Assessing economic and welfare values of fish in the Lower Mekong Basin

Project funded by ACIAR

Welfare Component

ISSUES, CHANGES AND TRENDS IN WELFARE:
FOCUS GROUP DISCUSSION RATIONALE AND APPROACH

Methodology report

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1. INTRODUCTION

The project, *'Assessing economic and welfare values of fish in the Lower Mekong Basin'* has five objectives and a series of tasks that aim to quantify the different types of values that fish resources have for the rural communities in Cambodia. Objective two is concerned with the welfare valuation:

Objective 2: Assess the welfare value of fish for rural populations in Cambodia and identify strategies that maximize this value;

The concept of welfare and well-being and how it is measured can be conceived from two perspectives. The first considers well-being as a measure of utility based on the idea of converting goods and services into monetary value and this provides a measure of 'standard of living'. The second approach places emphasis on less tangible concepts such as 'rights' and includes assessments of food security or nutritional attainment by a household. These two perspectives have been termed welfarist and non-welfarist respectively by Sen (1976) and have also been distinguished as objective and subjective well-being measurements (Easterlin, 2003).

The research questions that are to be addressed by the welfare analysis study are:

1. What is the relative contribution of fisheries to welfare in diversified farming systems?
2. How does fish support the welfare of poor and vulnerable social groups?
3. How can the welfare and livelihood value of fish be increased?

Objective two consists of three man tasks. The task that is of interest to the welfare study and in particular provides an opportunity for fishery dependent households to express their opinions and feelings is task 2.3.

Main Task 2.3: Identify the main changes and trends in the contribution of fish to the welfare of rural households.

The objective for the welfare component of the valuation study is to assess the value of fish for the household and to identify the strategies employed by fishers and their families to maximise wellbeing. The initial part of the objective aims to provide quantitative data aggregated for a population of fishery dependent households taken as part of a longitudinal survey carried out over two years. This is the main component of welfare study. The second aspect of the objective is to provide qualitative data that will be recorded using focus group discussions (FGD) and aim to identify strategies and trends in the sector that influence the well-being of households. The importance of qualitative data is to provide context and this is outlined in the 'main task 2.3' that seeks to identify the main changes and trends of fisheries to household welfare.

The welfare study incorporates both objective and subjective measures of well-being. The household survey is composed of an assessment of household wealth (poverty), vulnerability and livelihoods strategies whilst the FGDs will focus on perceptions and levels of satisfaction. The household survey assumes that households make decisions that result in the allocation of time and resources to different productive activities such as fishing or farming. Households do this by applying knowledge to choices that aim to fulfil goals such as maximising income or producing enough food to eat. The household survey focuses on inputs such as land, labour, capital and knowledge and the products that are produced from different production systems. However, whilst the household survey will provide data on all economic aspects of the household (livelihoods) using indicators of consumption, income and assets the FGD will provide important context. The approach will therefore combine data on the endogenous

factors influencing household income and consumption as well as exogenous factors such as policies and environmental factors that impact on household and fishing society.

In small-scale fisheries there has been few studies carried on household welfare and the significance of the fisheries to poverty elevation and factors that govern vulnerability to poverty. From a policy perspective the interaction between household and community welfare is important and a research area that the FGD will make a significant contribution.

2. RESEARCH APPROACH

The research approach used to identify the main changes and trends in the contribution of fish to the welfare of rural households will be based on Focus Group Discussions (FGD). This is a qualitative research technique that generates in-depth information about what fishery dependent households think about an issue, their reasoning about why things are as they are, and why they hold the views that they do. The FGD method has several advantages over the household questionnaire not least as it draws upon qualitative rather than quantitative research techniques.

Quantitative research used to study societies has been primarily influenced by positivism and scientific method based upon the concept of change via paradigm shifts (Robinson, 1998). Positivist thinkers believe that such approaches can make the study of human society more scientific and advocate that there is only one true scientific method, knowledge is neutral, standards of precision and accuracy operate in the physical sciences and there is only framework for the generation of scientific knowledge (Mercer, 1984). However, there are limitations to quantitative approaches particularly when applied to understanding society. Critiques argue that they divorce empirical 'facts' from their context and research that is solely based on quantitative methods has limitations when the properties of the problem under investigation cannot be reduced to numerical measurements (Samuels, 1979; Jarrie, 1983). As such, qualitative research design offers an in-depth analysis of contextual factors, which cannot be ascertained using quantitative approaches (Robinson, 1998).

The advocates of qualitative research maintain that there is no 'right answer' in research and that the people who are being researched are also actively engaged in constructing their own world, as is the researcher who is making the research enquiry (Laws, Harper and Marcus, 2003). Qualitative techniques should be seen as essentially descriptions of people's representations and constructions of what is occurring in the researched world's eye (Robinson, 1998). These descriptions can take several forms, depending on the research, and can be used in conjunction with quantitative analysis as complementary methods for seeking an understanding of society (Robinson, 1998). Hence, the research method applied in the study is not necessary about choosing between qualitative and quantitative techniques but understanding their relative strengths and weaknesses and designing research that uses the potency of each approach.

FGDs offer several advantages and are accessible to participants that cannot read or write, they can provide useful information on how the group interacts, can respond to certain issues, and can be used to develop a consensus if facilitated well. Focus groups are also an important research technique when working with resource users and are good when you want people to think and discuss changes they would like to see. Furthermore FGD are useful when there are discussions about sensitive issues. If people feel that the others in the group are in the same position that they are in, they will be more inclined to share experiences that may attract stigma in the broader society. The fishery sector trends

and changes that will be discussed with the fishery dependent household focus groups may touch on a number of sensitive issues such as the presence or absence of conflicts, corruption or rent seeking behaviour. Where such insights may not be obtained through household surveys the FGD will be able to explore the meaning, influence and why people behave as they do as a result of conflict or corruption, which cannot be measured by questionnaires.

FGDs generate qualitative, non-statistical and complex data, which can be difficult to analyse. To be able to draw comparisons across geographical areas and fishery dependency scores the FGDs will apply the same research techniques. Other data challenges include complex group dynamics, which can interfere with an individual's ability within a group to respond freely. The ability to combine observations and pre-knowledge of the community will be used to reduce some of these effects. The advantage of engaging the Inland Fishery Research & Development Institute (IFReDI) in this research is the information and experience they have on fishing community structures and hierarchies, which can provide useful background information and counter any biases that the issues of power and hierarchies within a community may bring to a focus group.

FGDs fall into two main typologies, those that are composed of participants that share important characteristics or experiences and those that are composed of participants that have different views and perspectives (Robinson, 1998). The FGD established for the study will bring together people from the same geographical area and village. However, the groups in each village will be different in terms of their composition and will segregate the views of people with different levels of influence on resource use and economic decision-making, different levels of wealth, types of livelihoods, as well as age and gender. Therefore, one FGD will include discussions with 'local leaders' and will be composed of commune councillors, village leader, deputy, secretary and other group leaders in the village (i.e. community fishery, pagoda group). While a second group will consist of fisher-farmers, from a mixed wealth background and divided between men and women. The aim of group segregation is to allow the groups to speak freely and provide information relating to their own perspectives on policy, household wealth, livelihoods, age and gender roles.

3. METHOD

3.1. VILLAGE SELECTION

The protocol for the household survey has identified 37 villages where interviews will be carried-out. These are selected from the four quartiles of fish dependency as well as control site where villages are not dependent on fisheries (see table 1. below). The number of villages selected is based on the proportion of households sampled in each village. In this scenario the sampling strategy is 10% of households.

Table 1: Number of villages to be sampled, by fish dependency quartile and floodplain

Quartile	0	1	2	3	4	Total
Tonle Sap	2	3	3	2	3	13
Low Land	2	4	4	4	2	16
Mekong	2	1	1	2	2	8
Total	**6**	**8**	**8**	**8**	**7**	**37**

FGDs will be carried out at a selection of villages in each of the three geographical areas and in two of the dependency quartiles plus the control site at the beginning and end of the welfare study. This will result in nine FGDs being carried out at the beginning and then repeated at the end of the study (see Table 2 below).

The selection of villages where FGDs will be carried out will be determined by the household survey selection and ideally will be undertaken in the larger villages surveyed in each quartile, control site and geographical area. This is where the enumerators will spend the longest time undertaking household interviews and provide time to engage sufficient numbers of households and key people to participate in the FGD. The final selection of the village will be determined by the willingness of the village head to participate in the FGD.

Table 2: Number of focus group discussions by fish dependency quartile, control site and geographical area

Quartile	0	1	2	3	4	Total
Tonle Sap	1	0	1	0	1	3
Low Land	1	0	1	0	1	3
Mekong	1	0	1	0	1	3
Total	3	0	3	0	3	9

The rationale to carry-out FGDs across the village quartiles and between geographic sites is to compare the contextual data in the fishery sector that is identified by the groups across fishery dependency score. The approach will also include discussions with villages in the control site to assess the importance of fish and fisheries to those households that may not be directly engaged in the sector.

In addition to in-depth focus group interviews, there will be a need to have discussions in each village with both fishermen and women to generate a seasonal fishing calendar. This will detail the fisheries and the fishing equipment used during different months in each of the geographical areas. The rationale is that the household survey questionnaire includes a detailed section on the fishery sector and in order to generate the correct information on net income based on revenues minus input costs, details of the different types of fisheries used by households (and different members of the household)

throughout the year is needed. To generate this information so that the household surveys are more rigorous in assessing the costs and benefits of fisheries, some additional contextual information is required. This will take the format of a matrix of month, fishing gear and fishery mapped out to men, women, boys, girls and older people so that all types of gears used for commercial and subsistence are recorded and linked to user and time of use. This information will be needed before the household questionnaire can be carried-out in each of the agro-ecological zones.

3.2. SELECTION OF PARTICIPANTS

Approximately 6-8 people will be brought together in each group. The leaders group will be selected based on role and function of the participants in groups or cooperatives as leaders or administrators in the village. These can include the village head, chairman of the commune council, head of the Community Fisheries (CFi), the recognized leaders as well as men and women recognized as being important in the community (elderly, local entrepreneurs etc). This group will be engaged in discussing changes and trends in the fishery sector and will need to ensure that people of all ages and both genders are represented.

Group A (men & women together)

Leaders group	Men & Women
• Village Head • Commune Council • Head of the CFi • Recognized leaders, • Respected women • Respected elders	6-8

The second group will be composed of fisher-farmers from a cross section of wealth categories and occupations so that fishers, farmers and other livelihood activities are represented. The village leader will be asked to help select households in the village where a sample of men and women from different wealth categories (better-off, medium, poor and very poor) can be selected for the survey.

Group B (men and women separate)

Wealth status	Men	Women
Better-off	2	2
Medium	2	2
Poor	2	2
Very poor	2	2
Total	**8**	**8**

The FGDs will take approximately three to four hours to complete and for those that participate, remuneration will be provided to compensate their time engaged in the research activity.

3.3. DATA FIELDS AND COLLECTION TECHNIQUES

Secondary data will be collected on each of the villages in order to develop a profile to track changes and influences over time particularly as the welfare survey will be carried out over 2- years.

The main types of data include:

➢ Spatial data maps on topography, elevation, slope, geology, soils, climate, land use, water-bodies, rivers, administration boundaries, village locations, roads, etc. Overlaying the various maps acquired helps identify and delineate the agro-ecological zones communes.

➢ Statistical data on demographic, economic, social, agricultural and climatic conditions. Wherever possible, these data should be disaggregated by village so that once agro-ecological zones have been defined, villages can be allocated to their respective zones, and the data can be reassembled for the zone as a whole, allowing the zone's demographic, socioeconomic and agricultural characteristics to be described.

➢ Commune economic profile in terms of wider socio-economic context derived from documents such as: Commune Development Plan (CDP) and Commune Investment Plan (CIP). The CDP and CIP should be obtained and their key chapters (economic, natural resources and gender) should be summarized.

Information on external factors in the wider rural economy, and the policy and institutional environment that may influence household livelihood and resource allocation decisions should be analysed. Statistics on unemployment, participation in the labour market and off-farm labour should be considered, when available. This information will build an understanding of the labour market, and in turn lead to discussions on market development for agriculture and fishery-related inputs and outputs, and the general economic and livelihood opportunities in the area, as well as provide for an assessment of the role of fisheries in the wider economy.

The data fields of interest are listed in the table below and categorised into four areas; household wealth; livelihoods; gender and age tasks; and policy and changes. A summary of the data that can be used to make an assessment across villages and geographical areas is included below.

Table 3: Data fields for the focus group discussions

Group	Data fields	Details	Data collection system
A+B	Household wealth	Assessment of rural family wellbeing Indicators of wealth and vulnerability for better-off, medium, poor and very poor families	Wealth characterisation
B	Livelihoods	Main livelihood activities in the village / geographic area Fishing gear and target fishery listed by month Ranking of relative importance of HH economic activities Ranking of relative importance of fishery as an income generating / subsistence activity for better-off, medium, poor and very poor	Livelihood analysis Fishing seasonal calendar Ranking
B	Gender & age tasks	Role of men and women / children / old people in different livelihoods Specific emphasis on fishing compare with other livelihoods	Gender & age task analysis
A	Policy and changes	Identify and rank top 5 changes, challenges and trends in the sector Trends in capture & culture fishery Changes in fishery (natural, social, cultural, economic, governance) Challenges – policy, marketing, use and access How do these influence the better-off, medium, poor and very poor families in the village	Timeline Resource change mapping SWOT Ranking

Data will be collected using open-ended questions as well as various participatory techniques to assess the contribution of fisheries to household wealth, livelihoods and on policy and changes to the fishery sector. Due to time and resource constraints, the leaders group (A) will focus on household wealth

characteristics and policy and change data fields whilst the second group (B) will focus on household wealth characteristics, livelihoods, gender and age tasks in two separate men and women groups.

3.4. HOUSEHOLD WEALTH

The approach aims to collect data on the perceptions of the groups on household welfare by discussing the notion of wealth and vulnerability for four categories of families – better-off, medium, poor and very poor. A set of indicators (characteristics) will be discussed with the group that can be used to describe the different wealth characteristics of each household type in the village (for example: level of education, land ownership, house ownership/type, assets etc.). It is anticipated that this discussion will add to the list of indicators already identified. These indicators will be used as a baseline to discuss what the main wealth characteristics of each household type and what influence different livelihoods, policies and changes have on each household type.

The exercise will be carried out by both groups to illustrate the variations in wealth and vulnerability levels in a village and to gain insights into the characteristics of each wealth group, particularly the poor. The exercise will draw upon wealth ranking analysis to ensure that the poorest households are a priority. Wealth Ranking Analysis begins by asking villagers to estimate the proportion of better-off, medium, poor and very poor families in the village, and then identifies the major characteristics of a typical family. The discussion should be initiated by confirming the indicators of wealth, poverty and vulnerability. Asking the question, when you refer to a family as being better-off, medium, poor or very poor what are the indicators you would use to assess this?

Table 4: Household Wealth & Vulnerability Indicators

Household Wealth & Vulnerability Indicators	better-off	medium	poor	very poor

➢ HH characteristics:
   o ethnicity;
   o single-headed
   o number of members,
   o dependency ratio (working age adults vs. children and elderly);
   o education;
   o employment;
   o health status;
➢ Economic characteristics
   o the physical aspects of the house
   o ownership of consumer durables
   o standard of clothing
   o energy sources
   o drinking water source
   o sanitary conditions
   o ownership of land
   o type (s) of occupation/livelihood pursuits				

o income
o main types of expenditure
o level of indebtedness
➢ Social characteristics
    o political involvements
    o involvement in community
      social/cultural activities
    o involvement in village leadership roles
      in CC /CF/NGOs				

3.5. LIVELIHOODS, GENDER AND AGE TASKS

The livelihood assessment will include a profiling of all the production activities. The livelihood profiles should confirm both commercial and subsistence activities and provide the data to assess who is doing what over time. The analysis should begin by identifying all major income sources (i.e. livelihood activities). This would include noting all activities that are undertaken in the village using terrestrial and / or aquatic resources and indicating when this activity occurs over a 12-month period. The list of production activities in Table 5 is to be compiled by the participants this is an indicative example list only.

Table 5: Production activities calendar

Production activity	1	2	3	4	5	6	7	8	9	10	11	12
Terrestrial resources												
Rice farming												
NTFP												
Livestock												
Aquatic resources												
Fishing												
Aquaculture												

To profile each livelihood and the level of importance for each household type, the following reporting table should be completed.

Table 6: Example of the livelihood profile

Livelihood activity: *subsistence fishing*	
Primary involvement	**Comments**
Men	Activity mainly carried out by women and boys in household
Women	√
Boys	√
Girls	
Older people	√
Wealth category	
Better-off	
Medium	
Poor	√
Very poor	√

Key livelihood elements used	*Description / most important*	*Deficiencies/needs:*
Labour	Knowledge,	Quality equipment
Natural resources	Access to fishing areas	
Equipment	Fishing equipment	
Finances		
Social network/relations	Ability to exchange fish for food with neighbours	
Vulnerability factors	No access to open access resources	
Key organisations		
Laws, rules and customs	Subsistence use of resources	

In the first part of the table it is important to identify who is primarily involved in the activity. Is it men, women boys, girls or older people? What wealth categories of households are involved? In the third

part of the table it is important to consider each of the livelihood assets: human (i.e. skills, knowledge, ability, health), natural (i.e. forest, water bodies, fish), physical (i.e. basic infrastructure and inputs needed to support livelihoods), financial (i.e. Liquid assets, cash and regular cash inflows such as pensions and remittances) and social capital (i.e. family, friends, social networks, political affiliations). Which of these assets are needed for this activity and what are the most difficult to obtain? What may be missing or lacking, either for everyone in the village or for one or more of the wealth categories?

It is also important to record what are the most important vulnerability factors? These are the factors that can influence the success of an activity and how much income it generates but that are beyond the control of people in the village. For example, some forms of fishing may be more vulnerable to overfishing than others.

The section on key organizations is about what, if any, organisations exist that help an income-generating activity to succeed? It could be a formal organization such as agricultural extension body which provides the necessary technical advice, or it could be village organizations which help people borrow money to buy inputs. The last section is on the laws, rules and customs (institutions) that are necessary to make sure the income-generating activity is successful and can continue in the long term? Are there any rules or customs which are having a bad effect because they are stopping the activity from developing in the way that it could?

For each row in the table it is important to consider if the issues are the same for all households or whether there are different issues for women compared to men, or between young and old, or for poor people compared to wealthy people.

3.6. FISHING SEASONAL CALENDAR GEAR AND TARGET FISHERY LISTED BY MONTH

As the study aims to understand what the relative contribution of fish compared to other livelihood activities it is important to detail all the fisheries used by the village. This is done using a fishing seasonal calendar. A fishing seasonal calendar is an analysis of time-related changes for fishing during the year and should highlight different fishing patterns. The calendar aims to capture all fishery related activities and the fishing gears used for all households represented in the group and across gender and age groups. The information generated by the calendar will be used to ensure that that all the input costs for each fishery are accounted for. As there are a number of fisheries available throughout the year it is recommended that the discussion begins with a brain-storm and the listing of all fisheries (commercial and subsistence). Once each fishery is listed to then make a calendar for each fishery and identify who is involved at each time period on the year for wealth, gender and age categories.

Table 7: Fishery calendar

Fishery:	1	2	3	4	5	6	7	8	9	10	11	12
Fishing gear used												
Involvement												
Wealth												
Better-off												
Medium												
Poor												
Very poor												

Table 7: Fishery calendar (continue)

Fishery:	1	2	3	4	5	6	7	8	9	10	11	12
Gender & age												
Men												
Women												
Boys												
Girls												
Older people												

3.7. GENDER AND AGE TASK ANALYSIS CHECKLIST

The gender and age task analysis aims to provide disaggregated information on the proportion of men, women, boys, girls and older people engaged in each livelihood sub-task. This provides a better understanding of the different roles played by gender and age class in the various livelihood activities undertaken in the village and household. This will help the project provide information how the needs of men, women, boys, girls and older people can be adequately addressed at household and village level during the formulation of key trends and changes in the fishery sector.

The method starts with listing all the various sub-tasks in each of the livelihood activities identified in the livelihood analysis. This should be done for each livelihood and should be done as a brain-storming and listing exercise. As the fishery is the main focus of interest then using the information from the fishing seasonal calendar is recommended in order to break the activity into its various sub-tasks. The sub-tasks may look like those listed below.

Rice farming	Other livelihood activities
Sowing nursery	Home-garden
Pulling seedlings	Upland cash crops
Transport seedlings	Pig raising
Land preparation	Cattle raising
Planting/transplanting	Poultry raising
Fertilizing Water control	NTFP collection
Weeding	Firewood collection
Harvesting Transportation	Charcoal Sericulture
Threshing Storage	Water collection
	Maintenance of the irrigation system
Fishing activities	*Economic activities*
Fishing	*Selling agricultural products*
Marketing	*Obtaining/paying back loans*
Processing	*Trading*
Preparation for home consumption	*Household expenses*
Making fishing gear	

Once a list of sub-tasks has been created the next step is to analysis within the FDG how much time is spent as percentage of that whole activity by each of the wealth, gender and age groups in each activity. An example of the table that can be created is illustrated below.

Table 8: Example of gender & age based livelihood tasks for fishing

Fishing activities/ Gender & age	men	women	boys	girls	older	Comments
Fishing	40%	20%	10%	10%	20%	Men fish for big fish and rest for food for household
Marketing		100%				Women do all the selling
Processing		50%		50%		Women and girls to all the processing
Preparation for home consumption		60%	20%	20%		
Making fishing gear	40%		30%		30%	Men, boys and older people only

Table 9: Example of wealth category based livelihood tasks for fishing

Wealth categories	Better-off	Medium	poor	Very poor	Comments
Fishing	10%	10%	30%	50%	Poor HH rely on fishing more
Marketing	40%	30%	20%	5%	Better-off HH are traders
Processing					
Preparation for home consumption					
Making fishing gear					

3.8. RANKING OF RELATIVE IMPORTANCE OF FISHERY

Once the seasonal calendar and the livelihoods analysis have been completed it will be important to get a measure of the relative importance of fishery compare to other household economic activities. This is undertaken through a ranking exercise that places the perceived importance of fishery as an income generating and subsistence activity relative to other household activities. This should be done in respect to the different wealth categories of households, gender and age categories.

Ranking means putting things in order, and is a technique that can be employed to quickly understand the main problems or preferences of the participants and the relative significance of these problems to them. Ranking exercises provides a practical visual focus and can identify local categories used by the focus groups to describe certain actions important to the study.

Table 10: Ranking of fisheries compared to other livelihoods

Categories	Ranking of most important livelihoods	Why is fisheries ranked where it is for that category
• Better-off • Medium • Poor • Very poor Gender & age • Men • Women • Boys • Girls • Older people	Ranking of most to least important livelihood activity for each category (highlight fishing activities)	Ask the groups why fisheries activities are ranked where they are for each wealth, gender and age category

The exercise should begin by confirming the livelihood activities listed in Table 5 and then ask the groups what is the importance the various livelihood activities compared to fishing in terms of both income generation and subsistence. This should be compared to other livelihood activities and why. This should be done for all gender, age and wealth categories.

3.9. POLICY AND CHANGES

The FGD on policy and change will employ a number of different PRA tools to raise, characterise and rank the issues that are perceived as influencing positively or negatively the sector. The PRA tools employed include historical timeline analysis, resource (natural and social) mapping, SWOT and ranking exercise.

3.10. TIMELINE

A historical timeline is used for a temporal analysis of the village and attempts to identify longer-term trends such as changes in fishing yields and in livelihood systems. Using a timeline provides an indication of the resilience of a livelihood activity that may have experienced major events, such as floods, droughts, pest outbreaks, market-price fluctuations.

To start the timeline assessment the group should discuss what is perceived to be the agreed divisions in time and this may relate to political periods that are known and understood. Once this has been agreed the discussions can focus on specific aspects and interests of the village relating to natural resources, livelihoods, policies and changes that have occurred. A check list of issues is included below with a table of possible results from discussions.

Checklist for timeline discussion

- Demographic changes and trends.
- Political changes.
- Changes in access, communications and services
- Land use changes and trends
- Changes and trends in livelihood activities
- Changes in NTFP abundance
- Changes in land tenure systems and landholding size
- Changes in agricultural practices
- Trends in rice yields
- Changes in climate (rainfall, drought, flooding, etc.)
- Changes and trends in fish stocks (production, species mix and local extinctions)
- Changes in fishing patterns (sites, access, people who fish, gear/techniques, laws and regulations, aquaculture, etc.).

Table 11: An example of a time-line represented as a table

Time period	1970-75	75-79	79-90	90-93	98-03	03-12
Politics	Lon Nol	Pol Pot	Vietnam invasion	UNTAC	Elected Government	
Periods	Pre 1979	1990 to 93	1998 to 2009			
Demographic changes	Fishers richer than farmers		Rapid population increase			

Political changes				First national elections in 1992	Commune Councils elected by popular vote.
Changes in access	Fish market opens				Access/communications improve dramatically
Etc					

It is important at the end of the session to review the time-line and to identify the long-term trends, such as changes in land use, fish populations, etc. Then with the group explore the causes of these changes. In discussions about the causes analyse the impacts and responses of the local community to these trends and record the results. At the end of the analysis, spend time to summarise the most important findings and confirm the changes, causes and impacts. When discussing the impacts explore what this means for different wealth, gender and age categories.

Table 12: Summary of main changes, causes and impacts from timeline exercise

Main changes	**Causes**	**Impacts**
List the main changes highlighted by the group	List the causes of these changes (physical, social, economic)	List the impacts of these changes on different wealth, gender and age categories

3.11.   RESOURCE-CHANGE MAPPING

In combination with the timeline exercise it will be necessary to develop with the FGD a change-map of the village that helps to understand the spatial distribution of physical and social resources, and where different livelihood activities take place. The mapping of the village allows specific focus on different resources used and in particular changes over time. To start the session work with the group to design a map of the village how it looked at some agreed point in the past. Then once this historic base-line map is drawn it is important to ask the group to highlight where changes in resources (physical and social) have occurred in the village. This will provide information of the changes to the village. Use the check list from the timeline to guide the conversation.

A resource map is a good visual tool to identify different livelihood uses and by focussing on the trends and changes to the resources provides a visual interpretation of these changes and what it means to the villages. Use the table developed in the timeline exercise to record the data on changes and what it means to different wealth, gender and age categories. Do any the resource changes have had a higher impact on different households or gender groups. Highlight and records these were possible.

Table 13: Summary of main resource changes, causes and impacts from resource-change map

Main changes	Causes	Impacts
Identify the main changes highlighted by the community in the map. These should include physical and social changes.	List the causes of these changes (physical, social, economic)	List the impacts of these changes on different wealth, gender and age categories in the community

3.12.   SWOT - STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

A SWOT analysis identifies and analyzes the Strengths, Weaknesses, Opportunities and Threats facing fisheries and livelihoods in the village. The results of a SWOT analysis are useful as it highlighting what the groups perceives are working and what is not working and needs to be improved. In assessing the strengths and weaknesses the tool allows the groups to consider what are the future threats and opportunities at stake.

In using the SWOT it is necessary to articulate what the discussion will focus on. In this case it is the fishery policies and decisions that influence its use and welfare for different wealth, gender and age categories. It may be necessary to facilitate a discussion about what aspect of the fishery or what policy of decision the group is going to discuss. Many of these issues should have been highlighted in the timeline and resource-change mapping exercise and can be used to inform the group discussion. The session should start by reviewing what will be the focus of the SWOT and this should be noted down. What a issue has been agreed use the questions in the table below to help guide the discussion and recording of responses.

Table 14: Summary of SWOT and Questions

SWOT	Questions
Strengths	these are the strong points of your 'issue' at the moment
Weaknesses	these are the weak aspects of your 'issue' at the moment
Opportunity	these are things that might happen in the future and can help improve the 'issue'
Threats	these are the things that might happen in the future and might stop you improving you issue

The data should be recorded and then can be used on the second visit to ascertain if any of the threats and opportunities were realised.

3.13.   RANKING

Whilst recording the data from the SWOT and also the timeline and resource-change mapping it will be important to rank the top five issues raised and what was perceived to be the greatest concerns for the group as a whole as well as for the different wealth, gender and age categories. The table below provides an example how the data can be recorded.

Table 15 Ranking of fishery changes and trends

Categories	Ranking of top five changes and trends	Why is the ranking as such for each category
Village	Rank from least to most important changes and trends in the fishery sector for the different wealth, gender and age categories	Ask the FDG to explain the differences in ranking between wealth, gender and age categories
Household		
• Better-off		
• Medium		
• Poor		
• Very poor		
Gender & age		
• Men		
• Women		
• Boys		
• Girls		
• Older people		

3.14.   PILOT TESTING OF METHODS

The FGD needs to be tested and training provided to local researchers. It is anticipated that a separate group of between about four field researchers will be used to undertake the FGD and will work with the enumerators that are doing the household surveys about some of the results and in particular the fish-seasonal calendar results. This will be needed to assist the household enumerators to gather all the inputs costs for the fishery livelihoods.

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