

LIVELIHOOD SYSTEMS' PROFILING

Mixed methods for the analysis
of poverty and vulnerability



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ABSTRACT

This document presents a set of methods for the characterization of livelihood systems experiencing situations of poverty and vulnerability. Such concepts are fluid and vary according to different epistemologies of reality. The methodological work that informs this document respects the plurality of voices that can emerge in the process of understanding the complexity of livelihood systems. It does so by utilizing contextualities and contingencies as the production ground from which definitions of poverty, vulnerability and food security emerge. These ideas materialize in the application of “fuzzy sets” statistical analysis as well as in the utilization of “Likert scale” modules to determine relative poverty levels in a given population. Both methods permit the treatment of poverty and vulnerability in their multiple dimensions, showing how the levels of poverty and vulnerability experienced by an individual or a household in the same sample vary according to the variables considered.

The approach uses the Sustainable Livelihood Approach as its underpinning conceptual framework. The SLA model proved very useful for the analysis of the multiple dimensions of poverty and vulnerability. It provided the foundations for demonstrating the linkages between different aspects of poverty and vulnerability both in horizontal terms (between various domains of poverty) as well as vertically (between the micro, meso and macro levels). The “zero-in” approach proposed in this document follows a similar logic in organizing the modalities of data collection, ensuring that those sets of linkages are fully explored. The methodological work developed in this paper is based on the adoption of the livelihood system as the conceptual tool for clustering individuals into meaningful groups, and the collection of information to construct profiles.

The profiling work proposed here is also based on the conviction that opinions of poor and vulnerable people are important and crucial in the analysis of the dynamics that affect their lives. Particular emphasis is placed on the collection of people’s perceptions of reality either through qualitative and mixed methods. Furthermore, the methodology illustrated in this document attempts to go beyond the use of households as units of analysis, and advocates for the use of individual voices as the raw material for capturing differential perceptions of how the world and its categories are constructed.

Profiling livelihood systems attempts to go beyond a search for consensual views of poverty and vulnerability, attempting to evidence how these co-vary with instances of ethnicity, gender, and age among others. The combination of qualitative and quantitative methods for the analysis of livelihood systems permits a search for inconsistencies, differential epistemologies, and contrasting views that constitute an integral part of how reality is constructed and negotiated by groups of people in unequal power positions in society.

ACKNOWLEDGMENTS

Particular thanks should go to a large number of colleagues who helped at various stages in the conceptualization, design, testing, and implementation of this document. Oumarou Njifonjou, Youssouf N'Dia, Alain Kodjo, Juliette Assienan helped carry out the work in Côte d'Ivoire and lay the basis for both data collection methods presented here. Boubacar Konte, Henri Zerbo, Norbert Zigani, Georgette Traoré and Zoumana Baro carried out the fieldwork in Burkina Faso. Abdoulaye Cissé, Hinna Haïdara, Sissoko Naminata Démbélé and Yacouba Koné collected the data and did the qualitative analysis in Mali. L. I. Braimah, Alabi Bortey, Noble Wadzah, Awadey Cromwell and Maria Dacosta are the main authors of the work conducted on Lake Volta, Ghana. To each of them a unique thank you is due. A special thanks should go to Barbara Huddleston for having initiated the work on livelihood systems profiling while still with FAO. In addition, the authors would like to thank Benjamin Davis and Alberto Zezza for their comments on the fuzzy sets methodology; Jim Hancock for endless conversations and his keen capacity to organize ideas; Dick Coutts, Tim Bostock, Benoît Horemans, Peter Manning, Moustapha Kebé, Katrien Holvoet, Clare Bishop, Marco Knowles, Noeky Lenselink, Peter Bailey, Kath Means, and Christian Lovendal for comments and suggestions provided at different points in time throughout the process. Thanks also to Gaëlle Hermanus for helping out with translations and thanks to the entire Sustainable Fisheries Livelihoods Program staff for having facilitated the realization of this work in the field.

INTRODUCTION

This document presents a set of methods for the characterization of livelihood systems experiencing situations of poverty, vulnerability or food insecurity. Such concepts are fluid and vary according to different epistemologies of reality. The methodological work that informs this document respects the plurality of voices that can emerge in the process of understanding the complexity of livelihood systems. It does so by utilizing contextualities and contingencies as the production ground from which definitions of poverty, vulnerability and food security emerge (Narayan et al. 2000). These ideas materialize in the application of fuzzy sets statistical analysis as well as in the utilization of Likert scale modules to determine relative poverty levels in a given population. Both methods permit the treatment of poverty and vulnerability in their multiple dimensions, showing how the levels of poverty and vulnerability experienced by an individual or a household in the same sample vary according to the variables considered. These are not simple subtleties. Actions targeting the reduction of poverty need to be based on more than a simple classification of an individual or a household below or above a poverty line. The methodological pathways explored in this paper permit the identification of what exactly accounts for an individual or a household's poverty or vulnerability (e.g. health issues, educational issues, social exclusion, etc.). The way this is achieved is presented in chapters 2 and 3.

The methodological work developed in this paper is based on the adoption of the livelihood system as the conceptual tool for clustering individuals into meaningful groups, and the collection of information to construct profiles. Methodological work to operationalize this line of thinking led to the realization of Livelihood Systems Profiles (LSP).

A **livelihood system** encompasses the capabilities, material and social resources, and activities required for a particular means of living. Livelihood systems can be described by a main source of livelihood that is quite broad. Landless peasants, communal land herders, agro-pastoral farmers on rain-fed land, small-scale livestock producers with no land are some examples of broad livelihood systems that have been used for classifying people into vulnerable groups.

Identifying and characterizing the poor or vulnerable is crucial for designing and implementing actions to improve their situation and reduce their number. Because policies and programs do not commonly target single individuals, it is necessary to identify meaningful groups for policy and program action. By choosing the livelihood system as a classifying tool, it is possible to cluster individuals with similar characteristics into groups that are subject to similar factors and processes affecting their poverty and vulnerability. Within a livelihood system, however, the analysis can be focused on either households or individuals depending on the scope and nature of actions envisioned.

There is a fairly vast literature emerging from participatory approaches (PRA) on the compilation of poverty profiles at micro level, e.g. in a community or a village. Various techniques such as wealth ranking and the household food economy approach are commonly utilized to classify people into poverty, vulnerability, or food security classes (Pretty et al. 1995; SCF-UK 2000). Similarly, a large literature exists for the development of poverty profiles at national level, a domain where the World Bank and UNDP have played a predominant role. Interestingly, the analysis of poverty and vulnerability at an intermediate level of aggregation (meso) has not received considerable attention. This dearth of attention to intermediate levels contrasts with the current trend towards decentralization of power and decision-making in developing

countries. However, from a methodological standpoint, scaling up from micro observations relative to a few locations to reach conclusions that are broader in scope is risky. Analogously, statistical significance is soon lost once observations valid at national level to be disaggregated at finer scales. The contribution of this document to the methodological discussions on poverty and vulnerability, therefore, is to be seen primarily at a meso level, where only few rigorous methodologies have been developed (Ravnborg 1999).

The profiling work proposed here is also based on the conviction that opinions of poor and vulnerable people are important and crucial in the analysis of the dynamics that affect their lives. Particular emphasis is placed on the collection of people's perceptions of reality either through qualitative methods such as focus group discussions and individual semi-structured interviews, or through the use of semi-quantitative methods such as scaleable attribute modules. The combination of qualitative and quantitative data in the process of analyzing livelihood systems, however, is more than a cross-check for validity testing. It represents the search for inconsistencies, differential epistemologies, and contrasting views that constitute an integral part of how reality is constructed and negotiated by groups of people in unequal power positions in society. Thus, profiling livelihood systems attempts to go beyond a search for consensual views of poverty and vulnerability, attempting to evidence how these co-vary with instances of ethnicity, gender, and age among others.

While this paper is methodological in nature, it refrains from being prescriptive in the ways in which a profiling exercise can be conducted. The information required and the nature of decision-making differs according to whether the process involves policy formulation, project development, monitoring and evaluation, among others. Information requirements also differ according to the institutional affiliation and responsibilities of the user, and the administrative level - whether international, national, provincial or local - at which decisions are being made¹. Consequently LSPs need to maintain a high level of flexibility at all stages of their realization (data collection, elaboration, and presentation). To that avail, chapter 1 addresses some of the key issues underpinning the compilation of a LSP. Chapter 2 introduces the reader to a set of possible tools and pathways that can be followed to compile a livelihood system's profile. Finally, chapter 3 looks at forms for presenting the information contained in a LSP in effective manners. LSP may take the form of policy briefs, analytical reports, or awareness-raising pamphlets, using textual analysis as well as visual aids such as graphs, maps, charts. In an age where the amount in information produces greatly outdoes the capacity of the reader to absorb it, Chapter 3 illustrates a set of possibilities for packaging information to characterize livelihood systems in ways that reduce the amount of time required of its potential readership.

A brief history of Livelihood Systems Profiles (LSPs)

LSPs have been compiled in various countries of West Africa, Central America and South Asia. They have been used as part of poverty assessments, food security assessments, and vulnerability assessments. Information generated through the LSPs fed into various national and sub-national processes, including policy formulation, awareness raising, beneficiary targeting and project design.

The initial idea of compiling LSPs emerged from discussions within the Inter-Agency Working Group on FIVIMS in the late 1990s. FAO took a lead role in developing such ideas into concrete information products and methods to characterize groups of people who are experiencing poverty, vulnerability, or food insecurity. In particular, the Food Security and Project Analysis Service (ESAF) of the FAO under the leadership of Barbara Huddleston, provided the resources to pilot test one methodological pathway to compile profiles of vulnerable and food insecure livelihood systems in Guatemala, Vietnam and Benin between 1999 and 2001 (FAO 2000; 2001).

¹ FAO. 2002. *Understanding Food Insecurity and Vulnerability*, by FIVIMS. Tools and Tips Series. Rome 2002.

Subsequently, and on the basis of preliminary results and lessons learned from the Guatemala exercise, the author of this paper continued to explore possible ways of building LSPs under different circumstances.

Further methodological work on the compilation of LSPs was supported by a collaborative effort between the Sustainable Fisheries Livelihoods Program (SFLP) and the Support Unit for Fisheries and Aquatic Research (SIFAR). A set of new ideas were developed to respond to the immediate project design necessities of the SFLP program. These were tested in various West African countries in 2002 and are currently being utilized for a new set of livelihoods based pilot projects in that same region.

While the exercise developed in Guatemala focused on livelihood systems either currently experiencing food insecurity or at risk of becoming food insecure, the profiling work conducted in West Africa was geared towards an understanding of poverty among small-scale fishing communities. The LSP exercise carried out in Guatemala aimed at filling a gap in the information needs for food security planning and policy making, by providing a coherent classification of the vulnerable population into groups that share structural causes and risks of becoming food insecure. In West Africa LSPs were constructed to establish baselines of information about the livelihoods of projects' beneficiaries and provide a basis for monitoring and evaluating the impacts on the livelihoods of the fishing communities targeted. Finally, while in Guatemala the assessment covered the entire national territory and broadly defined vulnerable or food insecure livelihood systems (e.g. small farmers and artisanal fishers), the LSPs conducted in West Africa analyzed fishing communities living on artificial inland lakes.

Although there are differences in the thematic focus and the units of analysis, a series of key features are common to the approaches developed, making it possible to establish a conceptual continuity among them. These are:

- ▶ Use of the Livelihood System as "lens of analysis";
- ▶ Zero-in approach (from larger units of analysis to smaller ones);
- ▶ Participation at macro- meso- and micro-levels;
- ▶ Use of unwritten information vested in the institutional memories of stakeholders at meso level;
- ▶ Use of mixed sets of qualitative-quantitative methods for data collection and analysis.

It is with a discussion of these elements that grant conceptual continuity to the different typologies of LSPs that chapter one begins.



CHAPTER ONE:

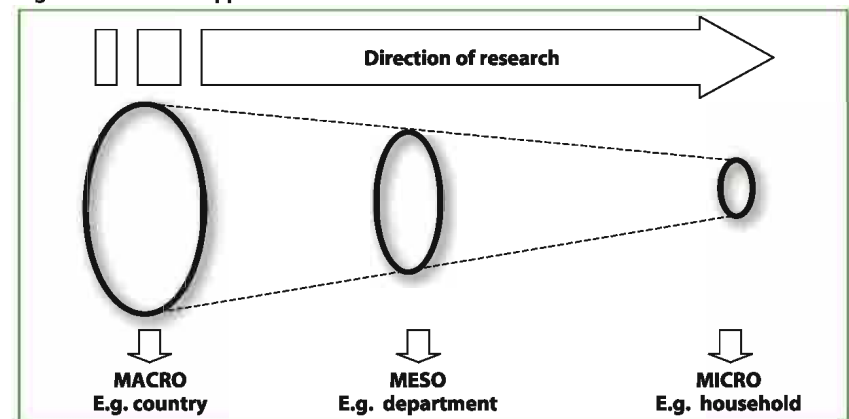
CONCEPTUAL
FRAMEWORK FOR A
LIVELIHOOD SYSTEM
PROFILING EXERCISE

CHAPTER ONE: CONCEPTUAL FRAMEWORK FOR A LIVELIHOOD SYSTEM PROFILING EXERCISE

The overall process for compiling a LSP is based on a few common principles as highlighted in the introduction above. The zero-in approach underpins the rationale for data collection, and establishes a framework for ensuring participation of, and consultation with, various stakeholders at different levels. A diagrammatic representation of the “zero-in” approach is given below. Understanding a livelihood system entails the comprehension of all the networks of relations in which individuals are embedded. These span along the imaginary axis often referred to as micro-meso-macro. At each level, a set of relations (of production, commercial, of power, etc.) are in place. Profiling a livelihood system, therefore, implies an understanding of how such networks of relations are constructed and legitimated as well as how they operate.

The networks of relations between a variety of subjects at each level (individuals, households, institutions, etc.) are subject to interpretations. By interviewing a plurality of people expected to be knowledgeable about reality at each level, the networks of relations making up a livelihood system begin to unfold. Not everybody, in fact, understands reality in the same manner. For example, analyzing poverty simply from a micro perspective may implicitly obscure the policy and institutional elements that contribute to its systematic reproduction. Farmers or fishers, in fact, are only seldom aware of the larger dynamics that affect their livelihoods and tend to perceive them simply as “changes” with a limited understanding of the mechanisms of causality that underlie them. As it will be argued later in this chapter, substantial knowledge of these processes of change exists and it is vested in the unwritten institutional memory of representatives of various formal and informal organizations operating on the territory. On the other hand, concluding simply on the basis of such observations entails the risk of reproducing stereotypical representations of poor people while obscuring the idiosyncratic manifestations of poverty and vulnerability at individual or household levels, their ontologically dynamic nature, and the local body of knowledge about those dynamics (Wilson 2001; Sillitoe 1998). Thus, the zero-in approach lays out a framework for ensuring that as many voices as possible have access to a narrative space for articulating their understanding of reality, and in doing so, it provides a mode of organizing information about multidimensional issues such as poverty or vulnerability.

Fig. 1 - The Zero-In Approach



The box above presents only one possible interpretation of the macro-meso-micro paradigm. The nature of the different levels varies depending on the specific situation. For example, in Côte d'Ivoire, an LSP was carried out in communities living on an inland water body, Lake Kossou. In that situation, the overall lake was the macro level, followed respectively by the "prefecture" and individual villages, and all the way down to the micro components of those fishing societies. However, because the lake was fairly large, no formal institutions operating on the overall water body existed. It was therefore decided to look at the dynamics of poverty in all the prefectures adjacent to the lake (macro), then in a selected sample of villages (meso), and finally complementing those observations with a household survey (micro). The data collection exercise was organized accordingly - e.g. brainstorming sessions with informants knowledgeable about key issues in the respective prefecture, group discussions in a selected sample of villages, and a household survey.

The example above evidences that the interpretation of each level should be as flexible as possible. Micro could mean households as well as individuals. The meso level could include other intermediate administrative units, such as regions, districts, villages. The administrative structure is usually very country-specific and this should be taken into consideration when designing the appropriate framework for conducting a LSP. In many cases, there is a clear intermediate level between say the district and the household, e.g. the village. Thus, village level meetings or group discussions with village-level institutions have been utilized as a key step in the methodology. In any case, the administrative divisions of a country are only one possible manner of designing a data-collection strategy. Depending on the information needs, it may be more appropriate to use non-administrative units such as agro-ecological zones, ethnic areas, or others.

At times researchers may find that parallel territory and/or population classification systems may exist in a country. For example, in Guinea the administrative structure follows the region/prefecture/sous-prefecture/village structure. However, when conducting the exercise in partnership with the Fisheries Department to profile poor coastal livelihood systems, it became immediately obvious that the representatives of the DOF conceived of the coastal stretch in terms of landing sites rather than villages or any other administrative unit. Therefore, the work conducted in Guinea took into account landing sites in the determination of a sampling strategy.

The zero-in approach also provides a framework for including a plurality of voices, while systematizing participation of stakeholders at different levels. This constitutes a key element in the logic underlying the exercise. Because concepts such as poverty, food security, and vulnerability are multidimensional and context-specific, building a LSP entails understanding the multitudes of interpretation of the same reality and constructing a narrative as a jigsaw puzzle. In fact, the overall picture emerges gradually from the juxtaposition and analysis of different viewpoints (Becker 1970; Sapsford and Jupp 1996). In the process of building the picture, information gaps and missing or unclear links between different bits of information are evidenced. These issues are continuously addressed in the process of collecting information, and the data collection instruments and techniques should be continuously adapted to respond to the field reality. As the picture becomes clearer, information gaps become smaller and smaller, and links less and less blurry. The goal of an LSP, however, is not that of finding consensual views about a given situation, but rather evidencing complexities and inconsistencies emerging from multiple interpretations of reality.

Involving different informants at various levels is based on more than a simple need to foster bottom-up approaches and participation at all levels. From a data collection as well as from an analytical point of view, this approach is justified by distinctive understandings of reality by different stakeholders (Campbell 2003). As a rule of thumb, the LSP exercises conducted in various countries involved a series of representatives of state and civil society institutions as well as individuals belonging to the livelihood groups being analyzed. The type and depth of

knowledge of local situations, as well as the level of abstraction at which conversations can be held, vary according to respondents. For example, local government representatives can often understand and convey large scale dynamics affecting an area, the wider economic and political context, and the strength or weaknesses of institutions operating in the area. Questions posed to them can be more abstract, and responses themselves are often analytical in nature. The same is true for representatives of NGOs or civil society organization. However, the synthetic nature of this type information implies that many details are often unreported. Also, the information elicited from these sources tends to represent formal or official positions vis-à-vis a given issue. Because of this, other voices need to be heard to "build the puzzle". Key informants at village level provide a deeper understanding of village- and inter-village dynamics, but are often weaker in contextualizing these in the bigger picture. Finally, individual actors themselves are the real "everyday expert" (IDS Policy Briefing 1998) who add not only lots of details but also provide different views on reality from a grass-root perspective. It is in the continuous cross-checking of information via different sources that a more valid and congruous picture emerges. Once again, the emerging profile should not be a search for consensual interpretations of reality. On the contrary, discrepancies, contrasting views, structures of power, processes of marginalization, structures of legitimation and others, should emerge in the narrative constructed (Cornwall and Pratt 2003).

The data collection dynamics highlighted in the paragraphs above point to the fact that, especially in qualitative research, data collection and data analysis cannot be two totally distinct and sequential phases. Intermediate results and syntheses are drawn at different points in time of the data gathering exercise. This procedure should inform the very process of data collection, help refine or redesign data collection instruments, and specify the grey areas where additional information is required. In other words, the process is one of constant comparison, validation and refinement – in other words a process of "grounded theorizing" (Becker 1970; Sapsford and Jupp 1996) implying a constant comparative method (Glaser and Strauss 1967).

Combining qualitative and quantitative research methods

In order to find a common ground where full stakeholders' participation and scientific rigor can be accommodated, the methodological pathways proposed in this guide are based on a combination of qualitative and quantitative data collection and analyses. While quantitative approaches have been dominant, especially in policy-making circles, the use of qualitative approaches has been increasing, and the combination of mixed methods is receiving more and more attention (Kanbur 2001). Recently, the debate about the possible interfaces between qualitative and quantitative analysis has become a prominent one in the poverty and vulnerability literature. While some people allude to deep philosophical differences between qualitative and quantitative research, Ravallion (2001) concludes that differences shrink among the best examples of each approach. In fact, King et al. (1994) argue that "all food research can be understood – indeed is best understood – to derive from the same underlying logic of inference".

The method proposed here for the compilation of livelihood systems profiles recognizes the importance of both quantitative and qualitative data.

Quantitative data is important because it provides information about the magnitude of poverty and permits a representation of its geographical distribution (through poverty mapping, for example) (Davis 2002). Knowing how many poor people live in each district of a country provides important information for an efficient allocation of resources devoted to reduce poverty levels.

Quantitative analysis is based on empirical observations recorded systematically over a sample of primary units (be it individuals, households, villages). In order to ensure that conclusions drawn from the analysis of datasets collected can be extended to a larger population, it is crucial

that the sampling procedures followed are as defensible as possible. Wilson (2000: 4) argues that there is no fixed manner of determining the right sample and that general principles for achieving good, defensible samples should be based on application of common sense rather than mathematics. A series of recommendations for sample selection will be given in Annex 3.

Qualitative data proves very useful in explaining who and why people are experiencing differential degrees of deprivation. Qualitative information is also important to highlight the processes of impoverishment and marginalization. This information becomes important when actions to improve livelihoods of poor people need to be designed. Not all people in fishing communities are equally poor, and the entry points to redress their situation will be contingent on the types of poverty experienced and the different causes determining it.

At an analytical level, both quantitative and qualitative processes are based on existing information (secondary data and literature), as well as information generated ex-novo through the profiling exercise itself (primary data).

Sources of information for an LSP

The methodological pathways proposed in this document are based on a common approach that involves:

- a) Building on existing knowledge;
- b) Primary data collection in the field.

Building on existing knowledge entails an analysis of secondary data and sources that may be available in written documents, as well as unwritten information vested in institutions and people at local (village) and meso (districts, departments) levels.

The term “secondary sources” refers to information that has already been collected, published or unpublished, and that can be used during the analytical process. Secondary sources can be classified into:

- ▶ Secondary data: population census, agricultural census, frame surveys, socio-economic surveys, demographic surveys, etc.
- ▶ Secondary literature: articles in scientific journals, books, technical reports, etc.

The relevance of secondary data and literature

In many countries substantial amounts of information is available but often not used beyond the specific goals for which it was originally generated. In the case of data pertaining sub-national issues, this is partly due to the limited circulation of project documents and assessments conducted in the context of a specific intervention. Indeed it often takes an active effort to search through “grey” literature to find lots of information relevant beyond the goal for which it was originally produced. In the case of small-scale fishing societies, studies on a given topic (say poverty) may not necessarily be available as well-packaged documents with an explicit title. Substantial amounts of information about people’s poverty in fishing societies can nevertheless be extracted from many other documents such as project appraisals in areas where fishing communities reside, ethnographic studies, food security assessments among others.

In addition, understanding the livelihoods of a group of people (for example small-scale fishers) encourages us to look at variables other than those typically utilized in the fisheries-

sector (fish-catch volumes or types of gear used). Expanding the field of inquiry may seem an impossible task to accomplish with limited resources. However, when existing information from government sources, bilateral or multilateral agencies, universities, and non-governmental bodies working with fishing communities is triangulated², a certain amount of conclusions can be drawn without necessarily having to embark on new large-scale surveys. This saves time and money in designing more effective data collection strategies, and works as an effective solution in those cases where time constraints simply do not allow for new data generation.

Tapping into unwritten knowledge at meso level

The precepts of western epistemology attach greater importance to written text because, as the Romans put it, *verba volant* (words are volatile). This logic has been utilized to discredit knowledge transmitted orally in many non-literate societies on the basis that the ensuing narratives are liable to subjective interpretations and rephrasing. Histories of non-literate societies have thus been written only with reference to outsiders’ records believed to be more credible because written. Yet, to the members of those non-literate societies, orally-transmitted knowledge is just as valid as any text which, despite the claims to objectivity, is nevertheless liable to interpretation. The diatribe over how to interpret sacred texts such as the Bible shows how meanings in written texts are far from being fixed.

In the context of development work, substantial amounts of knowledge are vested in institutions and individuals who work with rural communities. Most of that knowledge does not make it to written texts (in the form of project documents, reports, and studies), though the value of that information remains and constitutes a substantial source of knowledge that should not be by-passed. Furthermore, success of a development intervention is often strongly correlated with the degree of participation of local partners and stakeholders in all its phases. To ensure full ownership of the actions envisioned, it is important to involve stakeholders from the very beginning, including the process of identification of problems and the potential ways to address them (Cornwall and Pratt 2003; Turk 2003: 59). Finally, the institutional memory embedded in individual representatives provides important information about types of development activities that have been attempted in the past, the reasons why they succeeded or failed, as well as indicating the stumbling blocks that may be encountered in the course of implementing a new strategy. It is much more difficult to arrive at such conclusions by adopting a strictly deductive approach.

Despite the value of non-written information vested in local institutions, one needs to recognize the margins of error associated with subjective renderings of reality. In a typical group discussion, for example, there are often individuals who tend to dominate and obscure other interpretations of reality. At other times, people may use knowledge about one specific place as a proxy for larger contexts about which, however, they are not sufficiently knowledgeable. Or again, individuals may feel threatened for not contributing to the conversation and to avoid looking uninformed may make statements that are far from being precise.

Despite these difficulties, qualitative data collection methods should not be discredited altogether. Margins of error can be found equally in quantitative methods. A household interview conducted in haste may result in biased responses. Asking people about their income or the volume of their fishing production often gets entangled in differential ways of perceiving values or measuring. For example, on Lake Kossou in Ivory Coast, fish is traded by the basket and its commercial value is determined by the size of each individual fish, rather than its weight. Lastly, the claim that quantitative data is “objective” while qualitative data is “subjective” is ontologically questionable. The position of the recorder of information vis-à-vis reality, in fact, is only partly determining the degree of accuracy of the information itself.

² Triangulation refers to the process of cross-referencing sources for validation purposes.

In this methodology, therefore, triangulation between qualitative interpretations of reality and quantitative measurements is utilized to minimize the possible margins of inaccuracy on the one hand, and to allow for differential interpretations of reality on the other. Triangulation helps reducing gross inconsistencies in the construction of narratives emerging from the analysis of all data sets and information collected. Simultaneously, it highlights discrepancies between information sources and knowledge gaps. These are often turning points in pulling together different pieces of information into a cohesive narrative, and should be utilized for questioning the validity of data and the robustness of analysis.

As stated in section 2.1 above, sampling procedures are crucial in any applied research. Yet often information to construct the best sample is missing. Talking to people in the field, therefore, becomes fundamental in understanding the degree of homogeneity or heterogeneity in the population from which a sample is drawn. This type of information can be obtained partly from the discussions with institutions and representatives thereof, and partly through cross-checking and integrating those perspectives with the views of people in communities themselves.

Eliciting information from resource users

Although information elicited from representatives of institutions is an important and often untapped resource, it nevertheless explains only part of the picture. Findings emerging from such discussions need to be cross-checked with the perspectives of people in communities on the same issues. This triangulation can be done in various manners, and the following two are proposed for LSP exercises:

- 1) through a series of focus group discussions with people in fishing communities (preferably separated by gender, age, ethnic group, or any other important feature that may play a role in how the same set of situations is perceived).

It is vital to recognize that communities are not monolithic entities, and that specific groups of people within a social group (defined by age, gender, caste, social class among others) represent different voices, perspectives, interests and opportunities. Poorer people in communities, furthermore, are the ones whose voices are less represented because these are frequently marginalized and left out of decision making processes. Even when poorer people participate in group discussions with more dominant individuals, they tend to shy away and avoid confrontation in the public arena. For example, women are reluctant to voice out their concerns in front of their husbands or the men of a village. Doing so would result in social repercussions greater than the results of having talked in public about latent issues. In order to capture and address these issues, group discussions should be set up to create a non-threatening environment for different groups (especially the most marginalized) to express themselves.

- 2) Through a semi-structured questionnaire administered to a representative sample of households.

The household questionnaire is a data collection instrument that should be utilized to its full potential. Often field enumerators just tick boxes, answering all questions on the questionnaires but forgetting to demand explanations for why people respond one way or the other. When administering it, any opportunity should be taken to ask additional questions about an issue that is raised in the questionnaire. For example, a fisherman may be asked to report on whether he experienced a reduction or an increase of the fish catch over the past five years. While recoding that piece of information is important, it is just as important to ask what the perceived causes of that increase or decline were, and take note on the side of the page. This will help during the analysis of quantitative data, providing a context in which responses can be evaluated.



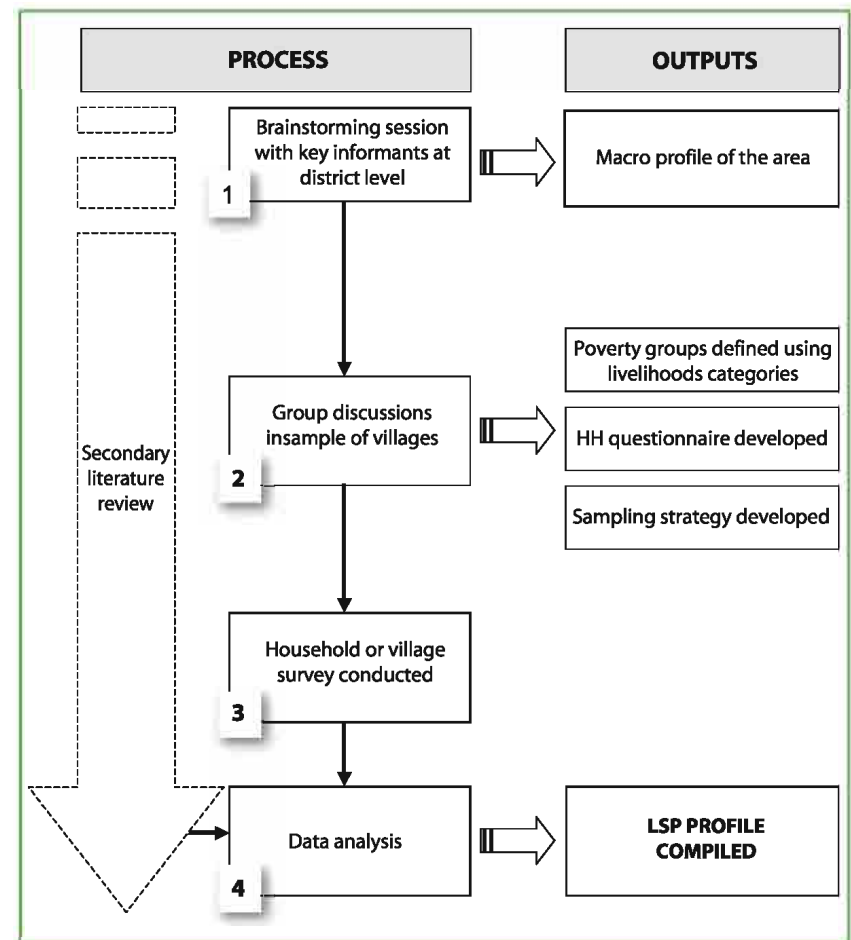
CHAPTER TWO:

STEPS TO COMPILE A LIVELIHOOD SYSTEM PROFILE

CHAPTER TWO: STEPS TO COMPILE A LIVELIHOOD SYSTEM PROFILE

The following section presents how the conceptual framework presented so far was applied in two countries. Two examples are given that follow a similar methodological pathway albeit with a different survey protocol. In the first example LSP ideas were applied to a poverty profile of fishing communities of Lake Kossou, Ivory Coast, Lake Bagré and Kompienga, Burkina Faso, and Lake Selingué, Mali. The second example is based on a poverty profile carried out among fishing communities of southern Lake Volta, Ghana. In both cases, data collection and analysis included a combination of qualitative and quantitative methods. The rationale underpinning the exercises is presented in the flowchart below:

Fig. 2 - Flowchart illustrating methodological pathway used for poverty profiling exercise



This methodological pathway was utilized for establishing a baseline of information to monitor changes in the livelihoods of fishing communities in the two countries mentioned. The exercise was part of a pilot project that aimed at improving the livelihoods of poor fishing communities residing on artificial lakes by promoting co-management of natural resources. The Sustainable Development Approach (SLA ³) was utilized as a conceptual framework for the design and the implementation of the project.

As illustrated in the flowchart above, a three-tier approach was developed for data collection. This included:

- a) **Brainstorming sessions at district/department level.** Participants to these sessions included representatives of government bodies (local representative of the ministries of health, education, food and agriculture, fisheries, and others), local administration (préfets, district commissioners, local MP), representatives of NGOs, and representatives of socio-professional organizations (credit schemes, rural banks, fishers' organizations, traders' groups, women's associations, and others). In some cases political parties' representatives attended the meetings.
- b) **Group discussions in a sample of villages.** Two types of such sessions were held. In the first type participants included village traditional authorities, health workers and educators, religious leaders, and representatives of community-based organizations. The second type was organized as a focus group discussion with specific groups that were deemed having specific positions on the issues addressed by the project. For example, in Ivory Coast specific focus groups were held with male youth who composed a large portion of the fishers' population. Similarly, focus groups were held with women groups at various sites.
- c) **A baseline livelihood survey.** As it will be illustrated in the next session, this varied from case to case. While in Mali a full-blown household survey was conducted, in Ghana a different approach was utilized because of time and transportation difficulties. The different strategies adopted are elaborated in step 3 below.

The remaining part of this section will be devoted to the discussion of the steps utilized for data collection in this methodological pathway. Issues concerning the analysis of data collected will then be addressed in Chapter 3.

1 Brainstorming sessions at district/department level

One brainstorming session with representatives of state and civil society institutions was held for each administrative unit concerning the lake under consideration. In Ivory Coast, for example, the LSP was done on Lake Kossou, located in the central part of the country. The lake stretches over four administrative units (prefectures), e.g. Bouaflé, Béoumi, Tiébissou, and Sakassou. One brainstorming session was organized for each of the four administrative units. Key informants participating in the brainstorming sessions represented institutions working with small-scale fishing communities in each prefecture. These included people from different decentralized ministerial units (fisheries, forestry, health, education, social investment, etc.), NGOs, donors' representatives, project managers, rural finance institutions, and representatives of professional organizations (fish smokers, traders, etc.).

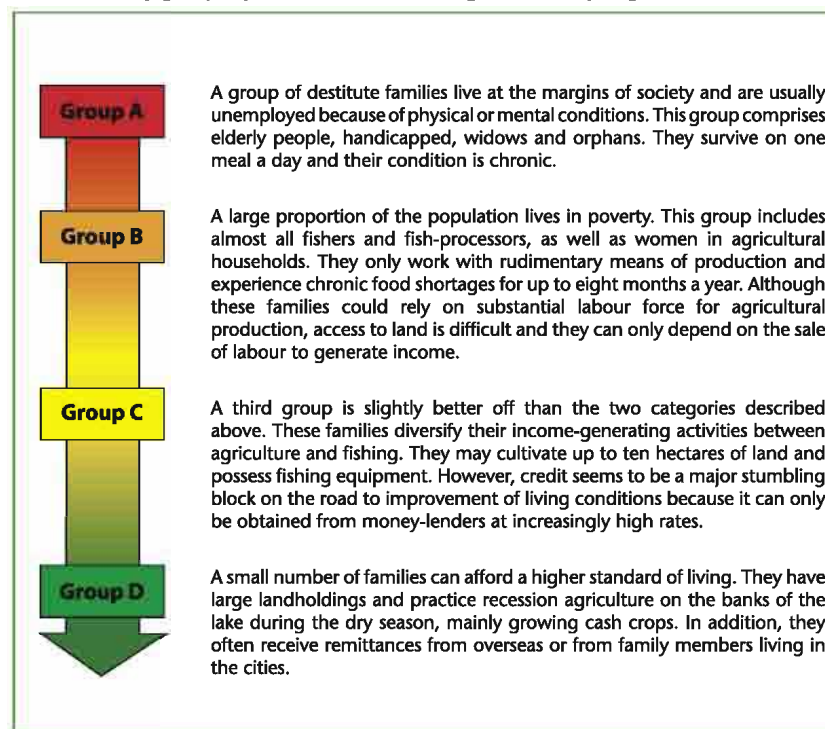
Open-ended questions were posed to the participants following a checklist of themes to be addressed. This technique aimed at eliciting responses on broad issues concerning the overall population depending on small-scale fisheries for their livelihoods. Themes included the state and trends of natural resources, economic conditions of the area, the institutional environment,

³ See www.livelihoods.org for information about the Sustainable Livelihood Approach.

seasonality patterns, policy issues, and the vulnerability context. In addition an exercise was done to classify the population under consideration into poverty classes. The exercise aimed at understanding how different groups of people residing in coastal zones of a prefecture are differentially affected by macro dynamics, and in particular, how poverty is differentially distributed among a range of socio-economic or population groups. No predetermined definition of poverty was provided to participants. Instead, classification criteria emerged from the interactions with participants. Through these discussions a classification of the population into broad groups was obtained.

For example, on Lake Bagré and Lake Kompienga in Burkina Faso, four different groups of people were identified through stakeholders' meetings. These can be classified on a continuum from outright destitution to relative wealth. A brief description of these groups is given below:

FIG. 3 - Poverty groups by livelihoods on Lake Bagré and Kompienga, Burkina Faso.



The broad structure for this classification was then validated at different points in time throughout the exercise, as well as refined and enriched with substantial amounts of details collected in the field.

Finally, during each brainstorming session, an exercise for the selection of a sample of representative villages was conducted with the participants. Because the exercise is a key step in the methodology, a full description is given in Annex 3.

2 Group discussions in a sample of villages

Once the set of representative villages was selected, field visits were scheduled. In each village, a series of meetings were held to discuss issues identified by the team during preparatory work. How many group discussions and who should participate to each was determined in each specific context. As a general rule, in all countries where LSP have been conducted, separate group discussions at village levels were organized for men and women. In many cases one group discussion was also held with representatives of institutions at village level. This included village chiefs, health workers, teachers, religious leaders, and representatives of socio-economic groups among others. In Côte d'Ivoire, however, it became clear from the very beginning that young males in fishing communities constituted a somewhat unique group with a common set of concerns and problems arising from the peculiar economic situation which followed the collapse of the cocoa-coffee plantation system. This forced a large number of youths out of work. A counter-exodus from urban to rural areas ensued, particularly felt in fishing communities where access to means of production was easier than acquiring land, rates of returns were higher due to the abundance of the resource, and income obtained on a daily basis as opposed to agriculture where profits are only realized a few months after planting. Because of these reasons, and because youths were playing an important role in the definition of social interactions in the areas visited, additional group discussions were organized with young males, in order to understand their perspective on issues of poverty and vulnerability.

The method used at village level was the same as the one utilized for group discussions with representatives of institutions at district level. For the brainstorming sessions, only a check-list of issues to be addressed was prepared, and researchers remained flexible in responding to the flow of the discussion. The researchers collected information at village level about similar issues as at district level. Although the themes touched in the group discussion were the same, significant differences existed as far as a few key points are concerned. These included: a) modes of asking questions and language utilized; b) levels of abstraction in responses; c) typology of dynamics and processes discussed by respondents.

Responses obtained from group discussions conducted at village level tended to be phrased in simpler and straightforward manners. They tended to be more factual than analytical, often using personal experiences to illustrate a trend. Such responses were crucial to build the overall picture of poverty and vulnerability on a more disaggregated scale. They were also used to cross-check and validate statements obtained from representatives of formal institutions, to understand the variability of situations on the ground, and to clarify how people perceived the impacts of large-scale policies, laws and regulations at the grass-root level.

Holding separate group discussions with different sectors of the population enabled differential, contrasting, consensual and conflicting views of reality to be obtained. Group discussions at village level with men and women yielded important information as far as access to resources is concerned, the bottlenecks and mechanisms of exclusion for some groups of people, the importance or the erosion of social capital, the possible terrains for collective action, among others. In addition, asking people about how their lives changed over the past few years (and why) provided the keys for reading successful and unsuccessful interventions. For example, in Guinea the introduction of ice-plants was praised by district level authorities because it allowed some fishermen to increase their capacity to export high-value fish species and generate foreign-exchange. However, due to the same reason, fish availability on local markets grew scarcer and scarcer, leaving women fish smokers in dire straits. While a project may have been considered a success on a macro-economic scale, it was having detrimental effects for the poor (see also Jansen 2000).

3 Baseline livelihood survey

As indicated in the introduction to this methodological pathway, the third level of primary data collection varied from case to case. To illustrate to major strategies adopted, an example from Lake Sélingué, Mali and one from southern Lake Volta, Ghana will be utilized. In the first case (Mali) a baseline survey was conducted at household level, while in Ghana the baseline was established using villages as units of analysis. In the countries where household surveys have been administered as part of a LSP, the national statistics office's definition of a household has been utilized.

Lake Sélingué, Mali

The baseline household survey conducted on Lake Sélingué aimed at capturing the micro manifestations of people's livelihoods, such as how people within a household obtain access to productive and non-productive assets, how they participate in decision-making processes, how the division of labor is organized, who, how much and how often food is consumed, and many other aspects that normally are not elicited through group discussion discussions at higher levels. In analytical terms, results from household livelihood baseline surveys was cross-checked with the findings obtained through the qualitative assessment, improving the understanding of "grey" areas, and providing additional details to substantiate or discard arguments emerging from the qualitative analysis. Furthermore, findings from the survey brought out some of the inconsistencies between the perceptions of representatives of institutions and reality as experienced by resource users.

In the countries where the household survey was administered, a fairly comprehensive questionnaire was designed in order to capture as many aspects as possible in intra- and inter-household dynamics. The Sustainable Livelihood Approach provided the conceptual basis for the selection of thematic areas to be included in the questionnaire. These are presented in the box below. A copy of the household questionnaire is appended in Annex 5.

Fig. 4 - Thematic areas used for household level questionnaire.

- ▶ Household demographics
- ▶ Household assets
- ▶ Participation in/use of institutions and services
- ▶ Access to natural resources
- ▶ Livelihood strategies enacted
- ▶ Access to credit and savings

Household questionnaires were administered in the sample of selected villages where group discussion discussions were held. The multi-disciplinary team spent three days in each village, beginning with the discussion sessions and moving then on to the collection of data at household level.

Because the question of sampling household is highly situation-specific and can be tackled in different and equally valid ways, this paper will not deal directly with sampling issues. Establishing the number of households necessary for a representative sample depends on many elements

such as size and homogeneity of the population, census data reliability, time and resources available among others. A large body of literature on the topic exists and it is beyond the scope of this document.

Southern Lake Volta, Ghana

A different approach was utilized to construct a poverty profile of small-scale fishing communities on southern Lake Volta in Ghana. Because the number of fishing villages on the shore of Lake Volta was very large, the model presented in the section above did not seem to be replicable. In fact, the three-day module per village would have meant a substantial amount of days in the field in order to cover a representative sample of villages that would have enabled to draw meaningful conclusions.

Thus, instead of administering a household questionnaire, a different data collection instrument was designed. This was based on a series of Likert scales (or scaleable attributes) that covered various aspects of fishing communities' livelihoods. While in the first methodological pathway illustrated above individual households were the primary units of analysis and a household questionnaire was developed, the second methodological pathway utilizes villages as units of analysis.

The village-level questionnaire consisted of a series of statements formulated using Likert scale formats. Likert scales are commonly used in marketing surveys to assess consumers' perceptions over a wide range of issues. Likert scales have the advantage of allowing the teasing out of various dimensions of a given issue. In poverty and vulnerability assessments, such scales proved very useful in capturing an array of elements composing such complex and multifaceted concepts (Sapsford and Jupp 1996; Bernard 1995).

The categories composing that model constituted the composite variables to be analyzed. Each composite variable included status and process statements, as well as cognitive, behavioral and attitude statements. (For an in-depth discussion of different types of Likert scales' statement types see Annex 2). Composite variables utilized were:

- ▶ Access to resources
- ▶ Infrastructure
- ▶ Coping mechanisms
- ▶ Vulnerability
- ▶ Institutions
- ▶ Health
- ▶ Financial assets
- ▶ Education
- ▶ Social capital
- ▶ Food security
- ▶ Employment
- ▶ State of natural resources

Each composite variable comprised a set of dimensions that can be teased out using scaleable attributes. Such dimensions can be called micro variables and constitute a series of empirically observable facts. For example, the composite variable "vulnerability" has an economic dimension, a public policy dimension, a demographic dimension and behavioral dimension among others. Therefore "vulnerability" was broken down into a set of observable and measurable dimensions. Using Likert scales is somewhat similar to a process of self-evaluation, where respondents assess themselves vis-à-vis fluctuating standards that vary according to their perceptions rather than

deviating from a measure established a priori. This self-evaluation is therefore relative to people's own perception of reality and despite the problems that may emerge in attempting to compare across cases, the method has the advantage of arriving at a close approximation of people's own understanding of their poverty situation. This is ontologically and epistemologically different from the establishment of poverty lines or other indicators that are based on an ex-ante representation of poverty.

Building a meaningful set of scaleable attributes was not easy and required a substantial amount of consultation with a different number of stakeholders in the field. A full description on how to build Likert scales is provided in Bernard (1995). A total of 197 scaleable attributes were selected and administered in a sample of 35 villages on Lake Volta. For each of the composite variables presented above a set of scaleable attributes were selected. To illustrate how one macro-variable (for example "Vulnerability") was constructed as a series of micro-variables, an example is given below. The statements in table 1 below were utilized to capture the most significant aspects related to vulnerability in fishing villages of southern Lake Volta. Responses were attributed a value from one to five which represented the range of variability for analytical purposes.

Table 1 - Example of items composing the variable Vulnerability

Values	Vulnerability				
	1 (lowest score) LOWER VULNERABILITY	2	3	4	5 (highest score) HIGHEST VULNERABILITY
Number of months per year when granaries are empty	< 2	2 to 4	4 to 6	6 to 8	> 8
Number of households where granaries are empty for longer than 6 months per year	None	Very few	Some	Many	All
Months per year for which cassava produced is sufficient	> 8	6 to 8	4 to 6	2 to 4	< 2
Number of HH capable of producing cassava for more than six months a year	All	Many	Some	Very few	None
Number of conflicts in the village during the past five years has	Substantially decreased	Somewhat decreased	Remained stable	Somewhat increased	Substantially increased
Number of conflicts between villages for water use rights during the past five years has	Substantially decreased	Somewhat decreased	Remained stable	Somewhat increased	Substantially increased
Number of conflicts between villages for land use rights during the past five years has	Substantially decreased	Somewhat decreased	Remained stable	Somewhat increased	Substantially increased
Prices of food items over past five years have	Substantially decreased	Somewhat decreased	Remained stable	Somewhat increased	Substantially increased
Prices of fish gear over past five years have	Substantially decreased	Somewhat decreased	Remained stable	Somewhat increased	Substantially increased
Fish prices over the past five years have	Substantially increased	Somewhat increased	Remained stable	Somewhat decreased	Substantially decreased
Fish prices during a given year fluctuate	Never	Rarely	Sometimes	Often	Always
Village is subject to flooding	Never	Rarely	Sometimes	Often	Always
Village is subject to bush fires	Never	Rarely	Sometimes	Often	Always
Village is subject to drought	Never	Rarely	Sometimes	Often	Always

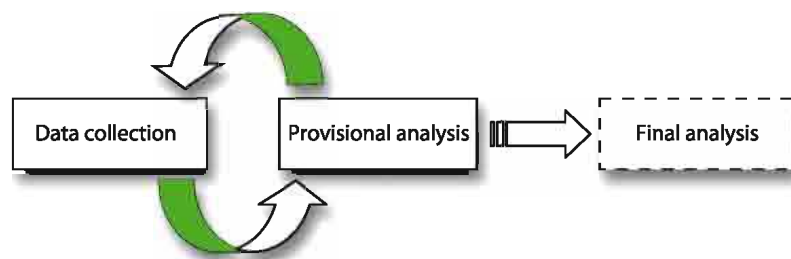
While questionnaires based on Likert scales are usually filled in by single individuals, the one constructed for the poverty assessment of fishing communities on Lake Volta was administered to a group of key informants in each village. The team of researchers spent one day in each of the villages administering the questionnaire.

Utilizing scalable attributes at village level proved very interesting and complex at the same time. Responses, in fact, were not always consensual. While it was difficult for the researchers to narrow down such perspectives to one single coded response, this method generated a substantial amount of qualitative data that proved important for the analysis of poverty along Lake Volta. In particular, the information collected allowed contextualizing the semi-quantitative responses obtained through the questionnaire and provided the framework for interpreting contradictory or inconsistent responses. Key to the success of the questionnaire was explaining to people in the group discussions that what was sought was a general trend in the village and not individual experiences, although these did provide important indications as far as the range of response variability for each statement.

4 Analysis of information for a livelihood system profile

The methodology for building LSPs is based on a combination of qualitative and quantitative methods. As indicated earlier, constructing a LSP is a piece-meal enterprise similar to a jigsaw puzzle. While the contours of the picture emerge from discussions at macro - and meso - levels, the details are gradually filled in through micro-level observations. In the process, however, the contours themselves may be modified by different kinds of evidence and contrasting pieces of information collected at micro levels.

All analysis is the search for patterns in data and for ideas that help explain the existence of those patterns. The search begins even before going to the field and continues unabated throughout the research effort (Becker 1970). As ideas develop, these are tested against the researcher's observations. These in turn may modify those very initial ideas which, as a result, need to be tested again. The process continues indefinitely until it reaches a final analysis as presented in the flow-chart below (Bernard 1995).



The process described above is fundamentally inductive in nature. Whereas in quantitative analysis researchers start out with a definite hypothesis to test, the process underpinning the LSP exercises begins with a set of open questions such as: Who are the poorest portions of a given population? How is poverty distributed among different sectors of the population? What is the relationship between poverty and vulnerability in fishing communities? In what ways do policies within and outside the fisheries sector affect poverty dynamics in fishing communities? And so forth.

While in a people-centered approach it is important to seek the *emic*⁴ (Headland et al. 1990) perspective and document folk analysis (Lofland 1971), it is equally important to avoid taking face value all information emerging from the field and retain an *etic* perspective, not to “go native” (Miles and Huberman 1994). In this sense, the constant dialectic between the *emic* and *etic* perspectives are the guiding principles underpinning the research effort proposed in this paper.

As the data collection exercise got underway, a series of hypotheses began to emerge from the empirical observations in the field. These were constantly tested against the new material collected, and particular attention was given to inconsistencies, “negative” evidence (elements that do not fit the hypotheses being developed), and the extreme cases – e.g. outliers (Bernard 1995).

The qualitative material was coded using the MS Access computer program. This facilitated ordering raw data into categories that were then systematically analyzed by site, typology of household, principal occupation, etc. On the other hand, quantitative data were analyzed utilizing SPSS (in the case of Mali) and MS Excel (in the case of Ghana). Finally, a multi-dimensional poverty indicator was constructed using the “fuzzy sets” statistical approach in Mali and then cross-checked with the qualitative information collected. A full description of the statistical process is provided in Annex 1. As far as the work in Ghana is concerned, the dataset stemming from the Likert scales’ questionnaires were analyzed using descriptive and simple statistical tests (Spearman’s coefficients and correlation analysis).

⁴ *Emic* refers to an attempt to describe a culture using categories endogenous to that culture rather than in reference to a general classification derived in advance of the study of that particular culture, which refers to an *etic* process.



CHAPTER THREE:

PRESENTING

LIVELIHOOD SYSTEMS

PROFILES

CHAPTER THREE: PRESENTING LIVELIHOOD SYSTEMS PROFILES

The increasing amount of information and knowledge available through various types of texts makes it increasingly difficult for the user to tease out analytical messages. In development, thick reports often translate into heavy time requirement on the part of decision-makers and managers, and not infrequently they do not arrive to the originally envisioned target audience. On the other hand, the analysis of complex phenomena such as poverty and vulnerability, policy processes and dynamics of change in general, are difficult to capture in numerical terms and simple indices. In these cases, narratives provide better venues to render the intricacies, differential perceptions of reality, and conflicting interests that surround certain topics. But if statistics alone cannot explain complex processes, and narratives run the risk of overwhelming the reader with time consuming texts, there are certainly middle grounds where disadvantages of either approaches can be minimized and advantages fully realized. This search for the best combination of qualitative and quantitative information about people's livelihoods was explored in various ways in the presentation of LSP information.

Many scientific fields tend to favor the use of quantitative information over qualitative data to explain phenomena. This tendency is present also in development work. Indeed, describing processes of change without being able to quantify the magnitude of a phenomenon may not be very useful. On the other hand, qualitative information is often quickly dismissed as "anecdotal" by practitioners who are accustomed to see the world only through numbers. Looking at it from a different perspective, however, it becomes clear that at the level of many decision-makers only the essential core of information relevant to a policy issue is needed. Maps, matrices, tables and charts that summarize more detailed information about important issues are greatly appreciated by such decision-makers. Synthetic information helps them understand more clearly the nature of the problems needing to be tackled, and at the same time it can be very useful for building public awareness of people's needs (Huddleston and Pittaluga 2000).

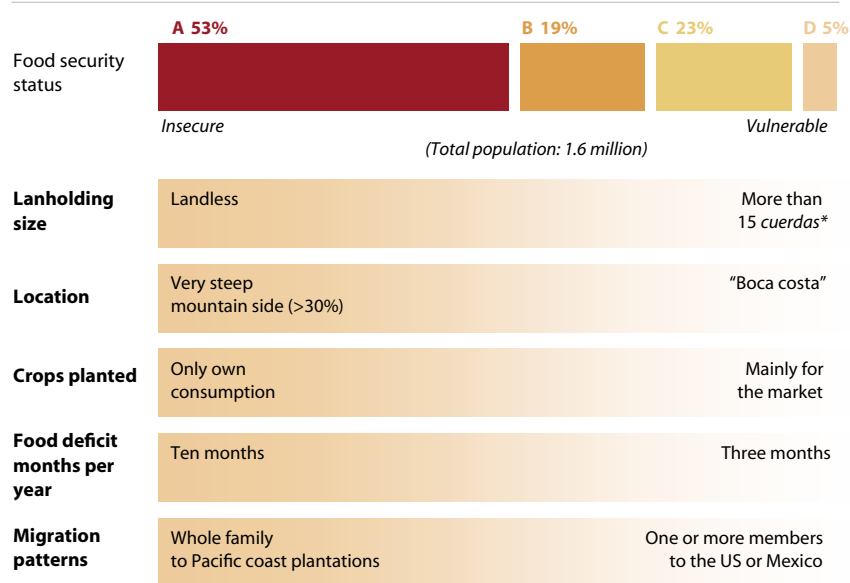
However, if it is to be fully effective, such information must also provide a basis for action. Information about the livelihoods of beneficiaries of development interventions becomes crucial in determining action, as well as to follow up how effective they are in producing effects of change.

Because of all these reasons, particular attention should be given to the modes of presentation of information in a LSP. This chapter presents a series of examples in which a wide range of qualitative and quantitative information was compiled in synthetic documents with the intention of extracting key messages from large amounts of text and data. The first example presents how the multiple dimensions of poverty in fishing communities of Lake Sélingué in Mali were addressed by combining qualitative and quantitative analyses. The second example illustrates how Likert scales provided a way to assess the magnitude of poverty dimensions in fishing communities of Lake Volta, Ghana without having to rely on large-scale surveys.

Example n. 1: Using diagrams

In a food security assessment conducted in Guatemala, the following representation was utilized to summarize key characteristics of small-farmer indigenous people living in the north-western mountainous region of the country. These people are one of the poorest and most food insecure livelihood groups in Guatemala. The diagram below condenses information about the overall population size, the differential distribution of food insecurity and vulnerability within the livelihood group, and some of the key causes of their situation.

Fig. 5 - Classification of indigenous small farmers of Western Guatemala into food security groups (FAO 2001)



- A** Landless families or families that possess lands smaller than 1 *cuerda*, and work as migrant agricultural laborers.
- B** Families whose landholdings vary between 1 and 10 *cuerdas*. They plant corn and beans for own consumption and migrate less frequently.
- C** Families whose landholdings vary between 10 and 15 *cuerdas* and who plant some crops for the market (onions, tomatoes).
- D** Families who diversify agricultural activities with petty commerce.

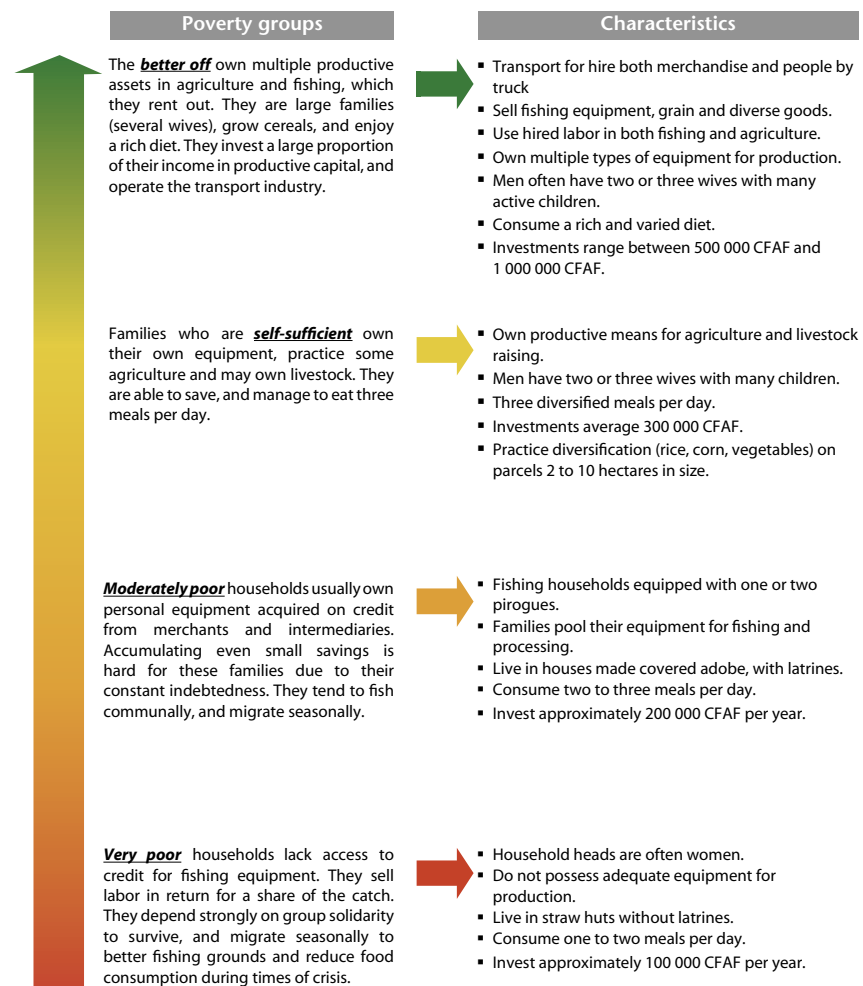
The diagram summarizes key features characterizing the four sub-groups of indigenous small-farmers of the Guatemala western highlands. Such sub-groups are coded A, B, C and D. For example, sub-group A (mostly migrant agricultural laborers) accounts for roughly 53% of the estimated 1 600 000 indigenous small farmers living in western Guatemala. They live in a situation of extreme poverty and food insecurity, possess little land to cultivate, and when land is available its steepness surpasses 30% which reduces dramatically the total amount of cultivable surface. Corn is the only crop planted but only for auto-consumption. Because of low yields and heavy post-harvest losses, these families may have to face a food deficit for ten months in a year.

* Commonly used unit of measure for landholdings in Guatemala corresponding roughly at 0.11 hectares.

The same interpretive logic applies to the other three livelihood groups coded B, C and D.

A similar representation was utilized for a poverty profile in fishing communities of two inland lakes in Burkina Faso. Here, the use of a color-coded arrow helps situating each group along a poverty continuum that goes from the worst situation (red) to the best (green). The use of a continuum rather than well-defined categorical boundaries helps conveying the message that these categories are not homogeneous and that there is internal variability within each group identified.

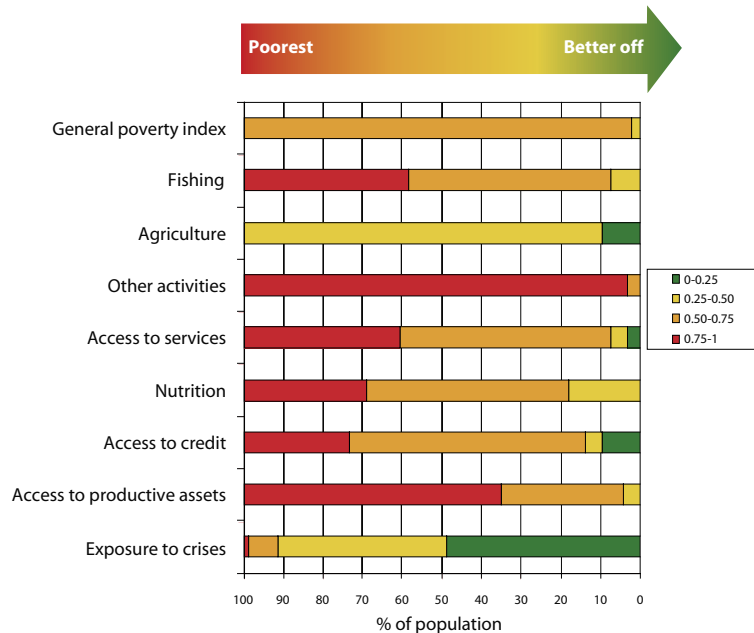
Fig. 6 - Poverty groups among small scale fishers of Lake Bagré and Kompienga, Burkina Faso (Pittaluga 2003a).



Example n. 2: Using multiple histograms

A histogram was utilized as a way of presenting the multidimensional analysis of poverty conducted in fishing communities of Lake Sélingué, Mali. The graph is based on results obtained through the application of fuzzy sets statistical analysis. This method permits the construction of multiple indicators incorporating different aspects of fisher families' livelihoods (assets, vulnerabilities, capacity to respond to crises, access to resources and services), and the classification of the population into poverty classes. The graph below presents the indicators developed with respect to the sample data. The indices vary between 0 (the best situation) and 1 (the worst situation). The graph presents the percentage of families that belong to different poverty categories according to the different criteria utilized.

Fig. 7 - Poverty distribution in fishing communities on Lake Sélingué, Mali (Pittaluga 2003b)



This example shows how the same sample of population scores differently if different aspects of their poverty status are considered. Overall, the general poverty index (top bar) suggests that poverty in fishing communities of Sélingué is a relatively homogeneous phenomenon. However, a closer look at the individual indicators provides a substantially different picture as to the distribution of poverty in those fishing communities. A certain amount of conclusions can be drawn from these figures. Such conclusions were cross-checked for validity with the qualitative information collected in the field during the exercise.

The sample population seems to fall in two polarized categories with respect to access to credit. While over 60% of families do manage to obtain credit and have some savings, over 30% do not have any at all. This situation is exacerbated by the fact that credit, among artisanal fishers, is

rarely obtained as cash to invest, but as productive assets from intermediaries who thus can lay claims to a more secure supply of fish and exert more power in the determination of fish prices. Paradoxically, access to credit may actually reveal a constant state of indebtedness to creditors (McIlwaine 1997; Chambers 1987).

With respect to the activities practiced by the families interviewed, no household falls within the first category and more than 70% of households are concentrated in the two last classes. This suggests that although diverse activities are practiced across the lake, any one household is involved in only two or three. This leaves households vulnerable to crises in a single activity.

Although more than 50% of families only rarely face a crisis and one observes a good capacity for response to negative events, around 25% of families are affected by serious problems related to access to nutrients, the diversification of food sources, and malnutrition.

Approximately 65% of households interviewed are living in distressful housing conditions, a figure based mainly on the number of occupants per room and the materials used in construction.

Example n. 3: Using tables to summarize qualitative information

From the analysis of these figures combined with the information elicited through group discussions and household interviews, it was possible to identify three critical axes of poverty affecting people living on Lake Sélingué in Mali. These are about issues of credit, land tenure, and markets. They were presented in a table format to facilitate the organization of text in a visually clearer manner.

Fig. 8 - Critical axes of poverty on Lake Sélingué, Mali (Pittaluga 2003b)

Credit	Land	Markets
<ul style="list-style-type: none"> ▶ The financial situation suffers from the negative reputation of cooperatives following the disastrous management of BNDA credit in the Central Delta (Quensière, 1994). Today, banking credit reaches only one production group in six. ▶ Informal credit remains preponderant, although the large merchants are decreasing loans in reaction to declining fish yields. One notes a strong relation of dependency between merchants and fishermen. ▶ At the commencement of the fishing season in the interior Niger Delta, operation funds for grocers and intermediaries become rare. ▶ Fishing communities use <i>pari</i> or <i>tontines</i> to mobilize funds for revolving loans to members of the group. The informal credit systems are based on mutual trust. 	<ul style="list-style-type: none"> ▶ Only 20% of Sélingué fishing households own fields for farming, a critical factor in determining the provisioning of grain during the hungry season. ▶ The majority of land around the lake belongs to native agriculturalists who control the access to, distribution and the management of land. Since migrating fishermen rarely own land, they are not on the official rolls of their local communities, nor do they pay local taxes; by consequence, they do not benefit from certain land rights, local initiatives or services. ▶ Access to land becomes more and more difficult because of indigenous chiefdoms that are little disposed towards ceding control under growing demographic pressure. 	<ul style="list-style-type: none"> ▶ The price of fish is determined <i>ad hoc</i> between fishermen and buyers in the two principle fish markets. The price attains a maximum during the period of lowest production from September to February. ▶ The actors involved in the transport of fisheries products rarely coordinate their efforts to establish a common price to their benefit – a veritable constraint in all fishing sectors. ▶ The difficulty in access to fishing zones creates a strong handicap to achieving full value for fisheries resources, as the area lacks roads, adequate conservation and storage facilities. ▶ The absence of cold storage near the productive zone, the precarious and costly transport conditions, and the way fish are distributed are all unfavourable factors affecting the sector.

CONCLUSIONS

Characterizing livelihood systems entails a set of key methodological decisions. While an extensive literature exists on poverty profiling at either micro levels (village) or at macro levels (national), the intermediate ground remains virtually unexplored. Aggregating micro observations up the scale or disaggregating macro estimations to infer about regional or sub-national levels poses significant methodological problems. The approach presented in this document proposes a set of possibilities for looking at issues of poverty and vulnerability at a meso-level. In fact, the approach emerged from exercises conducted mostly at sub-national level as in the case of populations residing on inland lakes, in mountainous regions, or in a given coastal zone. Its application, however, can be extended to the territory of an entire country if required.

The approach uses the Sustainable Livelihood Approach as its underpinning conceptual framework. The SLA model proved very useful for the analysis of the multiple dimensions of poverty and vulnerability. It provided the foundations for demonstrating the linkages between different aspects of poverty and vulnerability both in horizontal terms (between various domains of poverty) as well as vertically (between the micro, meso and macro levels). The zero-in approach proposed in this document follows a similar logic in organizing the modalities of data collection, ensuring that those sets of linkages are fully explored.

The conceptual categories utilized in the SLA model, however, are rather abstract and difficult to operationalize. If notions such as social capital or vulnerability are not anchored to empirical observations, they run the risk of becoming sticky terms that mean a variety of things to different users of the terminology. In addition, measuring changes in social capital or vulnerability would result an arduous task if the concepts are not disaggregated into more concrete manifestations. This document proposed the use of Likert scale modules to disentangle the semantic complexities attached to the SLA or any other category that has multiple connotations. By using scaleable attributes, furthermore, a new set of possibilities emerge for the quantification of otherwise entirely qualitative dimensions of reality.

To fulfill its mandate of people-centered approach, the methodology illustrated in this document attempts to go beyond the use of households as the key unit of analysis, and advocates for the use of individual voices as the raw material for capturing differential perceptions of how the world and its categories – and thus also poverty and vulnerability – are constructed. Though the first application of the scaleable attribute model presented in this paper did not manage to live up to its expectations – in the sense that both approaches presented only looked at either villages or households as units of analysis – on-going work in the coastal zone of Bangladesh is based on the collection of data at individual level. This fact also attests to the fact that the document presented here is still work-in-progress, though the amount of thinking that went into it so far justifies its current presentation to a wider audience.

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ANNEX ONE – USING FUZZY SETS ANALYSIS TO DETERMINE POVERTY CLASSES

This annex illustrates the process utilized to construct a series of indicators to measure poverty in a community of fishermen living on the Lake Sélingué, Mali. Poverty is a phenomenon hard to define and still more difficult to measure and different approaches attempt to tackle these complex issues. If poverty is viewed in absolute terms, few basic needs are utilized to determine a poverty threshold. Viewed from a more relative perspective, however, the poor can be defined by comparing the situation of each individual with the standard of living prevailing at a certain point of time in a given group. Finally, from a subjective standpoint, poverty is assessed by individuals who themselves determine their own level of well-being without any reference point. In the conventional approaches to poverty measurement, the poor are generally regarded as those individuals whose incomes or levels of expenditure fall below a certain average called poverty line. This approach tends to dichotomize the population into two classes: the poor and the non-poor. Uni-dimensional poverty measures, at best, can lead to only a partial understanding of poverty and often to ineffective or unfocused poverty reduction programs. Given the limitations of uni-dimensional measures of poverty, a different approach was explored. This was based on the assumption that poverty is a multidimensional reality and that the fuzzy sets statistical theories could provide a manner to gauge its magnitude and distribution (Zadeh 1965; Cheli and Lemmi 1995). This approach proves useful because it allows capturing the multidimensional nature of poverty avoiding the use of arbitrary thresholds imposed from the outside. The original version of the fuzzy sets analysis, however, could not be applied as originally stated by its authors. This was due to two main reasons: sample size, and the context to which the methodology was applied. In fact, the small sample size (only 94 observations) could lead to misinterpretation of the results, mostly because the fuzzy sets analysis is not a robust method from a statistical point of view. Furthermore, the method developed by Cheli and Lemmi (1995) had so far only been applied to developed countries. The situation in developing countries, however, is significantly different, because poverty is rather the rule than the exception. Thus, the mathematical functions to gauge poverty levels on Lake Sélingué were modified in an attempt to overcome such drawbacks and construct a more truthful poverty index.

Method

The issue of enumerating how many people live in different categories of poverty identified by stakeholders in the field was addressed utilizing the fuzzy sets statistical approach. Based on preliminary findings obtained through the qualitative portion of the research, a series of weighted indices were built using the fuzzy sets methodology. While each thematic index captures variation in a sub-set of dimensions of poverty (for example nutrition or vulnerability to shocks), a composite index was also constructed in order to obtain a general measure of poverty.

All indices developed using the fuzzy sets method vary from 0 (best situation or absence of poverty symptoms) to 1 (worst situation or deepest manifestation of poverty symptoms). Poverty is defined here as a matter of degrees rather than an all-or-nothing condition. In mathematical terms, this situation can be represented by a “membership function” where an element can totally belong, not belong at all, or only partially belong to a given set. Zadeh (1965) provided the theoretical models for membership functions.

Suppose that for each unit (individual or household) a vector X of k characteristics X_1, X_2, \dots, X_k is observed. The i -th unit's membership function in the fuzzy subset of the poor can be defined as follows (Cerioli, Zani, 1990):

$$f(x_i) = \frac{\sum_{j=1}^k g(x_{ij}) w_j}{\sum_{j=1}^k w_j} \quad (i = 1, \dots, n)$$

where w_1, w_2, \dots, w_k is a generic system of weights, $f(x_i)$ is an individual index of deprivation for the set of items considered, whereas $g(x_{ij})$ measures the specific deprivation for item j . The function $g(\cdot)$ represents the specific membership function for indicator X_j and is defined (following normalized form introduced by Cheli and Lemmi in 1995) in terms of its distribution function $H(\cdot)$ as follows:

$$g(x_{ij}) = \begin{cases} 0 & \text{if } x_{ij} = x_j^{(1)} \\ g(x_j^{(k-1)}) + \frac{H(x_j^{(k)}) - H(x_j^{(k-1)})}{1 - H(x_j^{(1)})} & \text{if } x_{ij} = x_j^{(k)} \quad (k > 1) \end{cases}$$

In this case $x_j^{(1)}, x_j^{(2)}, \dots, x_j^{(m)}$ constitute the categories of the variables X_j (or the value it assumes if X_j is discrete). These are arranged in ascending order with respect to the risk of poverty, so that $x_j^{(1)}$ denotes the minimum risk, whereas $x_j^{(m)}$ denotes the maximum risk.

There is an infinite number of possible alternatives for the weight function which are consistent with the idea beneath the TFR approach. For example w can be defined as: $w_j = 1/pd_j$, where pd_j is the proportion of the deprived.

In the cases to which this method was applied, the sample size was rather small. In such situations, the TFR can lead to incorrect results since it is not a robust method from a statistical point of view. Therefore the $g(\cdot)$ function was modified to account for the possible variability in the distribution of the items in the population.

The new specification of the proportion function for the deprived is:

$$pd_j = \sum |g(\cdot) - Me| \cdot freq$$

where Me is the 50th percentile of the distribution of frequency of the item.

This new specification takes into account the distance of each item from the central value of the distribution. This constitutes a way of measuring the variability in the distribution of the items. In this logic, the weight obtained by one item varies if there are different imbalances among the frequency distribution. The new weight obtained w_j takes higher values in correspondence of those asymmetric distributions towards the more deprived persons. Conversely, the weight takes lower values in correspondence of those asymmetric distributions towards the less deprived persons. The more unbalanced the distribution is, the greater the weight accrued regardless of the type of asymmetry. Thus, the overall poverty index for the population as a whole is given by the arithmetic means of the poverty indices of each statistical unit.

Application of the method to the analysis of poverty on Lake Sélingué, Mali

This section illustrates the application of the fuzzy sets methodology through an example from Lake Sélingué, Mali. The work was conducted as part of a baseline setting for a pilot project monitoring and evaluation system. Due to time constraints, a relatively small sample of households was selected, for a total of 94 units from eight different villages.

The fuzzy poverty index was constructed on the basis of a set of dimensions of poverty as these were perceived locally. Ten dimensions were taken into consideration: housing conditions, household assets, household characteristics, agriculture, fishing, credit and savings, nutrition, access to services, types of activity, and exposure to crises. Following the method described above, the results of the analysis are given in Table 1.

The color attributed to the value of the indices summarizes the situation of families living on the shores of Lake Sélingué. It can immediately be seen that the majority of indicators show high values, signaling a high risk of poverty. The indices are color-coded from yellow (best situation) to red (worst situation). Housing, activities practiced and access to various types of assets emerge as the fundamental elements explaining the relative poverty of households living around Lake Sélingué.

Table 1: Poverty indicators on Lake Sélingué, Mali

	Poverty indicator	Value
Specific poverty indicators	Demographics	0.389
	Housing	0.845
	Access to assets	0.773
	Credit and savings	0.655
	Nutrition	0.665
	Access to services	0.699
	Fishing	0.701
	Agriculture	0.369
	Exposure to crises	0.276
	Other activities	0.848
Thematic poverty indicators	H-A-D Index*	0.735
	Vulnerability**	0.363
	F-A index***	0.693
	General poverty indicator	0.642

* Weighted mean index for Housing, Assets, Demographics

** Weighted mean index for Nutrition, Exposure to crises

*** Weighted mean index for Fishing, Agriculture

The general poverty indicator has a value of 0.642, showing the relatively high values recorded for the risk of poverty. Indeed, the index is closer to 1 (maximum risk) than 0 (absence of risk).

Results of the methodology are further discussed in Chapter 3 under the example n. 2.

■ ANNEX TWO – CONSTRUCTING LIKERT SCALES

This annex illustrated the steps utilized for the construction of Likert scales or scaleable attributes. Likert scales are utilized to attribute value to otherwise qualitative perceptions of change and make it possible to tease out various dimensions of a given issue – in this case poverty or vulnerability. In particular, such scales proved very useful in capturing the multiplicity of aspects of people's livelihoods (Sapsford and Jupp 1996; Bernard 1995).

Likert scales permit to turn abstract concepts such as the ones utilized in the sustainable livelihoods approach model (e.g. social capital or vulnerability) into empirically observable statements that could be utilized as indicators to monitor changes in people's livelihoods. Using such categories can be the starting point for the construction of Likert scales. Alternatively, the main domains of analysis can be jointly negotiated and agreed upon with a set of stakeholders in the field. In either case, the first step in the process of constructing these indicators is to determine a list of livelihood aspects believed to be directly related to poverty and vulnerability issues in the communities to be analyzed.

At this stage, it is better to keep a wider spectrum of variables than a narrow one – especially in the cases where the exercise is conducted to establish baselines of data for M&E purposes. In fact, changes may occur in domains that are not necessarily envisioned at the beginning (for example: improved conditions of women as a result – among other things – of better natural resource management), and it would be therefore difficult to detect this change if no original data is available.

The list of livelihood domains arrived at will be the composite variables to be deconstructed into empirically observable statements. As indicated in the main text of this document, the composite variables utilized to look at poverty on southern Lake Volta were:

- ▶ **Access to resources**
- ▶ **Infrastructure**
- ▶ **Coping mechanisms**
- ▶ **Vulnerability**
- ▶ **Institutions**
- ▶ **Health**
- ▶ **Financial assets**
- ▶ **Education**
- ▶ **Social capital**
- ▶ **Food security**
- ▶ **Employment**
- ▶ **State of natural resources**

Such variables are understood by the community of scientists who utilize them for analytical purposes. However, they mean little to people in the field, and simultaneously they cover too many aspects to constitute meaningful categories of analysis. For example social capital per se is difficult to measure because it encompasses a plurality of dimensions. Leadership roles, conflicts, and the existence and functionality of mutual support networks are all aspects of what people would define social capital. It is necessary, therefore, to break this composite variable (social capital) into observable facts or perceptions. Likert scales provide a useful pathway to disentangle such concepts.

In constructing scaleable attributes, one may consider various types of statements, as for example:

Attitude statements, which refer to psychological states. These include perceptions people hold, their thoughts, ideas, and feeling about a given subject.

Behavioral statements, which refer to what people do or have done in the past.

Cognitive statements, which refer to what people know, what they are familiar with, the skills they possess etc.

The following example illustrates how these levels constitute different aspects of a same issue. Though it is widely known (cognitive) that smoking damages health, many people continue to smoke (behavioral). This may be a function of people's perceived status in a social setting (attitude). These issues would be important if we were to assess the impact of an anti-smoke campaign and understand its effectiveness. Thus, looking at all three levels would ensure that the complexity of a phenomenon is captured.

When dealing with profiling of livelihoods, it is fundamental to define the unit of analysis. The approach advocated here is to utilize individual respondents as primary units for data collection and analysis. This diverges from many poverty and vulnerability assessments that privilege the household as its analytical lens. Experience in the field has demonstrated that intra-household dynamics (especially along gender and age lines) are important determinants of differential levels of poverty for individuals living under the same roof. A wide literature exists on the fact that many households are characterized by a dual economy along gender lines, and that decisions are often made individually by either men or women alone. This justifies the adoption of the individual as entry point for the analysis of people's livelihoods.

Therefore, statements should be addressed to individuals.

For example:

<i>Over the past year I had malaria:</i>	<i>very often</i>	<i>often</i>	<i>sometimes</i>	<i>never</i>
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However, individual people can also be asked questions that regard the entire collectivity. These statements are important in revealing differential perceptions of different groups of people over the same subject. For example:

<i>Number of people asking for credit from Neighbors or relatives in times of crises</i>	<i>none</i>	<i>very few</i>	<i>some</i>	<i>many</i>	<i>all</i>
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When analyzing results, it may emerge that men tend to respond differently from women, which could signal a differential impact of people's deteriorating social conditions as a consequence of, say, an economic down-turn.

Finally, statements can be capturing dimensions of **status** or **process**. Status statements highlight the present conditions of a given issue. For example:

<i>Number of women with access to land for garden</i>	<i>none</i>	<i>very few</i>	<i>some</i>	<i>many</i>	<i>all</i>
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Process statements, on the other hand, give an idea of how a certain dynamic has evolved through time. For example:

<i>Crops yields planted over the past 5 years have</i>	<i>Substantially decreased</i>	<i>Somewhat decreased</i>	<i>Remained stable</i>	<i>Somewhat increased</i>	<i>Substantially increased</i>
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While it is important to understand the current status of, say, natural resources, it is just as important to capture how those resources have changed over time. For this reason a combination of status and process statements is necessary.

Attributing values to Likert scales

Constructing the right scales of value is a pivotal point in this process. A few issues to be considered are:

1. Values should belong to a single scale

For example, the 5-category scale:

<i>None</i>	<i>Low</i>	<i>Sufficient</i>	<i>Good</i>	<i>Fluent</i>
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is inconsistent. Scales should be a continuum, in which the first and last responses stand in direct opposition to each other, and intermediate steps are sequentially positioned from one end of the spectrum to the other. If we start with "none" the exact opposite that should figure at the other end of the spectrum should be "all". A correct scale would be, for example:

<i>None</i>	<i>Few</i>	<i>Some</i>	<i>Many</i>	<i>All</i>
-------------	------------	-------------	-------------	------------

In this scale, there is a logical progression along the same rational axis.

- The decision as to how many responses are envisioned should be considered carefully. Various authors have pointed out that a five-point scale tends to elicit neutral responses (in other words, the middle option), thus skewing the pattern of response. Conversely, an even-numbered scale (four or six options) tends to avoid this problem, because the level of neutrality is blurred by the non-symmetrical structure of possible responses.
- The direction of responses should be consistent with the value judgment embedded in the statements. All first options for response should always correspond to the lowest value to be attributed to the statement.

For example, if we take the statement:

<i>Number of illiterate adult males in the village</i>
--

and if we link it with the scale:

<i>None</i>	<i>Few</i>	<i>Some</i>	<i>Many</i>	<i>All</i>
-------------	------------	-------------	-------------	------------

we are running the risk of attributing the lowest score to the fact that there are no illiterate adult males in the village. This is inconsistent with the fact that the lowest score should be given to the worse situation. Thus, there are two ways of redressing the inconsistency.

- By inverting the scale to: All – Many – Some – Few – None;
- By changing the word "illiterate" to "literate" in the statement.

4. All responses should follow the same structure of value attribution. This means that if five-category responses are adopted, all statements should be formulated in a manner to have five options available for response. It would be problematic to have some responses with four or seven options, and others with five because the value attributed to each potential response would vary and account for differential weight on each statement.
5. It is advisable to select a limited number of statements composing each synthetic variable, but the number of statements should be consistent. For example, if the main domains of analysis (or composite variables) are food security, vulnerability and coping mechanisms, then all three should be composed of the same number of statements - for example ten. If one synthetic variable is composed of six statements and another of 12, each of the six statements would carry automatically a double weight on the composite variable with respect to that composed of 12.

An example of a full set of statements that were used in assessing vulnerability on southern Lake Volta in Ghana was given in Chapter 2 (see table 1 p. 29 above).

What follows is a brief set of guidelines that could help in the construction of scaleable attributes for the compilation of an LSP.

STEPS to construct Likert scales statements.

1. Identify composite variables and component statements either through a brainstorming exercise or through discussions with stakeholders in the field. A series of data collection techniques can help in obtaining this information (brainstorming sessions, focus groups, key informant interviews or other PRA techniques).

At the end of this you should have:

- a) A list of themes to be addressed (for example: food security, vulnerability, conditions of women, etc.);
- b) For each theme, a list of dimensions that stakeholders feel should be looked at in the process of monitoring livelihoods changes.

At this stage it is not important to have the statements nicely formulated. What is crucial is to have a list of issues that will constitute the gist of the final questionnaire.

2. Transform the dimensions (list b) into statements keeping into consideration the typology of statements illustrated in the discussion above (cognitive, attitude, status, etc.). This process is an important one. You should consider the following issues:

- ▮ Statements should be formulated in a manner that individuals can respond to them. For example, the statement:

Number of fish-processing associations active in the village

is likely to lead to repetitive answers that are of no use when analyzing the data. What you may want to obtain from people is rather how they individually participate in those associations, the levels of conflicts they face, how effectively or efficiently they work, etc. Over these aspects, individuals can have differential perceptions that could give important clues as to how different groups of people in a given area are included or excluded from such organizations.

- ▮ Considering that the statements are most likely addressed to people with low literacy rates, you should avoid using abstract concepts in the formulation process. It is vital that statements refer to directly observable phenomena or perceptions to which your respondents can immediately relate.
 - ▮ Though gender specific data is crucial to collect, statements that only target either men or women are unusable during the analysis, because they would not apply to all respondents. Thus, statements should be formulated in a manner that everybody can respond.
3. For each statement you should construct a scale of values that can be used by respondents to determine their perception of reality (See discussion of issues on the section on the construction of Likert scales above).

Your output at this stage will be a long list of statements with their respective value-scales attached. As you will probably notice, though, the number of statements will be considerably greater than what is possible to collect. Thus a decision should be made as to which statements should be retained and which statements should be dropped. What is crucial is to maintain the total number of statements consistent for each synthetic variable.

4. A separate section should be included in the emerging data collection instrument. This section should include a few key demographic variables (gender, age, ethnicity or other aspects deemed relevant).

It is also important to include a self-assessment statement as a proxy from which the socio-economic status of the respondent could be deducted. Such statement could be formulated qualitatively, for example:

I believe my overall condition is: Very bad Bad Just right Fairly well Very well

or alternatively using a proxy such as estimated income or expenditure brackets, for example:

In a month, I spend on average: US\$ 10 to 20 US\$ 20 to 50 US\$ 50 to 100

Other formulations are indeed possible and these are only examples for including a proxy variable that could help position the individual respondent on a well-being scale.

At this point the data collection instrument for monitoring livelihoods changes is ready and needs to be field-tested to understand:

- ▮ Do people clearly understand the statements as they are formulated?
- ▮ Do statements elicit logical responses?
- ▮ Is the number of statements sufficient? Are there too many or too few?
- ▮ Is the time necessary to fill in questionnaires too onerous for respondents?

There are several advantages that this method provides over a standard household questionnaire. These are highlighted in the points below:

- ▮ People participate in drafting the questionnaire itself;
- ▮ Individual respond, so analysis can highlight intra-HH differences;
- ▮ Can attribute value to otherwise only qualitative dimensions;
- ▮ Easy to fill in, and doesn't require, for the most part somebody to administer it;
- ▮ Consequently, it can be filled in at any time by respondents and is not a burden to their time.

ANNEX THREE – SELECTING A REPRESENTATIVE SAMPLE OF VILLAGES

The overall research question underlying all other research questions can be formulated as follows: “How is poverty distributed among fishing communities?” Time and resources available may not allow for a total random sample selection that could ensure the greatest level of objectivity in a study. Nevertheless, various authors have demonstrated that conclusions from a study of a selected sample of units can be extended to a larger population they represent if the sample is well chosen.

Deciding the right sample size a priori using mathematical formulae becomes very difficult when multiple variables are to be studied at the same time. A priori sample selection approaches are not well suited for studies where the analysis intends to incorporate integrative or holistic approaches as in the case of the SLA. There is no easy or universally applicable formula which can be used as a substitute for thinking things through (Wilson 2002: 8).

In applied research sampling decisions often incorporate prior knowledge about the research settings. Here the crucial element is to focus this partial understanding into structured “best guesses” about what data collection can be expected to yield, and to ensure a data collection procedure that will yield the most rewarding material possible.

The approach adopted here is a multi-stage or hierarchical sampling strategy deployed in two distinct phases, where villages are the primary units of research and household the secondary units. Ranked Set Sampling procedures (Phase I) are proposed to select primary units, e.g. villages, whereas a different sampling procedures (Phase II) will be utilized to select households within villages. The household sampling strategy will have to be determined every time depending on the availability of data, the perceived homogeneity of the population, and other issues that may play a role in determining a representative sample.

Village selection

During the focus group with institutions at district level, an exercise is conducted to rank villages according to one or more variables. If the area of study includes four districts, then the exercise will be repeated in all four districts. This procedure will generate a list of villages ranked according to relevant features, say perceived poverty status of the population. To illustrate the procedure, an example of primary units sampling from an exercise conducted among fishing communities in the Gambia will be utilized.

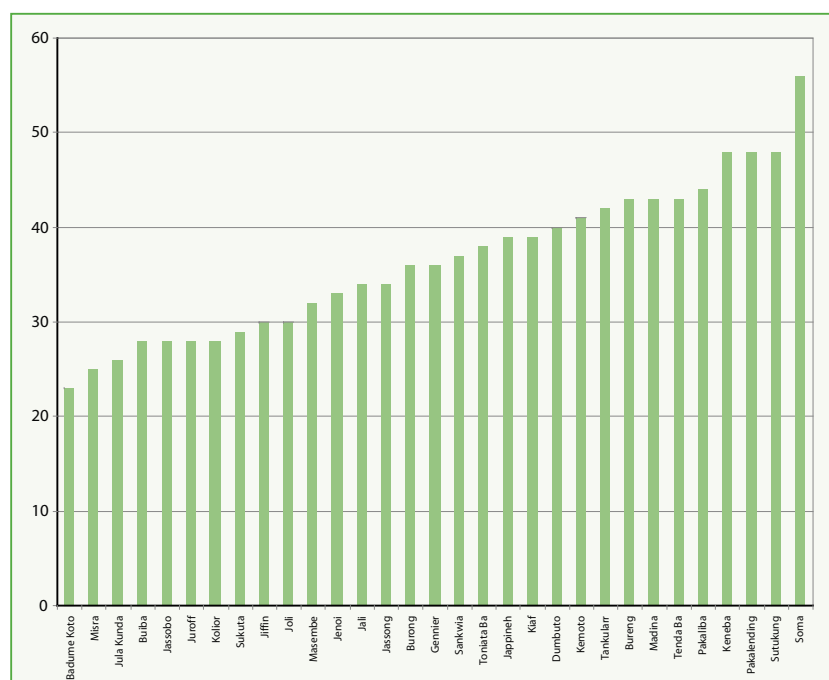
Although at the time of the study a poverty map existed for the Gambia, information was not disaggregated at the village level. Thus, it was necessary to deploy a different strategy to ensure that the sample of villages to be selected be representative of the poverty situation in the area. A series of district level brainstorming sessions was organized with resource people knowledgeable about the respective areas. A questionnaire was developed using Likert scales to assess the perceived poverty level of each village. People were asked to attribute a value (from 1 to 5) to each village based on their knowledge and perception: 1 meant poorer and 5 meant better off. One such questionnaire was administered in each of the four districts concerned.

The questionnaire was organized as follows:

Villages in Lower River District					
Jali	1	2	3	4	5
Keneba	1	2	3	4	5
Tankularr	1	2	3	4	5
etc...					

A total of 15 responses were collected for all the four districts. The total score obtained by each village was then compared to the total score possible (65 or 15 responses times five, the maximum score obtainable for each village). At the end of this procedure, all villages had been attributed a corporate value which should represent the perceived poverty situation in each village.

Fig. 9 - Scores obtained by villages in Lower River Division, Gambia



Once this ranking procedure was done for all the four districts, a ranked set was extracted. Considering the total number of villages in the area (98), as well as the time and resources available, it was decided to draw a sample of 20 villages for the study, i.e. about 20% of the total. The 20 villages were selected proportionately from each of the ranked sets of the four districts concerned. The proportionate sample was going to be constructed as indicated in the table below:

Division	Total villages	% to be sampled	Number of villages to be sampled
Kanifing	2	2 %	0.4 = 1
Western Division	25	25.5 %	5.1 = 5
Lower River Division	28	28.6 %	5.72 = 5
North Bank Division	43	43.9 %	8.78 = 9
TOTALS	98		20

Then we proceeded to select the ranked set from each division. As an example the procedure utilized in the Lower River division is presented below.

Fig. 10 - Total scores by village, and ranked set selection for the Lower River Division, Gambia.

Badume Koto	23
Misra	25
Jula Kunda	26
Buiba	28
Jassobo	28
Juroff	28
Kolior	28
Sukuta	29
Jiffin	30
Joli	30
Masembe	32
Jenoi	33
Jali	34
Jassong	34
Burong	36
Gennier	36
Sankwia	37
Toniata Ba	38
Jappineh	39
Kiaf	39
Dumbuto	40
Kemoto	41
Tankularr	42
Bureng	43
Madina	43
Tenda Ba	43
Pakaliba	44
Keneba	48
Pakalending	48
Sutukung	48
Soma	56

In this table the 31 villages have been ordered according to the scores obtained through the quick perception survey. The village of Soma scored the highest (56) and seemed an obvious outlier. Therefore it was decided to exclude it from the sample selection.

The Lower River Division district had 28 (5.7%) out of the total 98 villages. Therefore five villages needed to be selected from that district. Color codes were used to determine a series of ranked sets.

As it is indicated in the table to the right, six ranked sets were constructed. One of the six possible colored ranked sets was then selected using a random procedure.

Following this procedure for all four districts concerned, the set of ranked villages has now some claim to represent the range of levels of poverty in the targeted area, with no unconscious selection biases on the part of the researchers. We have now an "objective" subset of a sample of 20 primary units, and an enhanced claim to representativeness. The advantage of this sampling method is that any other ranked set can be used as a representative sample to cross check results from any other sub-set of villages in the life of the project.

ANNEX FOUR – ELICITING INFORMATION FROM REPRESENTATIVES OF INSTITUTIONS: THE DISCUSSION SESSIONS

Discussion sessions at district level.

Discussion sessions are utilized to address a particular set of topics. They are different from focus groups in that the composition of respondents is not necessarily homogeneous. Although they do not replace surveys, they are less expensive to conduct, they integrate more quantitative findings, and they yield insights on why people feel as they do about a particular issue. Ideally, discussion session is conducted with no more than 15 individuals who represent, in our case, institutions working with fishing communities in a given district. If a group is too small, it can be dominated by one or two loudmouths, and if it gets larger than 15 it gets tough to manage. The discussion session should not last more than two hours and a half.

The goal of these sessions is to elicit information about large scale dynamics that affect an area. Involving representatives of key institutions at all levels (coastal or lake authorities, decentralized representatives from line ministries, NGOs, fishers' organizations, etc.) is a crucial step in participatory analysis, and it is important to build ownership of the final documents and recommendations that will come out of the study.

Discussion sessions and triangulation: a study of family planning in Cameroon

"The discussion sessions were taped and transcribed for analysis. It turned out that the information from these sessions duplicated much of the information gathered by the other methods used in the study. That study shows clearly the value of using several data-gathering methods in one study. When several methods produce the same results, you can be a lot more secure in the validity of the findings."

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- ▶ representatives of the administration;
- ▶ local representatives of ministries of agriculture, water and forests, fisheries, food, health, education, women, and others that may be relevant;
- ▶ managers of projects that may be operational in the areas concerned;
- ▶ representatives of the private sector;
- ▶ representatives of bilateral or multilateral agencies at decentralized level;
- ▶ representatives of international and national NGOs working in the areas of project intervention;
- ▶ representatives of organized groups with a substantial coverage (micro-credit groups, etc.).

Involving all these institutions from the very beginning of a project helps build ownership of actions to be taken, and helps build a stronger partnership with institutions that will be partners in the execution phase of an intervention. Therefore, the process of eliciting information should be given just as much attention as the quality and quantity of information collected.

Nominate a facilitator

Although all team members can ask questions in the course of the discussion session, it is best that the team designates one facilitator. The main tasks of a facilitator are:

- ▶ To keep the conversation focused on the proposed themes;
- ▶ To ensure that all participants are actively involved in the conversation and that all points of view are expressed;
- ▶ To redirect the conversation if it is perceived that informants take it to unimportant matters;
- ▶ To stimulate discussion with open-ended questions in case the conversation comes to a halt.

In addition, the facilitator should be responsive to the flow of the conversation itself. At times, in the very course of the conversation, a series of points or issues may emerge which were so far unforeseen, but which seem to be very relevant for the overall discussion. The facilitator should pursue these additional issues and bring the conversation back on tracks once the subject seems to be exhausted.

What questions shall be asked?

In running a discussion session, remember that people will disclose more in groups that are supportive and non-judgmental. Tell people that there are no right or wrong answers to the questions you will ask. Above all, do not lead too much and don't put words in people's mouths. For example: when asking about nutritional habits, don't ask why people don't eat certain foods, but rather ask them to talk about what kinds of food they like and dislike, and why. Your job is to keep the discussion on the topic. Eventually, people will focus on the nutritional habits that interest you.

In general, in a discussion session environment it is better to ask broad, non-conductive and open-ended questions. Starting with broad questions, you can then zero-in on specific issues you may want to investigate, but at the same you should be flexible in responding to the flow of the conversation. In particular, this works well in addressing sensitive issues, which need to be tackled indirectly. Doing so, you'll realize whether you should continue ask about them, whether that is the appropriate context for doing so, or whether you should ask them at all.

Recording information

The other team members should focus on recording the information given by the participants. At this stage, it is important that each team member writes up all information regardless of whether it is perceived to be relevant or not by the writer. Often the relevance of a statement is understood later in the course of the conversation, and if that piece of information had not been written, the overall narrative may be lost. A good indicator of success is whether your hand is sufficiently sore at the end of the discussion session.

While taking notes on the conversation, you may feel like asking additional questions on a subject of interest to you (say, gender or fishing gear used) while participants are beginning to talk about seasonality or agricultural practices. In this case, it is important not to interrupt the flow of the conversation, but rather write a note at the margin of your notepad. These questions can be then asked at the end of the conversation, or to a specific participant if additional details his/her subject of expertise are needed. The same strategy may be adopted if you feel that an issue has not been sufficiently covered or if you think that some statements heard during the conversation are contradictory or unclear and you need further investigation into the matter.

During the discussion session, it is also important to look at the dynamics of the group and develop your skills as a participant observer. A few notes on how people respond, react, and behave will help you understand unclear or questionable statement once you sit down to analyze the information collected. While you participate in a group, check whether everybody participates, who does not, whether people are responsive or whether they are coming and going from the room, whether one individual dominates and if so who he/she is.

ANNEX FIVE – HOUSEHOLD LIVELIHOODS QUESTIONNAIRE

The questionnaire presented below was utilized for the collection of livelihood data in various countries in West Africa. Here are reproduced only the broad categories of information and the key questions utilized. All the tables presenting the codes for the typologies of responses were removed from the questionnaire.

Household survey

Interview number

Description of area

Respondent's name(s)

Household size

Household information

Place of origin

Time spent in the village

Professions of household members

Educational levels of household members

Access to Institutions and services

What services do you use? (provide list: health center, extension services, schools, etc.)

What services are provided by these?

Do any members of the household participate in local institutions? (provide list: political parties, school committees, rotating credit schemes, etc.)

Household assets

Type of housing (provide list depending on local contexts and materials used)

Do you have toilets?

Checklist of household assets (provide list depending on local contexts – The list should be built together with local informants)

Do you have access to/ possess animals, trees, or ponds?

Do you possess/ have access to land?

Information on access to land

Type of land tenure (owner, renting, share-cropping, etc.)

Size of land holding

Fishing Information

Can you fish on the whole lake? (yes/no)

If no, who do you need permission from?

Do you require a license to fish? (yes/no)

If yes, who grants it?

Do you need to pay something to anyone before or after you fish? (yes/no)

If yes, to whom and what?

Livelihood strategies

Main activities enacted by household members

What are the activities enacted by members of your household?
(provide tentative list: farming, fishing, fish processing, petty commerce, etc.)

How many months a year do you fish?

How many days per month do you fish (distinguish dry and wet season)

Estimate of production costs for the previous year
(Provide list: nets, material for fish processing, farming inputs, etc.)
Specify costs by sex.

Revenues from fishing

During the past month, how much fish do you reckon you caught?
What proportion of your catch did you manage to sell?
What proportion did you consume?
How much did you earn for the portion sold?

Farm production

Do you practice farming?
Over the past year, what have been the revenues from (list crops planted in the area)?
What proportion of your (crop) did you manage to sell?
What proportion did you consume?
Do you keep some seeds?
Do you have granaries?
How much (crop) did you lose post-harvest?

Marketing information

How do you sell your fish and/or crops? (list possibilities according to local contexts)
Who in your household is responsible for selling fish/crops?

Access to natural resources

Did you plant any trees in the past 12 months?

Can you drink safe and potable water?

Do you go hunting?

Household expenses

What are the most important expenses you have incurred into over the past 12 months?

What is the share of each type of expense over the total?

How much (indicatively) did you spend for each category over the past 12 months?

Credit and savings

Savings

Do you have any savings?
Are your savings individual or group savings?
Did you use your savings over the past 12 months?
If so, how did you use your savings?

Credit

Did you obtain credit over the past 12 months?
What was the source of that credit? (provide list: NGO, rotating scheme, rural bank, etc.)
How long was your credit for? (in weeks or months)
What was the rate you obtained?
How did you utilize your credit? (provide list: education, health, dowry, etc.)

Vulnerability

Crises faced during the past 12 months

What kind of crises did you have to face over the past 12 months? (provide list: drought, flood, disease, food shortages, etc.)

Coping mechanisms

How did you cope with the crises mentioned above? (provide list: obtained credit from neighbors/relatives, sold animals, migrated, etc.)

Food Security

Number of months/year when all household members have sufficient food to eat
Number of months for which the household was self-sufficient
What were the most difficult months to obtain food?
How many meals a day could you consume during the most difficult period? (specify by gender and age)
How many times a day could you eat the following foods over the past month? (list foods and code responses: never, every day, 1-3 times a week, etc.)

Health

How often did people in your household suffer from (list possible diseases and put on a scale from very often to never)

Women's conditions (questions to be asked to women separately)

Other than your domestic responsibilities, what other jobs do you have? (list possible jobs and frequency of employment)
What can you decide to buy on your own? (list possibilities: food, clothes, utensils, condiments, etc.)
What do you possess? (list possibilities: land, fishing gear, livestock, savings, etc.)