANOUK PROVINCE



(Graphic 21: Level of awareness of fishers/boat owners, boat builders and crew members about safety at sea items in Preah Sihanouk province)

Similar to the situation in Koh Kong province, there were not many fishers, boat owners and crew members who were well aware of safety at sea items in Preah Sihanouk province. In the survey, only four boat owners were well aware among the total respondents of 170, which is equal to 2.35 percent. This means that these four boat owners knew more than 16 items of safety at sea among the 21. However, there were 52.94 percent (44.12 percent fishers and 8.82 percent boat owners and crew members, equal to 90 respondents comprising 75 fishers and 15 boat builder and crew members) who were at the medium level in that they were aware of between six and 16 items. So their level of awareness ranged from 25 percent to 75 percent. The remaining 44.71 percent, which equals 76 respondents, knew about fewer than six.

KAMPOT AND KEP PROVINCE



(Graphic 22: Level of awareness of fishers/boat owners, boat builders and crew members about safety at sea items in Kampot and Kep province)

Consistent with the results in Koh Kong and Preah Sihanouk, in Kampot province, among the 225 respondents interviewed, the majority (62.67 percent), of whom about 8 percent were women, reported that they were partly aware of the safety items listed in MAFF's proclamation.

Only about 7 percent, who were all men, revealed that they were very aware of these safety items. The remaining 30.66 percent said that they were not aware. It was also observed that those who were 'very aware' or 'aware' of safety items as outlined in MAFF's proclamation, were usually highly experienced fishers who were used to working on, or who owned, a relatively large fishing boat which could fish offshore. In contrast, those who were not aware of these safety items were fishers who owned smaller boats that could fish only inshore along the coastline.

Table 13: Frequency of level of awareness about safety at sea items

Province	Preah Sihanouk		Kampot		Koh Kong		Average
Safety at Sea Items	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Flag	81	48.21	85	37.78	77	33.33	39.78
Anchor	94	55.95	145	64.44	202	87.45	69.28
Boat body	31	18.45	95	42.22	79	34.20	31.62
Boat navigation rules	2	1.19	18	8.00	0	-	3.06
Compass/ GPS	60	35.71	81	36.00	68	29.44	33.72
Container or freezer	103	61.31	79	35.11	58	25.11	40.51
Emergency alert materials	0	-	15	6.67	14	6.06	4.24
Engine system	77	45.83	111	49.33	89	38.53	44.56
Fire fighter materials	6	3.57	17	7.56	16	6.93	6.02
First aid box	13	7.74	15	6.67	7	3.03	5.81
Fishing gear storage place	50	29.76	26	11.56	9	3.90	15.07
Helm system	43	25.60	103	45.78	84	36.36	35.91
Life jacket	48	28.57	82	36.44	69	29.87	31.63
Light sign	112	66.67	132	58.67	194	83.98	69.77
Pumping engine	52	30.95	77	34.22	64	27.71	30.96
Radio (ICOM)	70	41.67	97	43.11	178	77.06	53.94
Repair tools	98	58.33	114	50.67	193	83.55	64.18
Rubbish bin	0	-	12	5.33	10	4.33	3.22
Telescope	3	1.79	18	8.00	14	6.06	5.28
Traffic sign	0	-	18	8.00	16	6.93	4.98
Water level measurer	1	0.60	11	4.89	9	3.90	3.13
Average by each province		26.76		28.59		29.89	28.41

According to the frequency calculation, there are three safety at sea items of which awareness is common in these three provinces (refer to the table above). These include light signs, repair tools and anchors. Specifically, in Preah Sihanouk, the figures are: light signs (66.67 percent), repair tools (58.33 percent) and anchors (55.95%). In Kampot, the ratings are: anchor (64.44 percent), light signs (58.67 percent) and repair tools (50.67 percent). And in Koh Kong, the score was: light signs (83.98 percent), anchor (87.45 percent) and repair tools (83.55 percent).

B.2.1.3. Compliance with the items recommended for safety at sea

Most of the coastal fishers do not widely use the complete set of recommended safety at sea items, just those that are affordable, accessible and useable in accordance with their resource capability. In **Koh Kong**, among the 231 respondents, almost 70 percent (67.53 percent, equal to 156 respondents, which includes 55.41 percent of the fishers and 12.12 percent of the boat owners and crew members) use less than six among the 21 recommended items because they cannot afford to buy them all. They just use the normal items such as anchors, light signs, repair tools, freezers, etc. Some were, however, using between six and 16 out of the 21 - this accounted for around 32.47 percent of the total respondents, comprising 25.11 percent from the fishers and 7.36 percent from the boat owners and crew members. They mostly use medium scale fishing boats - in between 22 horsepower and 33 horsepower - because they have medium level living standards.

Similarly, in **Preah Sihanouk**, responses indicated that more than 50 percent (57.65 percent, equal to 98 of the fishers and boat owners and crew members sampled) do not use the complete set of recommended items for safety at sea. They think it is not necessary as they just own a rowing boat and go to fish in the morning near the mangrove forest and come back home in the evening. They just use those items that are available on the boat. However, the boat owners do not provide life jackets, GIS, or water level measures as they are expensive and also there is a superstition that having life jackets on the boat is a sign of bad luck. Less than 45 percent (i.e. 72 fishers and boat owners and crew members sampled) use between six and 16 of the 21 items recommended.

In **Kampot**, although the majority of coastal fishers are aware of the safety items required in the safety-at-sea recommendations, the field survey indicated that, of 225 respondents, only about 51 percent (15.56 percent were boat builders, boat owners and crew members) said that they partly comply with 25-75 percent of all safety items. The rest, (49 percent – 3.56 percent are boat builders, boat owners and crew members) had not done so, and none confirmed that they had fully complied with the items as stipulated in the recommendations.

It is worth noting that oil containers were reported to have been used more frequently by fishers than life jackets when there was an accident. Some fishers have a superstition that wearing a life jacket at sea means that they wish the boat to sink. Also, generally all fishing boats operating during the night have light signs which are necessary for all people at sea to recognize and to prevent injuries and boat collisions. In addition, cell phones play a more important role than radio communication (ICOM) as they are handy, fast, and cheap. Some trawlers seem to comply well with the safety-at-sea items as they have a fairly large boat and have to fish offshore.

Table 14: Frequency of compliance in respect of safety at sea items

Province	Preah Sihanouk		Kampot and Kep		Koh Kong		Average
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
Safety at Sea Items							
Flags	10	5.95	43	25.60	74	32.03	21.19
Anchors	80	47.62	133	79.17	202	87.45	71.41
Boat body	27	16.07	79	47.02	80	34.63	32.58
Boat navigation rules	6	3.57	7	4.17	0	-	2.58
Compass/ GPS	47	27.98	24	14.29	29	12.55	18.27
Container or freezer	81	48.21	48	28.57	53	22.94	33.24
Emergency alert materials	0	-	3	1.79	2	0.87	0.88
Engine system	71	42.26	3	1.79	98	42.42	28.82
Fire fighter materials	0	-	4	2.38	9	3.90	2.09
First aid box	9	5.36	4	2.38	5	2.16	3.30
Fishing gear store place	32	19.05	12	7.14	9	3.90	10.03
Helm system	33	19.64	3	1.79	90	38.96	20.13
Life jackets	5	2.98	11	6.55	69	29.87	13.13
Light signs	101	60.12	116	69.05	191	82.68	70.62
Pumping engine	54	32.14	65	38.69	64	27.71	32.85
Radio (ICOM)	59	35.12	51	30.36	176	76.19	47.22
Repair tools	84	50.00	99	58.93	199	86.15	65.03
Rubbish bins	0	-	0	-	7	3.03	1.01
Telescope	0	-	5	2.98	4	1.73	1.57
Traffic signs	0	-	5	2.98	12	5.19	2.72
Water level measurer	0	-	3	1.79	2	0.87	0.88
Average for each province		19.81		20.35		28.34	22.84

Quite similar to the level of awareness about safety at sea items, it was calculated that, in terms of compliance, three items for safety at sea are commonly used in these three provinces. Those include light signs, repair tools and anchors (refer to the table above). Specifically, in **Preah Sihanouk** province, the figures are: light signs 60.12 percent, repair tools 50.00 percent, and anchors 47.62 percent. In **Kampot** province, the figures are: anchors 79.17 percent, light signs 69.05 percent and repair tools 58.93 percent. And in **Koh Kong** the figures are: light signs 82.68 percent, anchors 87.45 percent and repair tools 86.15 percent.

General observation indicated that, sometimes, when there was a discussion about safety- at-sea items or regulations, the respondents had no idea and did not even think that these were important for them.

B.2.2. Legal regulations for supporting safety at sea

The decline of fishery resources does not only affect the environment ecosystem, but also human lives. The FAO (2007) states that among the main causes are overfishing and the use of illegal equipment for fishing.

In addition, the current management, and inadequate institutional arrangements create an unsafe environment for fishers. The application of regulations concerning the use of vessels is also still limited and this could be a major contributor to the unsafe environment. Furthermore, there are a number of illegal fishers about whom no records are kept and these add to regulatory problems.

Safety at sea is particularly an issue for small-scale fishers who have limited capital to equip their vessels to make them safe. They, therefore, risk their lives in the face of unpredictable natural disasters. Hence, regulations designed to protect these fishers when they are at sea are crucial.

This issue is, however, generally overlooked by government. In many countries, particularly in the Indian Ocean region, safety at sea is not considered a priority. Indeed, it is often not considered at all (Nageon de Lestang, 2007). This kind of indifference also exists in Cambodia, where raising awareness or improving safety at sea is not prioritized for adoption into legislation.

It is, however, one of the major issues that the FAO has been working on since 1945 (FAO, 2007). Initially, this concern was focused only on developed countries where fishing takes place on the ocean - the most dangerous environment for fishers. It then spread out to seven countries around the Bay of Bengal - Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka and Thailand. There was good cooperation from the governments in the seven countries, although this did not mean that all had taken this issue seriously: it was not until 1984 when recognition of this matter was taken really seriously (FAO, 2007).

As recommended by Chokesaguan (nd), each country in Southeast Asia should take safety at sea more seriously by providing appropriate information and by giving warnings and rescuing people when necessary, especially fishers. It is also important to report accidents and other issues so that these can be investigated later on to improve safety guidelines (ibid).

Safety at sea earns more attention from the global perspective and many counties are now appreciating its importance. However, the current challenges for those in the Southeast Asian region are that the related requirements are designed only for large-scale fishing or commercial businesses. The needs of small-scale fishers in this region should, therefore, receive urgent attention.

Consistent with the literature review, in the coastal region of Cambodia, the survey found that most of the legal instruments for supporting safety at sea focused on the large/big scale fishing vessels. Some of those legal instruments include:

1. Boat registration *(Sarachor on Sea Shipping Management gh#006 SRC/MPWT, Oct 01, 1999 MoMPWT)*
    a. *Register for identification signs with heading number 6 (for fishing boat). For Example- kB6-0001*
    b. *Weight above 1T*
    c. *Fishing boats from 75 CC and below have to register with the Provincial Department of Transportation*
2. Prakas on Boat technical control *(#157/BKSK/DC, Apr 01, 2010, MoMPWT)*
    a. *Delegation of roles and responsibilities to the Provincial Department of Transportation to manage all fishing boats sized 250 CC and below.*
3. Prakas on Fishing Boat Technical Control *(MAFF 2010)*
    a. *Identify technical management of fishing boats in Cambodia to guarantee safety, well-being, hygiene, environmental issues, security, order and life protection fishing for fishing boats weighing from 500 kg*
    b. *Technical control criteria are the same as safety at sea items, plus boat signs. The boat colour for each province is also indentified. Example, white for Koh Kong.*
    c. *All fishing boats have to be provided with a boat use licence and fishing boat book (detailed in Prakas below)*
    d. *All fishing boat navigators shall have a driving licence.*
    e. *Buying, selling, renting, loss, accident, changing fishing use, must be informed to Fisheries Officials.*
4. Prakas on Fishing Boat Book *(including boat identification and safety at sea items, MAFF 2010)*
    a. *Fishing boat identification including name, registration place, owner, address, fishing boat identity number, date and place of manufacture, type of boat body, measurement, weight capacity, engine power, type of fishing gear, number of crew members. This sheet has to be filled in and submitted for approval to the Fisheries Administration Inspectorate director.*
    b. *List of safety at sea items.*
    c. *List of boat drivers and crew members.*

Small scale fishers find these legal instruments difficult to comply with because they have not yet been intensively disseminated to the local communities. Even the local authorities themselves are unfamiliar with them. The survey indicated that all the 624 fishers and boat owners and crew members sampled from the three provinces were none compliant with these legal instruments as nobody knew about them and there was nobody to advise them. They said that they just owned a small engine boat/rowing boat, so it was not necessary to follow the regulations. However, the small scale fishing boats had at least been recorded by the communal police and the Fisheries Administration specifically in respect of their specifications and engine serial number.

Therefore, it could be concluded that the level of compliance of operators among these small scale fishing boats is below 25 percent as they partly followed only one Prakas on boat registration *(Sarachor on Sea Shipping Management gh#006 SRC/MPWT, Oct 01, 1999 MoMPWT).*

B.2.3. Coastal small scale fishing disasters and preparedness

B.2.3.1. Level of awareness about coastal disasters and consequent actions

Limited financial resources in Cambodia seriously constrain supplying appropriate materials for predicting dangers and transmitting safety warnings for general use, especially for fishers. There is no advance warning system that would enable preparations to be made. The only way fishers know that there will be a storm or significant weather change is by looking at the sky.

Although fishers in the coastal zone go fishing illegally in the gulf of Thailand, where Thai fishers also fish, Thai fishers are better prepared than Cambodian fishers because they have good access to advance warning information. The Thai government has sufficient equipment for forecasting storms and issuing warnings to fishers (Chokesaguan, nd).

In Cambodia, information about small fishing boat accidents in coastal areas is very limited because no mechanism exists for recording this. Although there is loss of life among fishers, only certain sea accidents are reported, such as the capsizing of boats that has resulted in loss of lives. The efforts of the National Committee for Disaster Management are mainly focused on the inland water areas (Chhea, 2010). And generally, it is only the big boats that are better equipped with instruments such as navigational lights, compasses, and some with GPS, too. Small boats lack such equipment, and do not generally have life jackets, life buoys or fire extinguishers. That said, most do most use communication systems at sea such as radio (AM, FM) and mobile phones. In terms of advance warning of bad weather, the Ministry of Water Resources and Meteorology does provide weather forecasts although information about marine weather is limited so that most fishers rely on the weather forecasts provided by Thai and Vietnamese authorities. The country's Proclamation on Technical Management of Fishing Boats actually requires that all fishing boats must follow the regulations on technical management of fishing boats to ensure safety of boats and crew, although, as this survey shows, there is currently limited compliance with this. This proclamation includes technical requirements for fishing conditions such as carrying the national flag, registration plate number, light and other signs of identity, and equipping boats with radio communications, fire-fighting equipment, life jackets, lifebuoys, binoculars, compasses, emergency medicines. Assurance is also required that the engine and boat are of good quality.

Consistent with the Chea 2010, the survey indicated that the 186 fishers in **Koh Kong** and 182 fishers in **Kampot and Kep** were not well aware of coastal disasters including tsunamis, bottom waves, earthquakes, surface waves, floods and storms. They know about only one of the six items on the list – storms - so this means that their awareness level is below 25 percent (16.67 percent).

However, there was a slightly different situation in **Preah Sihanouk** province, where 49.67 percent - equal to 75 respondents (including 13 females) - confirmed that they are partly aware of coastal disasters because they hear TV and radio broadcasts from Vietnam, Thailand and

Cambodia about storms and floods. This means that they are aware of two items among the six on the coastal disasters list which amounts to an awareness level of between 25 percent and 75 percent. However, there are also 50.33 percent - equal to 76 respondents (including 16 females) - who know nothing about coastal disasters except storms because this is the only one they have faced while fishing.

B.2.3.2. Degree of fishers' engagement in disaster preparedness

According to customary practices and a lack of resources for purchasing the monitoring equipment for coastal disasters, most fishers - both Community Fisheries and non- Community Fisheries – normally just look at the sky to predict the weather. The survey confirmed that in **Preah Sihanouk** province, only 14 respondents (including two females) - equal to 9.27 percent – used some disaster warning measures, for example TV and radio broadcasting (from Vietnam) and sky observation. This means that their level of engagement in disaster preparedness is between 25 percent and 75 percent (an actual level of engagement of 25 percent). The rest - 137 respondents (including 30 females), equal to 90.73 percent – do not use measures to prevent disasters as they normally only look at the sky for a prediction among the eight measures available, so that their level of engagement is less than 25 percent (12.50 percent). Many of them never listen for warnings as they think it is not necessary since they are fishing near the shore and can get back home immediately if there is rain or storm. Some just follow other fishers in the village: if they do not go fishing, the others will not go either.

In **Koh Kong** and **Kampot** province, all of the respondents confirmed that the only coastal disaster measure among the eight that they have used is sky observation – which they considered to be sufficient. This means that their level of engagement in the coastal disaster preparedness is very low at 12.50 percent (less than 25 percent). According to the survey findings, ten recommendations have been made by SEAFDEC (2010) for small-scale fishing in Southeast Asian region. This is primarily to develop the appropriate incident reporting and investigation systems for the purpose of improving safety at sea, taking into account the following:

- The draft Guidelines for Competent Authorities in Implementing an Accident Reporting and Analysis System for Small Fishing Vessels currently being developed by the FAO;
- The possible establishment of incentives for fishers, indemnity programs, registration systems for fishing vessels, MCS systems and subsidies for the fishing industry; and
- The fact that the objective of the systems should be appropriate to the size of vessels and types of fishing operations or facilities onboard.

Promote the registration of small fishing boats.

Ensure that safety aspects, including considerations about working conditions and socio-economic development, are addressed by relevant authorities while improving the monitoring and control of the status and use of small scale fishing vessels.

Strengthen local authorities and local organizations and promote the application of safety at sea standards among the coastal communities.

Promote technical and financial support from authorities, including subsidies, at all levels for issues of safety at sea, including considerations on working conditions and socio-economic development.

Identify and promote the basic requirements for safety at sea in the following areas:

- research the design and construction of small fishing boats including the modification of traditional type boats;
- safety equipment including fire fighting and life-saving appliances;
- regular maintenance and repair of boats, gear and equipment; and
- development of regular boat inspection systems
- Implement training and education programs for all stakeholders including the fishers, family members, boat builders and others, for the basic requirements of:
    1. boat design and construction;
    2. equipment and its correct use (including avoidance of dangerous fishing practices);
    3. search and rescue operations;
    4. occupational health, working conditions and safety awareness; and
    5. awareness of the environmental factors

Promote awareness among policy makers, central authorities and the broader public on the safety hazards facing people involved in fisheries in order to:

- Attract more attention and resources to be allocated to safety at sea aspects;
- Provide knowledge about the working conditions and hardships faced by fishers (which are increasing following the impacts of climate change); and
- Raise political will to address safety at sea and strengthen local organizations.

Develop and promote the use of appropriate communication systems for:

- weather forecasting; and
- search and rescue systems

In the definition of 'small fishing boats' and 'operational range', reference should be made to the respective rules and laws of individual countries (Chokesaguan et al., 2010).

B.3. Chapter 03: Post-harvest and Marketing

This chapter explains the perceptions and understanding of fishers and traders/fish processors with regard to post-harvest issues, market accessibility, and fishers' influence on the price of fisheries products. In addition, it indicates government capacity in supporting the post-harvest fisheries sector.

B.3.1. Knowledge, skills and facilities for fisheries post-harvest activity in coastal small scale fishing communities

The post-harvest fisheries sector is extremely important as it contributes to the better use and preservation of perishable fish products. Post-harvest activities also provide employment opportunities for the rural poor living in coastal areas, and contribute to national food security as processed fish provides a daily source of protein throughout the year.

The post-harvest fisheries sector is an important source of employment in Cambodia. Those employed in this sector include people in processing, trading, labourers who pack, store, load, unload and transport fish to markets, those who work in ice plants, export processors, fishmeal producers and people who produce the packaging for fish paste and fish sauce (CPHFLP, 2004). Although exact figures for the number of people engaged in post-harvest activities are difficult to determine, they can be assumed to be extremely high, as processing activities largely take place on a small scale within households. That said, Gillet (2004) and Kaing Khim (2010) estimate that around 100,000 people are involved, although these are mainly those who report fish processing as their main source of employment. Many more people are engaged in part-time and seasonal work and many are either operating at a family scale or are poor people who are employed by large-scale processors. Between these two levels are the medium-scale commercial businesses that operate from the home of the processor.

Ham Kim Kong (2005) identified processing and aquatic product trading as a key area for the involvement of women. Opportunities exist for women both in household processing businesses and in working for larger companies as shrimp peelers, filterers, graders and packers. Many of those employed are seasonal or casual workers with little job security.

Fish processing is an important activity for household food security as it processes fish into less perishable forms and helps to avoid fish loss (An, 2006). For coastal fisheries, processing activities such as drying, fermenting and making fish paste take place as small scale, home-based

activities. The peak production time for processing these products is during the dry season, when fish supply exceeds market demand. The type of processing conducted depends on the seasonal variations in supply for different fish species (An, 2006). Additionally, some processing activities are dependent on weather conditions. For example, the availability of hot weather and lots of sunlight influence drying processes (An, 2006).

Along the three coastal provinces, the fisheries processing activities appear similar and include, in Kampot and Kep, dried shrimp, shrimp paste (Ky), shrimp jam, crab peeling, fish jam, salt crab and steamed fish, in Preah Sihanouk, dried shrimp, crab peeling, salt crab, dried squid and dried ray, and, in Koh Kong, dried shrimp, crab peeling, shrimp paste (Ky), shrimp jam, steamed fish and salt crab. Specifically, among the 15 Community Fisheries visited, only two were operating crab peeling and dried shrimp as medium-scale businesses on a commercial scale, owned by middlemen and processors. These were Tomnob Rolok and Thmor Sar. In Preah Sihanouk, the medium businesses operating on a commercial scale apply knowledge and skills from the national standards of the Department of Post-harvest Technology and Quality Control of the Fisheries Administration and from neighbouring countries such as Vietnam, while the family scale operations use traditional knowledge and skills that they have learned from each other in the village. Therefore, most of them were not able to give a good indication of what kinds of issues relate to post-harvest activity.

KOH KONG PROVINCE

Table 15: Level of awareness of post-harvest issues in Koh Kong province

Level of awareness of post-harvest issues	Koh Kong		
	Women	Men	Trader/Processor
Very aware	0.00%	0.00%	0.00%
Aware	9.55%	10.05%	6.03%
Not aware	2.01%	71.86%	0.50%
N/a	0.00%	0.00%	0.00%

The survey revealed that, among the 199 respondents in Koh Kong, which comprised 186 small scale fishers (including 23 females) and 13 traders and fish processors, 51 (20 males, 19 females and 12 traders and fish processors) - equal to 25.63 percent - were partly aware of post-harvest issues. They knew about sanitation and loss of weight, although not about the full list. (Those encompass spoilage, chemical use, sanitation standards and loss of weight.) However, most of the women and traders and fish processors were at least partly familiar with post-harvest issues (19/23 female and 12/13 traders and fish processors) because they are the ones who are involved in processing products such as steamed fish, dried shrimp and crab peeling etc. In addition, they had received some training from the Fisheries Administration on how to ensure

sanitation in respect of the processed products. However, the majority of the respondents were not aware of issues relating to post-harvest fisheries products – i.e. 148 respondents (143 males, four females, and one trader and fish processor) - equal to 74.37 percent. This is because most of the respondents in this category were men and they had rarely been involved in the post-harvest fisheries processes. Also, men in the group paid less attention to the post-harvest fisheries activities because they mainly focused on the amount of catch and how to generate more income from this.

PREAH SIHANOUK PROVINCE

Table 16: Level of awareness about post-harvest issues in Preah Sihanouk province

Level of awareness about post-harvest issues	Preah Sihanouk		
	Women	Men	Trader/Processor
Very aware	1.25%	0.00%	1.25%
Aware	1.25%	8.13%	3.75%
Not aware	17.50%	66.25%	0.63%
N/a	0.00%	0.00%	0.00%

In Preah Sihanouk province, among the 160 respondents (including 32 females and nine traders and fish processors), four (two females and two traders and fish processors, equal to 2.50 percent), were very well aware of the post-harvest issues - including chemical use, sanitation and loss of weight - among the four issues of post-harvest activity. This high level of awareness is because they have learned the skills of post-harvest activity and sanitation standards from the Fisheries Administration. Only 21 respondents (13 males, two female, six traders and fish processors) - equal to 13.13 percent - were partly aware of the post-harvest fisheries issues. They just knew about sanitation and loss of weight among the six issues listed which means that their level of awareness was between 25 percent and 75 percent (50 percent). The remaining majority of respondents - 135 people (106 males, 28 females and one trader and fish processor), equal to 84.38 percent, did not understand or know about the post-harvest issues because they just performed small scale post-harvest processing such as fish drying, shrimp paste and fish paste etc. They knew nothing about chemical use, sanitation, or spoilage, only about loss of weight when processing. So this indicated an awareness level of 25 percent.

KAMPOT AND KEP PROVINCE

Table 17: Level of awareness about post-harvest issues in Kampot and Kep province

Level of awareness about post-harvest issues	Kampot and Kep		
	Women	Men	Trader/Processor

Very aware	1.00%	0.00%	3.00%
Aware	6.00%	20.50%	6.00%
Not aware	3.50%	12.00%	0.00%
N/a	6.50%	41.50%	0.00%

In Kampot province, among the 200 respondents (46 women, and six traders and processors), 48 percent did not have any idea about the issues. This divided up into 41.50 percent men and 6.50 percent women. The reason was that they were satisfied with their currently accessible post-harvest products which were processed according to local knowledge and were the result of household production methods passed down from one generation to the next. However, 32.50 percent of the total respondents indicated that they were aware of post-harvest issues. It was noted that, of those who were aware, 20 out of total 46 people - equal to 10 percent - were women, while men accounted for only 45 out of 154 people - equal to 22.50 percent. This is because women were responsible for fisheries post-harvest activities as part of their daily chores, while men were more focused on actual fishing or pay less attention to this particular activity.

The common post-harvest issues generally known among fishers and fish processors included lack of sanitation, spoilage, loss of weight after processing and the use of preservatives. Unclean fish before processing was consistently understood as being a failure of sanitation. Using less salt, not covering the product properly, and not storing it in a good condition or in an inappropriate place were understood as the main reasons for spoilage which could cause bad smells and worms. A longer drying period for the product could cause loss of weight of the final product, but for some species this could also mean they could be sold for a higher price (e.g. dried shrimp as it can be preserved for a longer time). They understood that the use of preservative was to keep the product looking fresh and lasting for longer, but that preservative use could have a negative effect on consumers' health.

There was a strong belief that processing only small amounts at a time could avoid spoilage of a product and that these small amounts could be stored for a longer time than products made on a larger scale.

B.3.2. Status of the post-harvest fisheries products against the national standard

Based on the provincial discussions (in Koh Kong, Kampot and Preah Sihanouk) there was no certificate to recognise fisheries products in these provinces because the composition of quality standards is incomplete. Many government officers confirmed that putting trade marks on products could be a disadvantage as it was usually more expensive (an example is fish sauce).

Having no trade mark meant that the product was cheaper but was of a similar quality, and villagers did not prefer products with trademarks. However, in discussions, provincial stakeholders agreed that processed products were acceptable and consumable, especially fish

sauce, dried shrimp and shrimp paste 'Ky', and that there had been some improvement in food safety – for instance in dried shrimp (no colour added). However, some family-scale fish processing was still of concern as people just conducted these activities based on their local knowledge, and sanitation received little attention. Therefore, only three fisheries post-harvest products were cited to be at medium standard by 29 out of 29 (including seven females) - 100 percent – of respondents who included implementing government officers from various government institutions, as well as representatives from NGOs and micro-finance institutions (13 respondents from Kong Kong, eight respondents from Kampot, and eight respondents from Preah Sihanouk). This is because they were not aware of the national standards for fisheries products which meant that they did not know how much weight loss was standard, how many ingredients should be used, and what sanitation practices should be followed.

However, the discussion with two respondents from the Department of Post-harvest and Technical Quality Control at national level revealed that it was really difficult to apply the national standard unless traders/processors were at least medium-scale, or commercial scale. Similar to the provincial governmental officers, they indicated only three post-harvest fisheries products that could be acceptable: fish paste in Kampot and Kep, 'Ky' and dried shrimp in Koh Kong province.

B.3.3. Quality and accessibility of post-harvest fisheries products for coastal small scale fishing community

B.3.3.1. Accessibility of post-harvest fisheries products

Gillet (2004), estimated that family scale processing, conducted across all coastal households, produced around 480 million tonnes of processed fish products in 2000. These amounts had a monetary value of about 1.1 million dollars. However, most were used for household consumption and not for income generating purposes. Fish sauce, crab meat and fishmeal are produced on a commercial scale in factories located along the coast.

According to a 2003 working paper by the Cambodian Development Resource Institute (CDRI), spoilage and weight loss of fish from the point of purchase in the village to the point of sale at the distribution centre amounted to 10-15 percent (Cited from Vanna, 2005). These losses, due to spoilage, evaporation, and internal fish matter loss, have been reduced in recent years because of improvements in road infrastructure, making transportation from fishing areas to the markets more efficient and timely. However, the situation in the coastal communities is quite different.

The survey in coastal provinces confirmed that most male fishers do not have any idea about the quality of the post-harvest fisheries products as they have never cared about, or given much attention to, those products because they are just for family consumption.

KAMPOT AND KEP PROVINCE

Table 18: Level of satisfaction with fish product accessibility in Kampot and Kep province

Level of satisfaction with fisheries products accessibility	Kampot and Kep		
	Women	Men	Trader/Processor
High	4.00%	6.00%	0.00%
Medium	12.00%	37.00%	4.50%
Low	1.00%	17.00%	4.50%
N/a	0.00%	14.00%	0.00%

In Kampot province the general level of satisfaction with the accessibility of fish products among the 200 respondents interviewed was medium - 53.50 percent (12 percent were women, 4.50 percent traders/fish processors). Among 10 percent it was high (4 percent were women). This was because the products could be found in the market nearby, which was not costly, did not take long to reach, and was also where fishers brought their catch to sell. Furthermore, it was also easier for consumers to access local grocery shops and village producers for household consumption purposes. Around 22.50 percent (19.50 percent were men, 4.50 percent were traders and fish processors) indicated low satisfaction with the availability of processed products because fish tended to be sold directly after being caught without being processed. Targeted species were also among the reasons. Crab fishing seemed to be more of a focus than others as there is a big peeling company, and therefore less incentive for fishers to conduct processing.

PREAH SIHANOUK PROVINCE

Table 19: Level of satisfaction with fish product accessibility in Preah Sihanouk province

Level of satisfaction with fisheries products accessibility	Preah Sihanouk		
	Women	Men	Trader/Processor
High	3.75%	17.50%	3.75%
Medium	11.88%	27.50%	1.88%
Low	3.75%	19.38%	0.00%
N/a	0.63%	10.00%	0.00%

In Preah Sihanouk province, among the 160 respondents (119 male fishers, 32 female fishers, and nine traders/fish processors), 66 respondents (including 19 female fishers and three traders/fish processors) - equal to 41.26 percent (including 11.88 percent female fishers and 1.88 percent traders/fish processors) - indicated that they were partially happy with the amount of products available in the communities because they could buy from traders/processors from the

village or market. Even if there was a shortage in the market, they said they did not need these products often for household consumption. Furthermore, 40 respondents (including six female fishers and six traders/fish processors) - equal to 25 percent (including 3.8 percent female fishers and 3.8 percent traders/fish processors) - were very satisfied with the accessibility of the post-harvest fisheries products in the communities because the female fishers processed these for household consumption, and if no products were stored at home, they could buy them in the village. They store at home, and for special occasions, they also process some to send to their relatives.

However, around 37 respondents (including six female fishers) - equal to 23.13 percent (3.8 percent female fishers) - indicated that they were not really satisfied with the level of accessibility of post-harvest fisheries products in the communities because they did not have enough resources to process these for household consumption, and had to buy them. These products were also rarely sold in the village, and the supply was insufficient. They reported: `We can't keep some for processing. If the traders know, they will blame us for not selling the resources and keeping them for processing.'

KOH KONG PROVINCE

Table 20: Level of satisfaction with fish product accessibility in Koh Kong province

Level of satisfaction with fisheries products accessibility	Koh Kong		
	Women	Men	Trader/Processor
High	0.00%	2.01%	3.02%
Medium	6.53%	16.08%	2.01%
Low	5.03%	20.60%	1.01%
N/a	0.00%	43.22%	0.50%

Different to the other two provinces, in Koh Kong, among the 199 respondents (23 female fishers and 13 traders/fish processors) 53 respondents (10 female fishers and two traders/fish processors) - equal to 26.63 percent (5.03 percent female fishers and 1 percent traders/fish processors) - were not really happy with the accessibility of the post-harvest fisheries products in their communities because the road and infrastructure to access the markets is very poor and they had insufficient fisheries resources to process and keep for household consumption. Two traders also explained that, due to lack of catch, they did not have enough shrimps and fish to process to supply to the communities and market as well. However, 49 respondents (13 female fishers and four traders/fish processors) - equal to 24.62 percent (6.5 percent female fishers and 2 percent traders/fish processors) - partly accepted the level of accessibility of fisheries post-harvest supply in the communities which comprises mostly dried shrimp, steamed fish and 'Ky' - because Koh

Kong is famous for 'Ky' production - followed by dried shrimp, while steamed fish is just available in Thmor Sar commune.

B.3.4. Quality of the post-harvest fisheries products

Regarding the quality of the fisheries post-harvest products, the study found that many fishers, both female and male, as well as the traders, partly accepted the local quality of processed products even though those products did not meet the national/regional standards.

KAMPOT AND KEP PROVINCE

Table 21: Level of satisfaction of consumers with the quality of fish products in Kampot and Kep province

Level of satisfaction of consumers with the quality of fish products	Kampot and Kep		
	Women	Men	Trader/Processor
High	1.00%	4.50%	1.00%
Medium	12.50%	38.00%	5.50%
Low	3.00%	20.50%	2.50%
N/a	0.50%	11.00%	0.00%

Specifically, in Kampot province, the survey showed that the major satisfaction level among consumers was medium – 56 percent. Among these, women accounted for 11.50 percent (5.50 percent were traders and fish processors) - equal to 35 out of 46 women respondents. Consumers thought that products made on a small scale and at household level could be trusted and some of the consumers were familiar with – and had even witnessed - what the processors did to post-harvest products in their village. These were good quality products that never caused sickness among consumers, they said. Among the men, 26.00 percent expressed only a low level of satisfaction. This was because the retailers (grocery shops) who also bought products from markets or producers, always kept the product beyond the expiry date. Similarly, for crab peeled meat, people thought that the final product was not so clean where the processors who were fishers themselves rarely paid attention to sanitation since crab for peeling always came last for market demand (around 30-40 crabs/kg). Quite often it was observed that the peeled crab product had tiny crab bones inside. Moreover, the undesirable use of water from rice fields to clean processed products was also reported.

PREAH SIHANOUK PROVINCE

Table 22: Level of satisfaction of consumers with the quality of fish products in Preah Sihanouk province

Level of satisfaction of consumers with the quality of fish products	Preah Sihanouk		
	Women	Men	Trader/Processor

High	4.38%	9.38%	3.13%
Medium	13.75%	33.75%	2.50%
Low	0.63%	9.38%	0.00%
N/a	1.25%	21.88%	0.00%

Similarly, among the 160 respondents (fishers and traders/fish processors) in Preah Sihanouk, 80 (22 female fishers and four traders/fish processors) - equal to 50 percent (13.75 percent females and 2.5 percent traders/fish processors) - partly accepted the quality of the post-harvest fisheries products because they thought that, although there was no guidance on standards of quality, the products were still acceptable. They believed that all the traders/processors had common ways of processing (traditional knowledge). The products for household consumption had no chemical substances. Furthermore, 27 respondents (seven female fishers and five traders/fish processors) - equal to 16.89 percent (4.38 percent female fishers and 3.13 percent traders/fish processors) - were highly satisfied with the quality of fisheries post-harvest products because the products that they produced by themselves were adjusted to their own preference in terms of taste, and they were very careful about sanitation for their family's health. However, 16 respondents (one female fisher) - equal to 10.01 percent (0.60 percent female fishers) - did not really accept the quality of fisheries post-harvest products because they did not process these themselves so they had to buy from the village shop or market, where the traders/processors normally did not care much about sanitation as they had many things to process. They wanted quantity rather than quality. Their products were also all purchased, so they did not have to care about sanitation. Like processing dried shrimps, they put these products out on the ground to dry and so they were often covered by dust.

KOH KONG PROVINCE

Table 23: Level of satisfaction of consumers with then quality of fish products in Koh Kong province

Level of satisfaction of consumers with the quality of fish products	Koh Kong		
	Women	Men	Trader/Processor
High	1.51%	11.06%	0.00%
Medium	10.05%	19.10%	5.53%
Low	0.00%	5.03%	0.00%
N/a	0.00%	46.73%	1.01%

In Koh Kong province, most of the male fishers did not really know about the quality of the fisheries post-harvest products, while women and traders/fish processors partly accepted the quality of those. The survey found that 95 respondents (two traders/fish processors) - equal to about 47.74 percent - did not have any idea about the quality, while 69 respondents (20 female fishers and 11 traders/fish processors) - equal to about 34.68 percent (10 percent female fishers and 5.5 percent traders/fish processors) – found it acceptable. But this did not mean that these

products should not be improved: although they were acceptable, because none of the products met national/regional standards.

B.3.5. Fishers' influences on fisheries market

The market for marine products in Cambodia is relatively small and undeveloped (Vanna, 2005). Across Cambodia, fish are marketed from landing sites located along floating villages or harbour points. In the coastal areas, fish are marketed on a small scale at landing sites, with the major fish markets being located in Sihanoukville and Phnom Penh (Vanna, 2005). Here, fish are sold live, fresh on ice, and in various processed forms.

In terms of domestic trade, fish are often purchased by fish collectors or distributors from fishers at landing sites. These collectors then bring the products to large distribution centres which sell to retailers or port owners who sell wholesale. This market chain is especially common when marketing to large urban centres. The involvement of these large distribution centres can be a constraint for small scale coastal fishers, as it often hinders fishers' ability to receive the best price for their catch. It has been reported that, in some instances, marine fishers have been forced to sell their fish catches at below market price to licensed processing facilities in order to obtain an operating licence (Vanna, 2005). In other instances, marine products are also sold directly by fishers to retail markets, although this is much less common (Vanna, 2005).

Fishers do not have any influence on the marketing of fisheries products because, even though they can sell their catch in the market, they owe money to the middlemen/retailers and thus have no right or influence to increase the price. Therefore, it could be concluded that market accessibility for selling catch is not difficult for fishers, but price issues are.

Tabl 24: Level of satisfaction of fishers about access to market

Level of satisfaction of fishers about access to market	Koh Kong		Preah Sihanouk		Kampot and Kep	
	Women	Men	Women	Men	Women	Men
High	1.08%	1.08%	6.62%	29.14%	2.20%	2.75%
Medium	6.99%	42.47%	11.26%	39.07%	13.19%	48.90%
Low	4.30%	19.35%	3.31%	10.60%	3.30%	19.78%
N/a	0.00%	24.73%	0.00%	0.00%	0.00%	9.89%

The survey found that in **Kampot** province, 113 respondents (24 female fishers) amongst 182 respondents (34 were women) - equal to 62.09 percent (13.19 percent female fishers) - reported that they were partly satisfied with access to market for selling their catch. In comparison, the figure for a low level of satisfaction is 23.08 percent, and for women, just 3.30 percent. The figure for a high level of satisfaction is 5 percent.

Most of the markets are near the village and not difficult to access. For instance, in Changhoun and Trapeang Ropov Community Fisheries, the market is close, and the road condition is good (national road numbers 3 and 33). Like their counterparts in Trapeang Sangke, fishers have the choice to sell catch even at Kampot market. Furthermore, fishers for whom the daily catch is less than 10 kg quite often just access the local or outsider middlemen who come to their landing site or inside their village. It is worth noting that fishers who land their catch directly by boat to the market must pay for extra gasoline. In Ou Krosar Community Fishery, some fishers who take round trip motor taxis to market need to pay around USD 2 to sell their small amount of catch, which is usually 3-5 kilograms. Or they will just sell the catch in the local market located in front of the commune office.

Consistent with the situation in Kampot province, in **Preah Sihanouk** province the majority of the fishers found it easy to sell their catch, or any kinds of products, to middlemen in communities because they could get money immediately after fishing. They did not have to waste time going to sell in the market. They commented that if they have to go to market, they have to pay extra for transportation and tax in the market, and also waste more time. In addition, traders will come to buy at fishers' home and will purchase all of the resources they have to sell. Therefore, of the 151 respondents among the fishers who were sampled (including 32 female fishers), 76 (17 female fishers) - equal to 50.33 percent (11 percent female fishers) - were partly satisfied with the accessibility of the market for selling their catch, while another 54 respondents (10 female fishers) - equal to 35.76 percent (6.62 percent) - were very happy with the market availability and accessibility in the village.

Of the fishers in **Koh Kong**, 92 respondents (13 female fishers) - equal to about 49.46 percent (6.99 percent female fishers) - also indicated that they were partly satisfied with the level of market accessibility in the village because there were so many middlemen that they could sell the catch to, and they did not have to spend so much time transporting catch to market. Some 44 respondents (eight female fishers) - equal to about 23.65 percent (4.30 percent female fishers) - indicated that they were not satisfied with the market accessibility for selling the catch because most of the traders/middlemen paid a lower price than they could get at market. This lower price was around USD 0.5 per kilogram of crab or shrimp comparing between middlemen price and market price.

Table 25: Level of satisfaction with fishers' influence on the market

Level of satisfaction with fishers' influence on the market	Koh Kong		Preah Sihanouk		Kampot and Kep	
	Women	Men	Women	Men	Women	Men
High	0.00%	1.08%	3.97%	17.22%	0.55%	2.75%
Medium	1.61%	20.43%	11.92%	43.05%	6.59%	24.18%
Low	10.75%	50.54%	4.64%	18.54%	11.54%	46.70%
N/a	0.00%	15.59%	0.66%	0.00%	0.00%	7.69%

In the coastal provinces, normally middlemen/retailers have on average 10 to 30 fishers who acquire loans from them (without interest rates) to purchase fishing gears. Therefore, the price of the catch is set by these middlemen/retailers based on the top level of buyers from other provinces or Phnom Penh. Most fishers cannot ask for better prices for their catch and have to sell unconditionally because of these loans. The survey confirmed that in Kampot province, the majority of respondents were not happy with the price set by middlemen/retailers. Out of 182 respondents, 106 - equal to 58.24 percent (11.54 percent female fishers) - felt this way. Middlemen collude and all pay the same price, which limits the choice the fishers have in selling their catch. However, of the 30.77 percent who were satisfied, 24.18 percent were men who thought that the price was acceptable and this depended on where and how much of their catch they sold.

In **Preah Sihanouk** province, 54.97 percent (12 percent female fishers) - equal to 83 respondents (18 female fishers) - responded that they were partly happy with the price set by middlemen/retailers in the communities because there were many traders waiting to buy their resources, so they did not need to worry. The buying price was acceptable and they also bought the resources at the same price everywhere. However, there were also 35 respondents (seven female fishers) - equal to 23.18 percent (4.6 percent female fishers) - who were not satisfied with the influence the community had on the market price as this was strictly controlled by the middlemen/retailers. Although they were not really happy, they had to sell to these people because they borrow money from them and if they ask/negotiate a price with the traders, they still could not increase it. If they did not agree with the price quoted by the fishers, the middlemen would not buy the catch and the fishers would have no income.

In contrast to Kampot and Preah Sihanouk, most of the fishers in **Koh Kong** province were not really happy with the prices that had been set by the middlemen. Although all of middlemen/retailers set prices that were quite similar to each other, this price differed from that in the market which averaged USD 0.75 per kilogram. The survey confirmed that 114 respondents (20 female fishers) - equal to 61.29 percent (10.75 percent female fishers) - were not really happy to accept this practice, and only 41 respondents (three female fishers) - equal to 22.04 percent (1.60 percent female fishers) - were partly satisfied with middlemen/retailers setting prices because they thought that they caught less so it made little difference in terms of income generation.

B.3.6. Government capacity in support of post-harvest fisheries

Due to limited development funds and lack of attention, infrastructure in the fishery industry is very limited. Post-harvest technology at the policy and implementation level is almost non-existent in Cambodia. The Department of Fisheries is greatly involved with the commercial activities of the inland fisheries sector; however marine fisheries remain largely unattended in

terms of management, utilisation and export (Vanna, 2005). This study confirmed that there are currently no policies to support post-harvest fisheries because the Department of Post-harvest Technology and Quality Control has just been established and moreover there is limited budget support from the Royal Government of Cambodia. Based on the discussion with Acting Director of the Department of Post-harvest Technology and Quality Control of the Fisheries Administration, the annual budget for supporting the sector is only around 26,000 USD and only 18 staff works for the department.

B.4. Chapter 04: Livelihoods Enhancement and Diversification

This chapter explores the current information on coastal fishers' livelihoods, future options, and the level of satisfaction of their families with the current status of livelihoods activities. In addition, it discusses the degree of livelihoods intervention that has been introduced to fishers' households within communities and the level of livelihoods activities that have been taken up to improve their living standards. Furthermore, specific perceptions about livelihoods interventions by NGOs and governmental projects are also explored.

B.4.1. Existing livelihood activities of, and future options for, small scale fishers

B.4.1.1. Existing livelihood activities

Contributing approximately 8 to 12 percent to the Cambodian economy each year, the fisheries sector is extremely important for sustaining the livelihoods of the Cambodian population (Navy and Bhattarai, 2006). The sector employs an estimated 3 million Cambodians and numerous others indirectly through secondary and tertiary fishery activities (Navy and Bhattarai, 2006). Fisheries are also important for daily subsistence, with around 75 percent of animal protein intake coming from fish, with the average per capita fish consumption per annum being 52.4 kg (MRC, 2007).

In Cambodia, small scale fishing is the simplest and easiest means for supporting livelihoods, especially for the poor, because it requires almost no external investment (Navy and Bhattarai, 2006). However, the ability of small scale fishing to generate sufficient income to support livelihoods has declined since the mid- 1990s. The decline in profits stems from the increased price of fuel, increased price of fishing gear and materials, and resource depletion (Navy and Bhattarai, 2006). The Department of Fisheries has cited market constraints and poor freshness preservation technology as two additional factors contributing to the decline in profits (Vanna, 2005). Thus livelihood diversification has become increasingly critical for food security and quality of life.

Agriculture and fisheries-based secondary and tertiary industries are the most common forms of livelihoods diversification in Cambodia (Campbell et al., 2005). Fish processing, including production of fish paste, fish sauce, salted fish, smoked fish, etc, are common activities for small

scale fishing households (Campbell et al., 2005). These post-harvest activities are usually conducted on a small scale and mostly for personal household use and sale to domestic markets. However, despite generating little income, these activities remain important to local livelihoods as processed fish - particularly fish paste and fish sauce - provide a daily source of protein and nutrients for the national diet throughout the year. This is important for buffering the fluctuations in fish catch during the off-season for fishing (DoF, 2004). Post-harvest activities are especially important to support the livelihoods of women, who are the main engagers in post-harvest activities such as processing of fish paste and fish sauce, crab peeling, fish trading and others.

Other forms of diversification are also starting to emerge in Cambodia. Seaweed culture, which was introduced in Cambodia in 1999, has been regarded as one of the best alternative employment opportunities for local people living along the coastline (Hav, 2003). Some coastal households are also starting to engage in mat making and livestock raising. However, the latter requires initial start-up investment and so is not a feasible livelihood alternative for the very poor households (Campbell et al., 2005).

Livelihood diversification into non-farming/fishing secondary and tertiary industries has tended to occur mostly around the larger centres, such as Phnom Penh, the tourist regions such as Siem Reap and around ports and border crossings such as Preah Sihanouk and Koh Kong. The garment industry has been the secondary industry that has seen the most growth, now employing around 250,000 workers. Other sectors that have been growing in recent years include construction, mining and tourism. However, the level of livelihoods diversification remains low in the Mekong Plains and northeast regions (Campbell et al., 2005).

Provincial discussions with relevant stakeholders in coastal provinces of Cambodia found that, due to the change of political points of view and the trend of law enforcement in the environment and agriculture sectors, many livelihoods activities of the people had changed in the last 10 years. The trend of population growth and an increase in international fishing boats in the province, has caused coastal resources to decline.

Currently, coastal community fishers mostly engage in fishing, rice farming, crop plantation, marine aquaculture including crab, blood cockle, fish etc. livestock (chicken, pig, buffalo), grocery selling, and fisheries product processing (such as dried shrimp, shrimp paste, steamed fish, fish paste, dried fish, crab peeling, fish jam etc.). They also become crew members, sugar palm plantation labourers, and businessmen (middlemen). Although many existing livelihoods activities are implemented within the coastal communities, some fishers and their household members seem to be unaware of them.

Table 26: Level of awareness of fishers/their families about current livelihoods activities

Level of awareness of fishers/their families about the existing livelihoods	Koh Kong		Preah Sihanouk		Kampot and Kep	
	Women	Men	Women	Men	Women	Men

Very aware	1.61%	0.00%	0.00%	1.99%	4.95%	18.68%
Aware	8.06%	59.14%	13.25%	46.36%	10.44%	42.86%
Not aware	2.69%	28.49%	7.95%	30.46%	3.30%	19.78%

In **Kampot** province, the survey findings revealed that, of the 182 respondents interviewed, a majority (about 53.30 percent, of whom about 10 percent were female fishers) were aware of the current livelihood options in their communities. Also, about 23.63 percent (of whom 5 percent were female fishers) stated that they were very aware of the current livelihood options. In contrast, around 23.08 percent (of whom only about 3 percent were female fishers) mentioned that they were not aware of these current livelihood options.

It was observed from the field that, typically, fishing is the only primary livelihood activity that most coastal dwellers know about. However, some coastal dwellers are newcomers who have moved from places where they could grow rice, farm and raise livestock, and others used to be crew members selling their labour in fishing related businesses. These latter categories of dwellers tend to know more about livelihood options.

Consistent with the situation in Kampot province, among the 151 respondents (32 female fishers) in **Preah Sihanouk**, 90 respondents (20 female fishers) - equal to 59.61 percent (13.25 percent female fishers) - partly knew about the existing livelihoods activities in their own communities, which means that they knew between four and eleven activities, such as the most common ones including fishing, rice farming, vegetable home gardening, livestock, fish processing etc. However, 58 respondents (12 female fishers) - equal to 38.41 percent (7.95 percent female fishers) - were not really aware of many livelihoods activities that had been implemented in their communities, which meant that they were aware of less than four activities, such as fishing, vegetable home gardening, and livestock raising. It was observed that those people did not really pay any attention to livelihoods practices within their communities because they normally just fished and then rested after finishing that activity.

Similarly, in **Koh Kong**, the majority of fishers and their household members were partly aware about the current livelihoods in their communities That is, among the 186 respondents (23 female fishers), 125 (15 female fishers) - equal to 67.20 percent (8.06 percent) - were in this medium level of awareness. The common livelihoods activities that they knew about were not different from those of other provinces, such as fishing, rice farming, vegetable home gardening, fish processing, marine fisheries culture etc. Although most of the fishers and their family members knew about so many livelihoods activities in their communities, there were some fishers - approximately 31.18 percent (2.69 percent female fishers), equal to 58 respondents (five female fishers) - who never joined any events and lived isolated from the village. They knew little about community livelihoods activities.

Of special note in Koh Kong, all the men knew little about the existing livelihoods activities, and only women (around 1.61 percent, or three women) knew clearly what existing livelihoods were

operating within the community. They come from Koh Kchhong and Thmor Sar Community Fisheries. The reason was that they had attended community meetings with AFSC and the Mlup Promvihearthor Centre when they came to support these two communities.

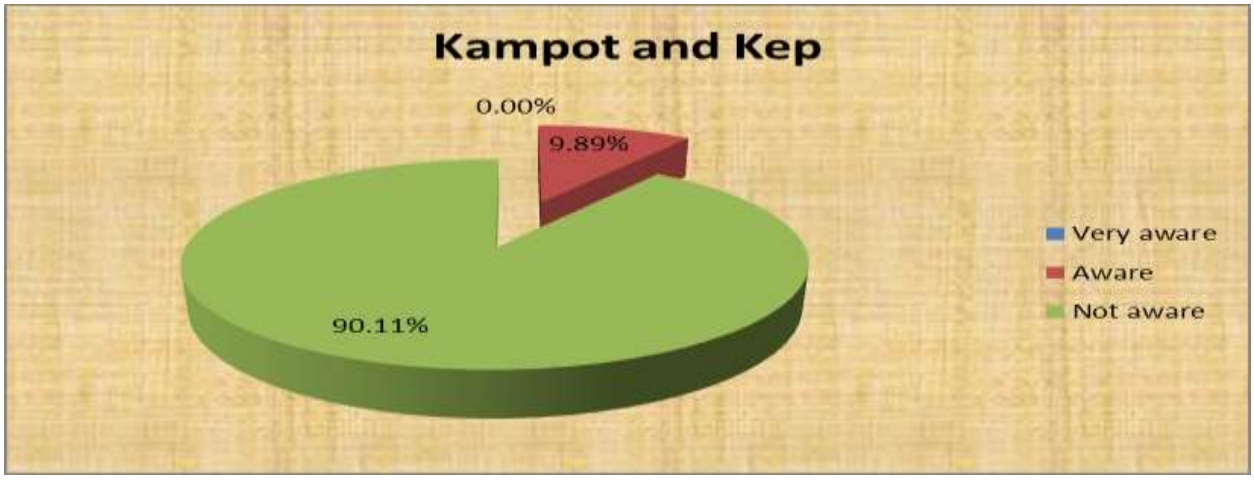
B.4.1.2. Future livelihoods options

In relation to future livelihood options, the survey found that there were some possible options, besides fishing, for improving the livelihoods of the people in small scale fisheries or fishing communities. Those are:

1. Extensive aquaculture, e.g. culture of bivalves (e.g. cockle ranching) and sea weed (depending on market demand and prices)
2. Cage culture, mainly of sea bass
3. Marine aquaculture
4. Sea salt production
5. Coconut planting (producing cold pressed coconut oil)
6. Eco-tourism (e.g. in the mangrove areas in Koh Kong)
7. Production of niche products such as mushrooms.

However, most of the fishers and their family members did not really know about these opportunities because they had no time to think about, or to pay more attention to, the new livelihoods alternatives to fishing, which was their main occupation.

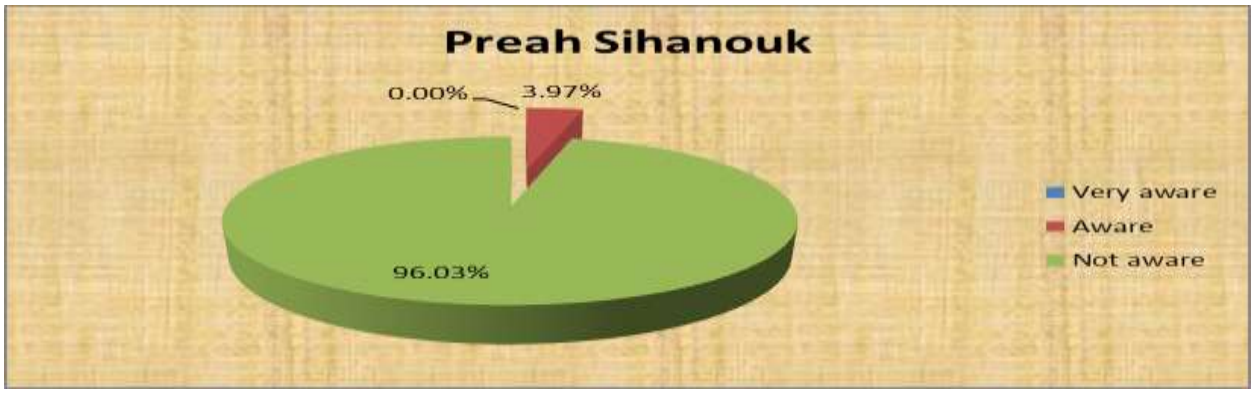
KAMPOT AND KEP PROVINCE



(Graphic 23: Level of awareness of fishers/their families about future livelihoods options in Kampot and Kep province)

In Kampot province, the great majority (about 90 percent of whom 15 percent were female fishers) of all 182 respondents (34 female fishers) interviewed did not know or think about their future livelihood options; only around 10 percent (of whom 3 percent were female fishers) stated that they knew or thought about this. It became apparent from the field observation that capital and skills were the main constraints being faced by most coastal people. This made it difficult for them to start thinking about new livelihood options. Also, those who were able to think about future options tended to be Community Fisheries members who had participated in various consultation meetings about livelihood alternatives organised by development projects such as RFLP-FAO. In addition, some successful livelihood options have already been introduced inside the Community Fisheries such fish culture: this makes it easier for them to think about future livelihoods options as they can just follow what is available to other members.

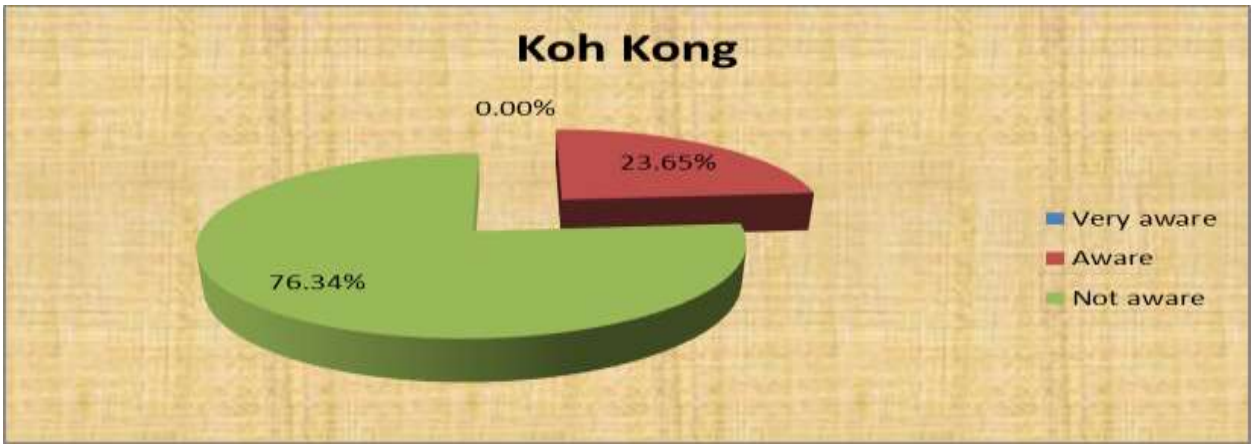
PREAH SIHANOUK PROVINCE



(Graphic 24: Level of awareness of fishers/their families about future livelihoods options in Preah Sihanouk province)

Similar to Kampot province, among the 151 respondents in Preah Sihanouk province, (including 32 female fishers), 145 (31 female fishers) - which equals 96.03 percent (20.53 percent female fishers) - were not well aware of the livelihoods options in their own communities. They never considered future options as they thought they had no input and no ability to do anything else. Women could think about hairdressing, livestock, and small scale trading as future livelihoods options, but had also never considered future options other than expanding existing ones such as livestock, vegetable gardening etc. They had not trained very much in new skills and lacked capital to take up new ones.

KOH KONG PROVINCE



(Graphic 25: Level of awareness of fishers/their families about future livelihoods options in Koh Kong province)

Almost 80 percent (76.34 percent including 6.45 percent females) of the fishers and their family members in Koh Kong also indicated that they knew less than 25 percent of the livelihoods options available within the communities. This was because they had never been informed about them, or been selected to pilot activities within the programmes, although a few supporting programmes on livelihoods have been implemented by the government and NGOs such as the NREM and Livelihoods programme and AFSC. Less than 25 percent (23.66 percent including 5.91percent female fishers) were aware of those livelihood options in their communities because they had heard about them from Community Fisheries committee members.

B.4.1.3. Level of satisfaction with current livelihoods

In **Kampot**, the majority of respondents seemed to be happy with existing livelihoods. According to the survey findings, about 51 percent (of whom 10 percent were female) mentioned that they were 'moderately satisfied' with their existing livelihoods, and about 12.64 percent (of whom 2 percent were female) were 'very satisfied'. About 30 percent of respondents (of whom 5 percent were female) said that they were not satisfied with their existing occupations because they had not yet received any kind of support to improve their income generation to supplement their current fishing activities. If opportunities were offered, they would opt for new livelihood alternatives. Of all respondents interviewed, about 6 percent made no response about their level of satisfaction with their existing livelihoods.

As mentioned earlier, the fishers who were moderately happy with their existing livelihoods felt this was because they had no more options, given the limitation of their current budget and skills. However, it was also noted that a combination of livelihoods such as rice farming, fishing, raising livestock and vegetable gardening etc. seemed to be a good future option as these livelihoods can complement one another all the year round.

Similar to the situation in Kampot, in **Preah Sihanouk** province, due to lack of awareness of other options, fishers seemed to be happy with their existing livelihoods although they received a lower income because of the low catch. The survey found that among the 151 respondents (32 female fishers), 62.91 percent (12.58 percent female fishers) were moderately happy with their current livelihoods activities. They said that at least fishing could support their daily consumption and although this could not generate much income, at least they could make a living. Those who had paddy fields could earn some money from selling rice. Having fish to eat or sell was better than having nothing. Others also mentioned that, because they had no other options, they had to be satisfied with what they had. However, there were also 33.77 percent (7.95 percent female fishers) - equal to 51 respondents (12 female fishers) - who were not happy with their current livelihoods. They said that they depended only on fishing, which constituted irregular income and would never make them prosperous. However, they had no other choice.

Similar to Kampot and Preah Sihanouk, among the 186 respondents (23 female fishers) in **Koh Kong**, 121 (13 female fishers) - equal to 65.05 percent (6.99 percent female fishers) - reported that their level of satisfaction with their current livelihoods was at the medium scale because they had two main occupations (fishing and rice field farming) with additional livelihoods activities such as chicken raising. Although fishing and rice field farming were the main occupations, these two activities could not adequately cover the family's operational costs because the income was only enough to enable them to exist from day to day. However, chicken raising could help to reduce some food consumption expenses, occasionally.

For the rest of the respondents, around 40 people (10 female fishers) - equal to 26.88 percent (5.38 percent female fishers) - indicated that they were not really happy with their current livelihoods activity as they only had fishing as their livelihood, because they had no land for rice field farming and crop plantation. These were mostly the small scale fishers – using on average 400 m of fish net - in Thmor Sar Community Fisheries. They were also blood cockle culture labourers who can earn around USD 50 per month. However, only 15 respondents – equal to 8.06 percent - were very happy with their current livelihoods activities because most of them had engine trawling boats and were blood cockle trawling boat fishers with medium scale fishing boats - for example engine trawling boats (13 m of trawling net with 25 horsepower) and blood cockle trawling boats (five brush and 22 horsepower). They were mostly from Chamkar Leu village in Thmor Sar Community Fishery and Ta Ben village in Koh Kchhong Community Fishery.

B.4.1.4. Livelihoods improvement diversification

Many governmental programmes and NGO projects have been working to improve coastal fisheries resources through improving local fishers' livelihoods with many kinds of activities. However, some livelihoods activities have not been successful, while others are still under implementation. In addition, some other livelihoods options have been planned for implementation. The survey found that in **Kampot** province there were 10 livelihoods

improvement activities that had been implemented while nine were in the process of implementation, and another nine had been planned for next year. These livelihoods activities had been supported by the CZM project, GTZ, NREM and Livelihoods (Danida), FiA DFID programme, CORIN-WAP, KIP, CWDCC and the individual fisher families.

Table 27: List of livelihoods improvement options in Kampot

N	Implemented	Under Implementation	Plan to be implemented
1	Port worker	Chicken and duck raising	Small scale trading
2	Grocery selling	Cassava plantation	Motor taxi
3	Livestock	Intensive livestock	Intensive fishing
4	Sugar palm production	Crop plantation	Crop plantation pumpkin
5	Mushroom production	Grocery selling	Cucumber culture
6	Wood trading	Café shop	Cage livestock
7	Sea bass culture	'Ky' processing	Mushroom production
8	Crew member	Dried shrimp processing	Marine aquaculture
9	Vegetable home gardening	Tailor	Cage fish culture
10	Salt palm laborer		

Furthermore, in **Koh Kong** province, five livelihoods improvement activities had been applied while six were under implementation and the other five were in the planning stages. These livelihoods improvement activities that were being tested, had been supported and facilitated by AFSC, Mlup Promvihearthor and the Fine Art Association.

Table 28: List of livelihoods improvement options in Koh Kong

N	Implemented	Under Implementation	Plan to be implemented
1	Selling land	'Ky' processing	Blood cockle culture
2	Home gardening	Chicken raising	Intensive livestock
3	Mushroom production	Fresh water fish culture	Marine culture
4	Crop plantation	Cow raising	Steamed fish
5	Chicken raising	Dried shrimp	Mushroom plantation
6		Steamed fish	

However, in **Preah Sihanouk** province, it seemed that fewer livelihoods improvement activities had been, or were being, implemented or planned for the future. There were only four implemented activities while another four were under implementation, and there were plans for a further four. These activities had been supported by the SEAFDEC ICM project, CZM project, FiA DFID programme and AFSC.

Table 29: List of livelihoods improvement options in Preah Sihanouk

N	Implemented	Under Implementation	Plan to be implemented
1	Boat builder	Fish culture	Fish culture
2	Mushroom production	Chicken and duck raising	Mushroom production
3	Pumpkin growing	Grocery	Fresh water fish culture
4	Coffee	Crop plantation	Engine repairer

B.4.1.5. Degree of livelihoods uptake by fishers

There is a difference between these three provinces with regard to the level of livelihoods uptake because of the different level of support and assistance from NGOs and governmental projects that have been operating within the provinces.

Table 30: Degree of livelihoods uptake

Degree of livelihoods uptake	Koh Kong	Preah Sihanouk	Kampot and Kep
Average	12.80%	26.00%	36.10%

In **Kampot** province, the survey confirmed a 36.10 percent livelihoods uptake by the fishers and their family members. Those are port worker, grocery selling, livestock, sugar palm production, mushroom production, wood trading, seabass culture, crew members, vegetable gardening, salt palm laborer, cassava plantation, intensive livestock raising, chicken and duck raising, crop plantation, grocery selling, café shop, 'Ky' processing, dried shrimp processing and tailor. However, of those 18 livelihoods activities, only the last nine have been successful.

Turning attention to **Koh Kong** province, 11 livelihoods improvement activities had been taken up by 24 households (seven households in Chroy Svay, nine households in Koh Kchhong and eight households in Thmor Sar Community Fisheries). The total number of respondents was 186 (including 23 female fishers). Therefore, there was a 12.80 percent uptake of the livelihoods improvement activities. Those included selling land, vegetable gardening, mushroom production, crop plantation, chicken raising, 'Ky' processing, buffalo raising, fresh water fish culture, cow raising, dried shrimp processing and steamed fish.

Furthermore, in **Preah Sihanouk** province, there had been a 26 percent uptake of the livelihoods improvement activities by the fishers and their household members. Those included boat building, mushroom production, pumpkin growing, coffee shop, fish culture, chicken raising, grocery and crop plantation.

B.4.2. Influencing factors that support and inhibit current livelihood activities and future opportunities for diversification

For small-scale coastal fishers, seasonality dictates their access to food, ability to generate income, and employment security throughout the year. Heavy rains and storms in the rainy

season disrupt fishing activities, and contribute to increased prices in other goods in the coastal areas. Key informant interviews from a study conducted by the Department of Fisheries in 2006 revealed that the most important impact of seasonal variation is the low income generation from fishing during heavy rains and storms (An, 2006). It is during these times of low fishing productivity that fishers most frequently seek alternative forms of employment.

Access to physical resources, such as tools for agriculture or livestock farming, influences the ability to diversify livelihoods. Access to monetary resources also relates to a fisher's ability to diversify, as individuals with savings or access to loans are more able to take up alternative livelihoods, which require initial investment. Some international organizations have supported fishing communities through providing start-up funds. For instance, in 2008, CORIN-Asia and the Wetlands Alliance financially and technically supported communities in Kampot to establish crab banks through the Local Initiative Fund (LIF) Program. In addition to setting up crab banks, LIFs were also established in the communities to support other livelihoods such as integrated farming and handicrafts (CORIN-Asia, 2009).

In addition, geographical proximity to foreign markets, particularly Vietnam and Thailand, provides individuals with livelihood opportunities not available to those who are located in central Cambodia (Campbell et al., 2005). Fishers living close to borders have a greater ability to export high quality fish products to foreign markets than those located in central Cambodia. Strengthening the link between coastal communities and national markets would increase local people's livelihood choices (Campbell et al., 2005).

However, the ability to diversify one's livelihood is about more than assets or geographical location. As reported by Johnson and Start (2004), *"livelihoods diversification is about more than multiple income sources, it relates to the transformation of economies and the complex nature in which people make decisions within those economies"* (cited from Ireland, 2004). What is implied here is that the commercial viability of alternative livelihoods alone is not enough to bring about the desired change. Simply identifying a new livelihood opportunity and introducing it to a community without considering the wider livelihoods issues and influences, is unlikely to produce long term, sustainable sources of income. People's human resources, including level of education, knowledge, skill, attitude, health, etc., are major influencing factors in their ability to diversify livelihoods (Campbell et al., 2005). The Department of Fisheries reported that almost all of the individuals involved in post-harvest activities such as laboring and selling in the fish markets are illiterate and few have a primary level education (Vanna, 2005). Because of this, these individuals are considered to have few other employment opportunities. In addition to education level, many people associate their job with their sense of identity, which creates another obstacle for people moving into new occupations.

B.4.3. Government capacity to support livelihoods enhancement and diversification

B.4.3.1. Level of satisfaction of fishers with the service provision for livelihoods improvement

Rural livelihood improvement and diversification is recognized by the National Poverty Reduction Strategy as an important contributor to the development of Cambodia (Campbell et al., 2005). Livelihoods diversification is also important for sustainable natural resource use and conservation efforts, as the natural resources of Cambodia cannot indefinitely support the continually expanding population of Cambodia (Campbell et al., 2005).

The Ministry of Agriculture, Forestry and Fisheries, through the Fisheries Administration, has supported the fisheries sector through developing laws and legislation frameworks, establishing and strengthening fishery communities and carrying out research on aquaculture development and fish sanctuaries (MAFF, 2006). In relation to supporting livelihoods, MAFF and the Fisheries Administration have supported the establishment of Community Fisheries as a method of poverty reduction and generation of alternative livelihoods.

During the implementing of the Community Fisheries, many sub-services for livelihoods improvement and enhancement have been supported for local fishers and their families to enable them to have a better standard of living. However, the survey found that in **Koh Kong** province, only eight fisher families, equal to 4.30 percent, among 186 respondents, were very satisfied with the service provision for livelihood improvement such as chicken raising, pig raising, rice bank, cow bank etc. This was because they had been chosen as sample families for piloting the project by AFSC, Mlup Promvihearthor and the Fine Art Association organization. However, approximately 30 percent (31.80 percent), which comprises 58 people (including 13 female fishers) from the total number of respondents indicated that they were just happy with the savings group service provision which is not a direct livelihoods support. They said that savings groups could partly help the family during an emergency or unexpected event. This means that the members of the group can borrow approximately USD 25 to 30 to assist their families in times of need. The other 42.47 percent (equal to 79 people, including five female fishers) did not give an opinion because they were not selected for livelihoods service provision by NGOs or government projects. Around 22 percent, equal to 41 people, including five female fishers) were not really happy with the sharing of benefits from the livelihoods improvement services.

Similar to Koh Kong province, most of the fishers - 75.30 percent, including 22 female fishers, equal to 137 persons - and their families in **Kampot** province do not get any support for livelihoods improvement. However, around 10 percent (4.40 percent very satisfied, 10.44 percent satisfied, and 9.89 percent, not satisfied) were very happy, or not happy with the service provision.

No different from Koh Kong and Kampot, in **Preah Sihanouk**, 85.43 percent of the fishers and their families (equal to 129, including -26 female fishers) among 151 respondents reported that

they had never received any livelihoods improvement support services from NGOs or government projects. Therefore they knew nothing about the quality of the services. Less than 10 percent of the respondents were very satisfied with the livelihoods services provision because they had received training in how to run small scale businesses, and guidance in animal raising techniques was conducted at their homes.

B.4.3.2. Level of awareness of service providers about livelihoods options

According to the provincial discussions with government agencies and NGOs, most of the respondents were very aware of the future livelihood options for coastal community fishers and their families. However, because of the lack of financial support for those activities, few had been delivered to the fishers' families. On average, in **Koh Kong** province, approximately 69.23 percent (nine people) were very aware of the future livelihood options that should be provided because most of them were working closely with the Community Fisheries including AFSC, the Fisheries Administration, the Department of Agriculture, and the Department of Environment. Another 30.77 percent (four people) were only partly aware of some of the future livelihoods options because they were not directly involved or engaged in work with the Community Fisheries people, such as the Department of Water Resources, the Department of Women's Affairs, ACLEDA and PRASAC. Similar to Koh Kong province, in **Preah Sihanouk** and **Kampot** provinces, among the eight participants from the provincial stakeholders, 75 percent (six people) were very aware of the future options for livelihoods because they had projects that supported Community Fisheries such as the Fisheries Administration, the Department of Agriculture, FACT, CORIN, WAP and KIP. The other 25 percent (two people) were partly aware.

B.5. Chapter 05: Micro-finance

This last chapter elaborates on the existing micro-finance institutions, both formal and informal, that have been operating in the coastal Community Fisheries. In addition, it shows the degree to which fishers/their family members are using the loan services from those institutions and their perceptions about the services that are available.

B.5.1. Existing institutions or informal groups that operate micro-credit at coastal communities

In Cambodia, the level of access to loans from banks is quite low compared with other countries in the region. The majority of people get loans from their families, friends and relatives. In the fisheries and agricultural sectors, about 40 percent have access to informal loan systems. Only 5 percent have access to formal banks with formal procedures (Tangthirasunan, nd). With this constraint, fishers and farmers face a big challenge in respect of their everyday livelihoods. Because accessibility to loans is quite low, and the financial sector cannot provide sufficient investment capital, many NGOs have come to work in this area in order to improve people's

livelihoods: accessing loans is vitally important to improve their livelihoods in a sustainable manner.

PREAH SIHANOUK PROVINCE

The survey in the coastal areas reported that, in Preah Sihanouk, among the 151 respondents (including 32 female fishers) 14 female fishers/families used micro-finance services (nine with formal institutions and five with traders/middlemen) while 34 male fishers/families also used micro-finance services (26 with formal institutions and eight with traders/middlemen). Fishers borrowed money from the traders because some of them did not own land/house and had also migrated from their hometown to fish in the community. They said that loans from traders/middlemen did not have interest rates, and repayments could be delayed for a few days. However, fishers who had land titles and needed large loans had to get these from formal institutions such as ACLEDA, AMRET, PRASAC etc.

Table 31: Number of fishers/their family members who use micro-finance services in Preah Sihanouk

List of micro-finance providers	Number of fisher use	
	Women	Men
Formal micro-finance institutions (6)	9	26
Traders/middlemen	5	8
Total	14	34

KOH KONG PROVINCE

In Koh Kong province, among the 186 respondents (23 female fishers) seven female fishers had acquired loans from savings groups in Community Fisheries while the other 96 fishers' families acquired loans from both formal micro-finance institutions (45) and traders/middlemen (51).

Table 32: Number of fishers/family members who use micro-finance services in Koh Kong

List of micro-finance providers	Number of fisher use		
	Women	Men	Both
Formal micro-finance institutions (3)	-	-	45
Traders/middlemen	-	-	51
Community Fisheries savings groups	7	-	-
Total	7	-	96

Kampot and Kep

In Kampot province, among the 182 respondents (34 female fishers), 92 respondents (74 male and 18 female fishers) used loans from both middlemen and formal micro-finance institutions. They used for money to buy boats and other fishing gears in order to upgrade their fishing capacity and seasonal catch by switching from nets to traps.

There are a number of issues involved in accessing micro-finance services in the fisheries sector. First, although the number accessing informal credit services is higher than formal credit services, the percentage is still low compared with that of developed countries. Second, the income that can be generated from fishing activities is reasonably low. That is why fishers have only a small chance of being able to access credit. Third, the risks involved in fishing are high. Risks include not only the business of fishing itself, but also the risks that fishers themselves face such as unpredictable weather (i.e. storms), equipment failure/breakdown, and markets (i.e. fluctuating product prices). Fourth, in respect of the provision of loans, it is not only the limited number of institutions that can provide these in rural areas that is a constraint, but also the amount of credit that can be borrowed by the poor. Fifth, the majority of fishers are not allowed to borrow money from formal institutions because the assets they hold are not enough for collateral. Also, their limited skills do not encourage those formal institutions to trust their ability to repay loans on time. In addition, they do not have a history of borrowing money from the bank, and this, too, adds to the lack of confidence that they can pay back the loan or credit. Sixth, the high amount of credit that is needed to start up their investment increases the interest rate. Therefore, those formal institutions feel reluctant to give credit to poor fishers. All of these issues are challenging for fishers, making it very difficult for them to acquire loans in order to improve their livelihoods through i.e., enhancing their income capacity, setting up micro-enterprises, building their assets, and managing the risks.

B.5.2. Delivery of credit and loan services to small scale fishers

B.5.2.1. Awareness of coastal fishers about credit and loan service delivery by private banks and informal group

Loans for the poor are not easily accessed in developing countries. In Cambodia, for example, micro-finance credit is not widely available to the poor because of land title issues. The poor, however, need capital for investment. Small scale fishers are generally poor. They therefore need capital to invest in their businesses in order to improve their quality of life.

Small scale fishers face many risks, one of which relates to investments. They do not have enough capital to improve their livelihoods. This issue, therefore, needs support from government. There are different ways in which the government helps the poor to access credit. In some countries, the government helps through financial investment policy reform so that the poor can be assisted in this way. In some cases, the government does not reform the policy on getting credit, but uses subsidies to help the poor. Although there is some support from government, some fishers are still unable to access credit. In some cases it is even more difficult for the poor to access loans, especially when financial institutions alone make these decisions and poor people do not have enough assets for collateral. This happens because of the weak legal framework and policies relating to micro-finance. Furthermore, small scale fishers themselves do not understand the obligations between lenders and borrowers.

The survey found that, in **Koh Kong** province, among 186 respondents (23 female fishers and 163 male fishers - equal to 86.63 percent) **did not** know about banking services, and rights and responsibilities of the formal micro-finance institutions. The exception was 23 female fishers - equal to 12.37 percent - who partly knew about the processes and basic requirements for getting money from formal banking services because they were the ones who talked with the credit officers of the formal institutions when they came to disseminate the information, whereas the male fishers were not regularly at home.

In **Preah Sihanouk** province, among the 151 respondents (32 female fishers), 116 (24 female fishers) - equal to 76.82 percent - did not really know about the processes and mechanisms of the formal institution banking services. The remaining 35 respondents (eight female fishers) - equal to 23.18 percent - partly understood because they were aware of the requirements relating to borrowing money for regular income, and house/land ownership.

Similarly to Koh Kong and Preah Sihanouk province, in Kampot and Kep, among 182 respondents, 51.10 percent (including 9.89 percent of female fishers) reported that they are partly aware of some procedures for borrowing money from formal micro-finance institutions, while 48.90 percent do not really know of any processes because they were just about to get aloan from the crab bank or other saving groups within community fisheries.

B.5.2.2. Level of satisfaction of coastal fishers with credit and loan service delivery by private banks and informal groups

In rural poor communities, the informal loan sector dominates the formal ones (Karmakareta, 2009). The informal institutions are mainly middlemen who provide loans to fishers. The majority of fishers are not happy with the current system, but they do not have any alternatives. With their limited access to formal financial institutions, they have to borrow from the middlemen at high interest rates or transaction costs (Campbell et al, 2006). Fishers are more hampered in building on their livelihoods because the opportunity to acquire loans to expand their enterprises is quite limited.

The survey indicated that in **Koh Kong** province, among the 186 respondents (23 female fishers), almost 50 percent (46.24 percent including 1.61 percent female fishers) were hesitant in giving an answer, and 21.51 percent (3.76 percent female fishers) were not really happy with the loans from formal institutions, but did not think they had any other options. Even though the interest rate was high at around 15 percent per year, they had to take this. However, some people - 30.65 percent (6.45 percent female fishers) - were partly satisfied with formal loans because they said that even though the interest rate was 15 percent per year, they could generate money to pay that: they stated that the problems were related to resource degradation, which was why they could not catch much.

In **Preah Sihanouk** province, most of the fishers were also hesitant about giving an answer about their level of satisfaction in terms of service delivery of credit in the community. Around 119 respondents (24 female fishers) did not give an answer because they thought that they had no choice other than to use this. However, 16.56 percent of the fishers were moderately happy with the service delivery because it could help them to facilitate their livelihoods when they really needed this and when they wanted to buy fishing gear or raise animals to improve their livelihoods. The interest rate was also acceptable to them. In contrast to Koh Kong and Preah Sihanouk, in **Kampot**, a high percentage of the respondents were moderately happy with the service delivery of credit. Around 40.11 percent - equal to 73 persons – expressed this view, while another 100 respondents - equal to 54.95 percent - found that it was difficult to make a judgement.

C. Chapter 06: Conclusions and Recommendations for Interventions

C.1. Conclusions

The Baseline Survey was successfully implemented, and has yielded the intended results. That is, 'start-of-project' baseline values, which can be used to measure RFLP/CAM programme impact during the programme's implementation, or during possible *mid-term* and/or *'end-of-project' evaluations*. In addition, the baseline information as a whole and the respective baseline values may also be used in directing project interventions, both thematically and geographically.

For each of the five programme outputs, sub-outputs and indicators, average baseline values are as follows: For *Output 1: Fisheries Co-management* it is 19 percent; for *Output 2: Safety-at-sea* it is 1 percent; for *Output 3: Fisheries Post-harvest and Marketing* it is 5 percent; for *Output 4: Livelihoods and Community Development* it is 27.5 percent; and for *Output 5: Micro-finance* it is 13 percent. The overall baseline value across all outputs of RFLP/CAM is 13 percent.

Average baseline values across the four provinces show no great differences; they are 'highest' in Kampot and Kep (12.47 percent), followed by Preah Sihanouk (11.66 percent) and Koh Kong (8.57 percent). Differences in performance may be due to long-term support by several government agencies, international organizations and both national and international NGOs in some provinces (Kampot and Kep, for example), and issues such as geographical distance or institutional set-ups (as in Koh Kong). However, this apparent homogeneity disguises some inter-provincial difference for some outputs, and even intra-provincial differences and discrepancies.

Reasons for differences in baseline values between outputs and provinces are not immediately clear.

C.2. Recommendations

On the basis of the baseline values obtained, **annual target values for all indicators should be developed**.

The baseline information and values obtained should be reflected on and interpreted, and used in (re-) directing programme interventions from a 'one size fits all' to a **demand-driven and situation-specific approach**.

Considering that the programme so far scores better on more bureaucratic issues (in fisheries co-management for example), and less with regard to genuine engagement by ordinary users/members, there is a need to formulate and implement activities for **improving communication and interaction both within CFis as well as between CFis and supporting agencies and organizations**.

As the baseline information has revealed relatively high scores on awareness about a number of issues, but low scores on satisfaction and actual uptake and/or implementation, **project interventions need to be directed at strengthening local action, possibly including through facilitation of community stakeholder funding**.

As women are clearly less satisfied with and engaged in fisheries management and livelihood development activities resulting from other agencies' and organizations' interventions, RFLP/CAM clearly needs to **develop a special emphasis on the situation of women in coastal fisheries, and ideas should be developed with a view to addressing women's needs specifically through co-management plans and their implementation, and to strengthen women's participation in CFi decision making bodies**.

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