



Design and Implementation of Fishery Modules in Integrated Household Surveys in Developing Countries

**Christophe Béné, Asafu D.G. Chijere, Edward H. Allison,
Katherine Snyder and Charles Crissman**

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1. Introduction and background

Fishing is the most important food production activity not currently captured in most integrated household surveys. Fish and other aquatic animals contribute to the food security of citizens of developing countries, both as a source of income and as a component of healthy diets. Currently, approximately 2 billion people around the world rely on fish and other aquatic products for at least one-fifth of their annual animal protein intake, and catches by subsistence and artisanal fisheries make up more than half of the essential protein and mineral intake for over 400 million people in the poorest countries in Africa and South Asia. Fisheries and aquaculture directly employ over 44 million people worldwide, 98 percent of whom live in developing countries. Taking into account ancillary occupations (for example, trading and processing fish, boat-building, net-making and mending, *inter alia*) and other members of fishing households, there are approximately 540 million people whose lives depend on sustaining fisheries and aquaculture. In 2008, trade in fish and fishery products was valued at over USD 102.8 billion dollars – about 10 percent of the value of total agricultural exports and 1 percent of world merchandise trade (FAO, 2011). The fact that fisheries and aquaculture are not currently included in integrated household surveys is symptomatic of a mindset that excludes fisheries (and other uses of wild foods) from the definition of agriculture. This mindset drives organizational arrangements, policy, technical assistance, and other activities that reinforce this separation. At a time when approaches to agriculture are broadening as a result of the sector now being seen in the context of food security and poverty alleviation, fisheries remain on the periphery.

In most sub-Saharan African countries, the majority of people suffering from poverty and food insecurity are rural dwellers who rely heavily on farm activities. To promote a more holistic approach to rural development and inform policies aimed at increasing agricultural productivity and reducing poverty in these countries, there is a need to better understand and characterize (i) the agriculture sector on the whole, (ii) its interactions with the off-farm economy, and (iii) the multi-faceted livelihood strategies of agricultural households.

While an overwhelming majority of sub-Saharan African countries exhibit serious weaknesses in statistics pertaining to the crop and livestock sectors, the deficiencies in terms of nationally-representative data on the fishery sector are even more acute. Yet, inland and coastal fisheries are important sources of food and income for many sub-Saharan African households that rely on the rich marine resources surrounding the region, as well as the extensive and productive river, lake and floodplain systems throughout the continent, to support their livelihoods. A comprehensive understanding of the fishery sector and the characteristics of the households and communities involved is essential for sound policies and interventions to improve the sector and to strengthen the role that fisheries can play in enhancing food security and alleviating poverty in sub-Saharan Africa.

At present, fisherfolk¹, and particularly inland fishing communities, are poorly represented in national statistics, especially in developing countries. The limited data available on the sector are derived from in-

¹ In this document, we recognize the central role played by women in many different aspects of small-scale fisheries. Consequently the word ‘fisherman’ which carries an inappropriate gender bias has been systematically replaced by gender-neutral terms such as ‘fisher’, ‘fisherfolk’ or ‘fishing community’.

depth but non-representative case studies of selected fisheries, and from a few basic questions included in the livestock section of nationally-representative integrated household surveys. While several rapid rural appraisals and qualitative poverty profiles were conducted in fishing communities in West Africa during the early 2000s, and a number of small-scale case study type surveys of fishing household assets and income have been undertaken as part of rural livelihoods studies in Eastern and Southern Africa (e.g., Allison, 2005; Bene et al., 2009), no quantitative and longitudinal survey focusing specifically on fishing communities exists in most sub-Saharan African countries. As a consequence, in many countries, decision-makers and planners lack the most basic information about the role and importance of the fisheries sector to their national economy. Including a fisheries module in regular integrated household surveys is a first step to providing better information to ensure that fisheries are included as a key part of the global food system.

Towards this end, a collaboration was established between the World Fish Center and the World Bank, as part of the Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) project (see Box 1). The overarching objective of the collaborative effort was to fill the gap of data availability and knowledge about the fishery sector in sub-Saharan Africa. Specifically, the work program aimed to:

- design and field-test a high-quality fishery questionnaire modules that can be included in future nationally representative statistical surveys,
- build the capacity of the statistical agencies in sub-Saharan Africa to design fishery surveys and collect adequate data on households and communities involved in the fishery sector, and
- develop guidelines on designing fishery modules that can be used by national statistical agencies, research agencies, and other organizations to collect policy-relevant data on the fishery sector.

The present document is the final output of this collaboration. The core of the document is a *Guide Book* that explains how to create and organize a ‘compact’ fishery module expected to become part of a larger, multi-topic, national household survey. The Guide Book builds directly upon a fisheries module questionnaire that was developed and field-tested by the WorldFish team in Malawi and Uganda during the period October 2009 – January 2010. The report associated with the piloting activities by Béné et al (2010) is available upon request.

The document is organized to provide essential technical guidance on how to design statistical modules and questionnaires aimed at collecting fishery data at the household level. It includes an overview of the main technical and statistical challenges related to sampling fishery-dependent households. The document starts with an introductory section identifying the potential reasons why fisheries and in particular small-scale fisheries have not been adequately included in national statistical systems in a large number of countries. The report then proposes a succinct review of what is known (and what remains unknown) about small-scale fisheries and their contribution to the livelihoods of households in sub-Saharan Africa. It also provides readers with background on the main policies that are important to the fishery sector, information on the data needed to analyze issues of policy relevance, and methodology on the construction of survey questions to collect necessary data.

Box 1: The Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) Project

The Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA) project is an innovative household survey program established with a grant from the Bill and Melinda Gates Foundation and implemented by the Living Standards Measurement Study (LSMS) within the Development Economics Research Group at the World Bank. Under the LSMS-ISA initiative, the World Bank is supporting countries in sub-Saharan Africa to establish systems of multi-topic, panel household surveys with a strong focus on agriculture. In each partner country, the project supports at least two rounds of nationally representative household panel data collection. In some countries, additional waves are being funded from other sources. The surveys under the LSMS-ISA project are modeled on the multi-topic household survey design of the LSMS, and are designed and implemented in full collaboration with partner national statistics offices. In addition to the goal of producing policy-relevant agricultural data, the project emphasizes the design and validation of innovative survey methods, the use of technology for improving survey data quality, and the development of analytical tools to facilitate the use and analysis of the collected data. The micro-data produced under the project is fully documented and publicly available within twelve months of the completion of each survey round. Visit <http://www.worldbank.org/lsms-isa> for more information.

Fish enter the food system through two distinct pathways: capture fisheries and aquaculture. Capture fisheries are what most individuals consider to be ‘traditional fishing’, that is, fishers with lines or nets who enter inland or coastal waters with or without boats to hunt and capture fish. However, in today’s world, more than half of all fish consumed are produced through aquaculture. Many of the aspects of aquaculture are similar to production agriculture. Capital investments in cages or ponds are needed. Good quality fingerling (the ‘seed’), feed, labor, and management skill are used to produce a crop that is either harvested all at once or piecemeal. The harvest is then consumed or sold through market channels readily recognizable to most agricultural producers. Aquaculture can occur entirely within the confines of a farm or in public water sources (with the attendant common property problems).

In most sub-Saharan African countries, most fish is currently produced from capture fisheries, with aquaculture not yet a widespread activity among rural small-scale producers (although this could change rapidly). The module presented here therefore deals with capture fisheries, which are sufficiently distinct from most agricultural operations so as to require a separate type of questionnaire. While aquaculture could for the most part be included in the existing production agriculture modules by expanding the list to include fish as well as crops, the changes needed to include aquaculture in those modules have not been considered here.

This technical document is mainly targeted at economists and statisticians working for national statistical bureaus and other agencies involved in the design and collection of statistical data relevant for the planning of agricultural and rural development interventions. Other potential targets include national and international research organizations, universities, practitioners and non-governmental organizations

engaged in research and intervention related to small-scale inland fisheries. The guidelines may also be useful for experts dealing with broader development issues in natural resources management, poverty reduction, food and nutrition security, and policy and governance issues.

While the discussion and pilot testing focuses on fisheries in sub-Saharan Africa, the proposed modules are sufficiently robust to be applied in Asian settings as well. Additional work on the questionnaire for accommodating information needs on Asian fisheries will require more detailed questions on environmental resource management in which households and communities invest. In the context of many Asian coastal and inland waters, there are a complex mix of fishing and farming methods, including those that are hybrids of both. For example, some shrimp, crab and high-value fish species rely on a wild 'fishery' for juveniles that are then cultured in ponds or cages. Often the landless poor catch the fry, while the more wealthy own the ponds or cages. Conversely, there are situations where the young fish or shellfish are produced in hatcheries and then released into the wild, where they are then caught in a 'fishery'. This is known as 'ranching' or 'culture-based fisheries'. Questions on the investments and earnings of rural producers involved in various aspects of these complex fish capture and culture methods, as well as the institutional mechanisms regulating access to benefits, would need to be further developed for most Asian contexts.

2. Identifying the problem

2.1 Lack of household statistical data

In 2008, the United Nations Statistical Unit, in collaboration with other partners, examined the state of agricultural statistics and found a serious decline in their quantity and quality. This was juxtaposed against the emergence of several new data requirements relating to global warming, land and water use, poverty, and food security. This group proposed a global strategy to reverse this situation, which includes: (i) establishing a minimum set of country level core data, (ii) integration of agriculture into national statistical systems, and (iii) capacity building (United Nations, 2010). The conceptual framework was extended beyond the conventional treatment of agricultural production, and to incorporate data on economic, social and environmental dimensions of agriculture, forestry, fisheries, and land and water use. The objectives of this document are consistent with the global strategy.

2.2 Lack of fisheries data

Recent years have seen a renewed interest within the development community towards smallholder agriculture and its role in rural development and pro-poor growth (e.g., Anriquez et al. 2003, Fan and Chan-Kang 2005, Hazell and Diao 2005, Gardner 2005, Valdes and Foster 2005, Hazell et al. 2007). Missing from this debate, however, are small-scale fisheries, despite their large presence in many parts of developing countries' rural areas, as well as the significant numbers of resource-poor and/or landless households who depend directly on them to sustain their livelihoods (Allison 2005, Kura et al. 2004, Béné 2006). In Bangladesh, for instance, it is estimated that 23% of the rural labor force is engaged in full or part-time fishing (Woynarovich 2004). In Asia as a whole, more than 25 million households depend on fishing for the largest share of their direct income, and two to three times as many households depend on jobs created in related activities such as fish processing and fish trading (FAO 1997). Using a conservative assumption of four individuals per household reveals that over 100 million individuals are in fisher families and up to 300 million

depend on jobs in the fisheries sector. Though this may appear to be a small proportion of the Asian population, fishery activities represent a large share of the income for these households, underlying the need to better capture their income-generating activities as part of integrated household surveys.

Despite these figures, small-scale fisheries are seldom considered or integrated into rural development planning. Recent analyses show that they are only marginally included in Poverty Reduction Strategy Papers (Thorpe et al. 2004) and, apart from a few exceptions (e.g., Wisner et al. 2005), they are frequently ignored in current debates on rural economies, pro-poor growth, or economic development.

Five main reasons, arising from historical, structural, and statistical sources, can be put forward to explain this situation. First is the historical dearth of reliable data and scientific literature available on these types of fisheries. The majority of coastal or freshwater fisheries are small-scale, spatially diffuse activities, and a significant part of their production is not commercialized or is marketed through informal channels – and thus is not properly reflected in national economic statistics. This situation has contributed to a vicious circle where the small-scale fishery sector, as a consequence of not being properly accounted for in national statistics such as GDP, continues to receive limited attention from national and provincial decision-makers as well as from scientists and international development agencies and donors. As a result, less research and data are generated, which in turn contribute to limited attention paid to the sector.

Second, nationally-representative integrated household surveys are commonly based on multi-stage cluster sampling, informed by population census-based listing of enumeration areas. At the first stage, the primary sampling units (PSUs), also referred to as enumeration areas (EAs), are sampled with probability proportional to size (i.e. the household count in the sample frame). At the second stage, households are randomly selected, irrespective of their attributes, within each EA, following a household listing operation. Given the clustered nature of fisheries households, a household sample that is nationally representative in terms of key living standards indicators, such as consumption-based poverty, is unlikely to generate a sufficient number of fisheries households and hence representative statistics for the fishery sector. On the other end of the spectrum, many case studies on fishery households are geographically narrow and fail to present a broad overview of the sector as a whole. The sampling problem, thus, becomes a policy challenge. Those financing and implementing the surveys must recognize the importance of fisheries to design a sampling framework that will generate sufficient coverage to have statistically reliable data. Sampling is discussed further in section 4.1.1.

Third, while this is not specific to fishery households, there is a structural difficulty in sampling and surveying mobile and/or geographically remote households. Although improvements have been made in recent decades to connect rural areas through investment in infrastructure and roads, a substantial part of the Africa rural population still lives in relatively remote and low population density areas, making sampling and survey fieldwork relatively difficult and costly. Additionally, some specific socio-economic groups may be particularly difficult to sample due to their particular livelihood and the fact that they are characterized by some form of seasonal or permanent mobility. Small-scale fishing communities, and in particular inland small-scale fishers, are especially affected by these issues, as a substantial number of them engage in short-term or even multi-year migration in order to follow the fish stocks (which may also be migrating) or to find fishing groups that are more productive and/or have better access to markets. During these migration

periods, these fishing households live away from their home town/village in provisional or itinerant fishing camps that are often located in the fringe of swamps or floodplains, and thus remain inaccessible for several months of the year. In this context, the 'household' is not obvious as a sampling unit, because the person being questioned is temporarily part of a household that may comprise a group of young men living in rented or makeshift accommodation, who, in off-season, may be members of agricultural households may be distant from the fishing location.

Fourth, fishers are not always properly recorded as a distinct professional category but are instead included into the all-encompassing 'smallholder farmers' category in national statistical systems –rendering them virtually invisible as fishers from a survey perspective. Allison (2005) reports that in Tanzania, the latest national Household Budget Survey did not disaggregate agriculture, livestock and fisheries, despite the fact that a large number of households in the provinces around Lake Victoria depend to a large extent on fisheries. Likewise, in Malawi, although fisheries households were not excluded from the First and Second Integrated Household Surveys in 1997/98 (IHS1) and 2004/05 (IHS2), respectively, there were no specific questions about fishing activities. The IHS2 did, however, capture fish processing and trading activities in its household enterprise modules.

Finally, the largest part of 'fishery-dependent' households, that is, households who engage in some form of fishing-related activities (fishing, fish processing or fish trading), are rarely full-time fishers. This is particularly the case for inland fisheries (Béné and Friend 2011). Field data suggest that for each full-time inland fisher, 2 to 3 other households are supported directly and indirectly: 2 or 3 in obviously fishery-related occupations (as noted globally), and others, such as those providing meals, drink, lodgings and other services, dependent on the presence of fisherfolk and their cash incomes but not classified as working in 'fishery-related' occupations. These forward and backward linkages to a sector that generates cash in often remote rural areas imply that fisheries can act as local 'engines of growth' where they are important (Allison 2005). Moreover, in inland fisheries, there are many "fisher-farmers" – that is, individuals and households who cultivate land and engage seasonally (usually during the low farming season) in diversified activities, including fishing. For these households, farming is often the main activity, at least in terms of time allocated. As a consequence, fishing is perceived as a 'secondary' activity, and is therefore often under-represented or entirely omitted in national surveys.

The combination of under-representation and a data-poor environment represents a major limitation for social scientists that are typically forced to rely on data from non-representative case studies and that often cannot present rigorously substantiated empirical assertions regarding the actual contribution of the fishery sector to household livelihoods or local economies. When data based on complex survey designs are available, they are usually too small to allow for robust econometric analysis, let alone to support any dynamic analysis (Béné 2009). In this context, the little data available often generates more questions than answers.

The sample fisheries modules provided in this document will capture fisheries data that can be used to estimate household fishery labor input in different domains, non-labor as well as hired labor input use and expenditures, production and disposition of output, including sales and revenues and household consumption of own-production. As the modules are designed to be implemented as part of larger, multi-

topic household surveys, the data could be combined with information on other household income-generating activities to estimate total and fisheries-related income. The resulting data will also be invaluable in demonstrating the location and importance of fisheries activities as well as their relation to household crop and/or livestock production. Existing examples of this type of data include Freeman et al.'s (2004) study of livelihoods in Kenya, which included fishing-based livelihoods on Lake Victoria, and Béné et al.'s (2009) study of fishing incomes relative to other sources in the forested areas of the Congo basin. Unpublished studies based on small-scale household surveys from non-random samples of mixed farming-fishing communities in Malawi and Uganda are synthesized in Allison (2005).

3. The role of small-scale fisheries

Like many other agricultural commodities, fish is simultaneously a cash crop (an income-generating activity) and a food crop (a source of protein, calories, and perhaps more importantly, micronutrients) for the households that engage in fishing. This dual function raises methodological challenges for the study of the contribution of small-scale fisheries to the household economy. In the subsequent subsections, while exploring the role of fisheries as cash/food crops and potential engines for rural development, we rely on insights from empirical studies that are based on household-level data collected in various sub-Saharan African settings. As each underlying survey effort is focused on a fishery production system in a given region of a given country, the results often reflect the specificity of the locations at which the surveys were implemented, and are not always consistent across quantitative studies, reflecting the need for data to characterize the sector as a whole and to explore its linkages with rural development in a reliable manner.

3.1 Fish as a cash crop

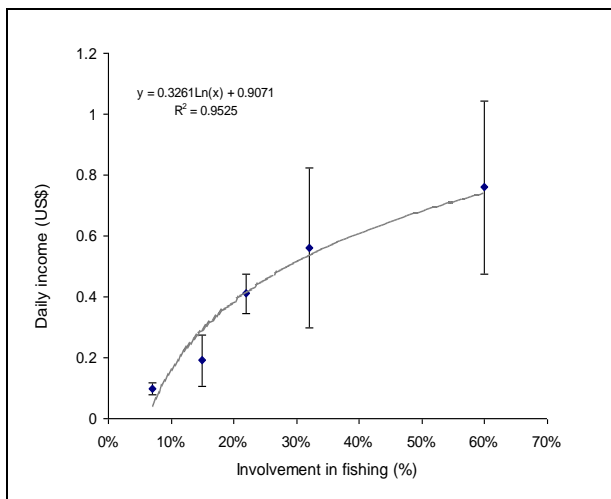
Fish has always been a critical source of cash for rural households engaged in fisheries. Raymond Firth, in his early description of the 'peasant economy' of Malay fishers (Firth 1946), pointed out the contribution of fish as a source of cash for these rural communities. Fishing along the Malay coasts, rivers or marshlands can generally be done all year round, thus offering the capacity to generate revenues on a near daily basis. This represents a major advantage over a large number of other agricultural activities, particularly crops that generate cash only on isolated occasions, i.e. at harvest time. In this context, fishing plays a critical role as a 'bank in the water' for local populations (Béné et al. 2009). The cash available on a daily basis can be used to buy cheaper food (such as high energy staples or vegetable sources of protein), purchase necessary goods and services (including basic necessities and/or manufactured goods), or to pay for medication or children's education fees. Along the western shores of Lake Chad, Neiland et al. (2000) showed that households use a large part of the income generated through their fish catch to invest in more efficient or larger fishing gear, purchase farming inputs (e.g., fertilizers, seeds, etc.), or hire farming labor. These authors point out that this capacity to generate cash surplus to re-invest in the farm economy at critical periods in the season (such as the sowing season) is essential, as it creates a synergy between the inputs and outputs of different activities, thus enhancing capital accumulation and income opportunities.

This capacity of fishing income to stimulate the wider local economy has been observed on various occasions. One such example is a survey conducted by the World Agroforestry Centre (ICRAF), the International Center for Tropical Agriculture (CIAT), and the Center for International Forestry Research (CIFOR) through the Congo Livelihood Improvement and Food Security (CLIFS) project (Luyinduladio 2004). When the data sampled through the CLIFS survey are clustered according to the degree of household

involvement in fishing (measured through the proportion of households in the villages engaged in fishing activities), the analysis shows that the villages with higher proportions of fishing households display higher average household incomes. In fact, a clear positive relationship can be identified between the level of engagement in fishing and villages' average incomes (Figure 1).

It seems therefore that in locations where fishing activities are conducted, the cash generated by the sector may be a critical element that can, in some conditions, boost the local economy. Unfortunately, very few other quantitative studies are available to confirm (or refute) this assumption, let alone to investigate the conditions under which this alleged engine for the local economy is effectively working for fishing communities.

Figure 1. Average income per household for different clusters of villages with increasing degrees of involvement in fishing activities



Notes: The source is CLIFS baseline survey data (Luyinduladio 2004). The regression is estimated by authors.

A second critical question associated with this ‘bank in the water’ function (Béné et al. 2009) is whether this cash benefits different households in the same way irrespective of their overall wealth level, or whether small-scale fisheries benefit more specifically the “poorest of the poor” in the communities, as is often claimed.

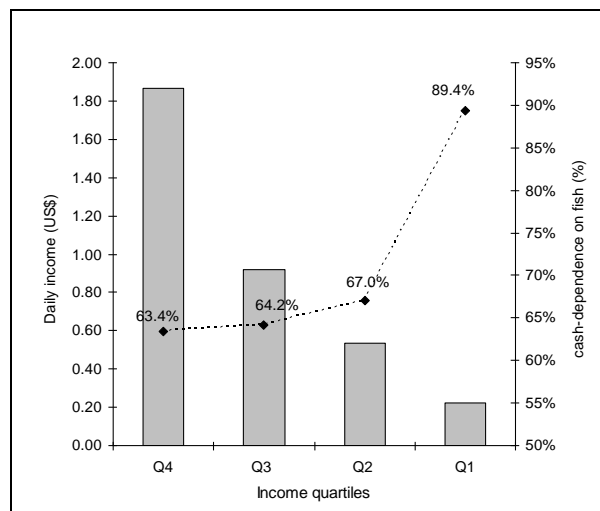
The reason why small-scale fisheries are sometimes said to benefit the poor in particular can be related to the rich literature that documents the contribution of common pool resources (CPRs) to the livelihoods of the poor (e.g., Johda 1992). For instance, Cavendish (2000) use data collected in select rural communities in Zimbabwe, and show that the sample households in the poorest quintile derive roughly 40% of their total income from CPRs, while the comparative figure for those in the top quintile stood at a lower but still sizeable 29%.

In a recent survey of rural communities living along two rivers in the Central basin of the Democratic Republic of the Congo (DRC), Béné et al. (2009) conducted a similar analysis, but concentrated their investigation on the contribution of fishing to the households’ total cash income. Their data suggest that the

bottom quartile of the population derive almost 90% of their total cash income from fishing activity, while households in the top quartile depend for 63% of their total cash income on fishing (Figure 2).

Other analyses, however, challenge these views and suggest that while fishing is indeed important for poor households, it is not the exclusive domain of the poor. For example, in a study of southern Laos, Garaway (2005) showed that when the importance of fishing for different wealth groups is assessed, fishing appears to be highly important for all groups amongst these rural communities, irrespective of the wealth level of the households. Rather than being a “last resort activity” for the poorest of the poor, in this case fisheries were fundamental to the livelihoods of the whole community. In other circumstances, empirical data have even suggested that it is the wealthier households, being able to invest in more productive fishing gear, that derive the largest share of their income from fishing (e.g., Kremer 1994; Neiland et al. 1997; Béné and Obirih-Opareh 2009).

Figure 2. Percentage contribution of fishing activity to total cash-income for the households ranked per quartiles



Notes: The source is Béné et al. 2009. Q1 = bottom (poorest) quartile; Q4 = top quartile.

Thus, is fishing a real source of cash for the poorest households? Is it instead an activity that is poor-neutral and benefits the whole community where it is conducted? Alternatively, could it be an activity that generates substantial revenues only for those that can invest in expensive fishing equipment? From a poverty reduction point of view, the relevant question that emerges from these initial empirical studies is: under which conditions are small-scale fisheries pro-poor, and under which conditions can this situation be ‘reversed’? We are as of yet unable to answer this question, as the available quantitative studies are limited in number and tend to be geographically narrow.

3.2 Fish as a food crop

Conventionally, in a subsistence-based economy, it is assumed that the poorest households keep a larger share of their own production for home consumption. With regards to defining fish as a food crop or cash crop, we have observed cases where the poorest households sell a larger proportion of their catch to

generate cash and purchase other cheaper staple foods. For example, this strategy was observed along parts of Lake Chad in northeast Nigeria in areas where population face chronic food shortage (Béné et al. 2003). In this case, the poorest groups were observed to sell a higher proportion of their catch than the wealthier households.

Consumer theory shows that relative prices are important in determining selections in family food baskets. These selections have implicit impacts on the nutrients available to the household. Using the Malawi Second IHS data, Eker and Qaim (2010) show that changing relative prices of maize, the predominant source of calories in the diet, changed the nutrients available to the household. Food basket selection after income increases were the best guarantee to assure improved nutrient status. In fact, it is possible to hypothesize that for a given household, there exists a ‘tipping point’: below a certain cash income threshold, and faced with chronic food insecurity, a household may choose to sell a larger share of its catch to increase its capacity to secure staple foods, even if this means reducing the consumption of nutrient-rich food such as fish. In conditions of chronic food shortage, households may choose to improve (or maintain) their calorie intake at the detriment of the nutritional quality of their diet. Only when that household reaches a threshold where its income level is high enough to ensure more constant access to staple food would the household then choose to shift its strategy and reduce the proportion of fish that it sells for profit.

In contrast, in other parts of sub-Saharan Africa (e.g., the Yaéré floodplains in Cameroon) where local populations faced only seasonal food shortages, the more conventional pattern observed for other crops seemed to apply for fish as well: the poorest households were observed to keep a larger share of their fish catch (Béné et al. 2003). In some cases, this may simply reflect the lower overall catches of the poor. This conventional pattern was also observed recently in fisher-farmer communities in the DRC (Béné et al. 2009). In that case, however, food insecurity may not have been the primary factor determining the strategy of the households. In this very remote part of Africa with extremely limited access to markets, selling off a large part of one’s own catch usually induces very high additional transactional costs (e.g., transport costs, harassment by the police and the army, illegal taxes levied at check points) to the extent that only wealthier households may have been willing or financially able to engage in such a strategy.

As noted above, contrasting conclusions may be driven by the fact that the research efforts often rely on limited data and most likely strongly reflect the local specificities of the locations where the surveys were implemented. A much larger and systematic sampling would be necessary to determine whether either of these two patterns is generalizable, and if so, under which circumstances the trend is likely to be reversed. In sum, even for the two most basic contributions that fish can offer to households (food and income), our capacity to analyze and describe the different strategies adopted by households is severely restricted by the current lack of available data. Under these circumstances, it is extremely difficult to provide policy-makers, planners and development agencies with appropriate advice or relevant information.

3.3 Impact on development

As a consequence of the lack of adequate information and data, the perceptions that academics and policy-makers hold about small-scale fisheries are usually prejudiced. In particular, artisanal fisheries are often perceived as a stagnant, low-productivity and ‘residual’ sector (Platteau 1989; Chauveau et al. 2000), and the conventional discourse often found in the literature is that small-scale fisheries and rural poverty are

intimately correlated (see Béné 2003 for a thorough discussion on this issue). This view, which is 'embodied' in the two famous adages “fishermen are the poorest of the poor” and “fishing is the activity of last resort” (e.g., Smith 1979; Panayotou 1982; Bailey et al. 1986; Bailey and Jentoft 1990), strongly conveys the idea of a structural, chronic poverty affecting fishing communities.

This particular view has been recently disputed by several authors (e.g., Allison et al. 2006; Béné et al. 2007) who argue that fisherfolk are not necessarily the poorest households (at least in income terms), and that small-scale fisheries, if recognized and supported by adequate policies, can actually play a significant role as an engine for rural development, especially in remote areas where other economic opportunities are scarce (Sugunan et al. 2007; Zwarts et al. 2006). Unfortunately, little empirical evidence exists to substantiate these statements and in the absence of large, nationally representative datasets, the research on small-scale fisheries will always remain a marginalized subject, denying developing countries with important small-scale fisheries from benefiting from what may indeed be a powerful engine for rural development.

3.4 Capture fisheries as renewable resources

A key point to bear in mind when considering the role of fisheries in contributing to household income and food security is that, unlike in agriculture, it is not always possible to simply increase yields to increase incomes and nutrition contribution to households. Many fisheries are under heavy exploitation pressure already, and are de facto open access or managed under common property arrangements where many people from a community or region share access to the resource. The renewable but finite nature of natural fisheries production is such that catch increases cannot be sustained beyond the ability of the resources to regenerate to provide future harvests. Indeed, there are widespread calls to limit access to fisheries and to reduce economic inefficiencies in fisheries by strengthening access controls and use rights (e.g., World Bank, 2004). There is also an ongoing debate about the governance structures and policy orientations that can best make use of the natural wealth from wild fisheries (Cunningham et al., 2009; Bene et al., 2010).

4. Designing a fisheries questionnaire

In this section, we present the key elements of a compact fishery module that can be incorporated into a larger multi-purpose household survey. The main objective of the fishery module is to generate quantitative information that will help to quantify the contribution of fisheries-related activities to the overall household economy. In particular, the fishery module is designed to produce specific information on (i) total costs, gross and net revenues derived from fisheries-related activities, including fishing, fish processing and fish trading activities, and (ii) the absolute and relative quantities of fish consumed and/or sold by the households.

To estimate these, the following quantitative data is necessary:

- types, quantities and market values of the fishing gear and boats operated by the households, along with other fixed and variable costs induced by fishing, fish processing and fish trading activities;
- quantities and market prices of the fish species landed, purchased, processed and/or traded by the different members of the households;

- wage and benefits paid or received by the different members of the households as part of fisheries-related activities.

Properly incorporated into a nationally representative integrated household survey and with a sampling strategy to assure sufficient minimum numbers, a fisheries module will provide the ability to link fishery data with household-level socioeconomic characteristics, including welfare status and involvement in agricultural and non-agricultural income-generating activities. The main drawback is that without oversampling in fishery communities as part of the wider survey operations, a small sample size is unlikely to yield the representative statistics that are essential to understanding the performance of the fishery sector and its links to other sectors of the economy. Nevertheless, the proposed sample modules could collect data that enable the analysts to more accurately capture household livelihood portfolios, including detailed information on household fishery activities.

4.1. The challenges of working with small-scale fisheries

Some of the major difficulties encountered when working with small-scale fisheries have been highlighted in the sections above. In particular, the mobility that characterizes some fishery-dependent households, in addition to the clustered nature, geographic remoteness and poor accessibility of the areas where a large number of these households live and/or operate, renders sampling design and data analysis particularly challenging (Béné 2009). This section focuses on the methodological challenges that result from the way that households fish.

A cross-cutting issue, also common to agricultural produce and livestock, is that of local prices and the value of goods and services that do not pass through the market. A principal question here concerns the valuation of (i) the fish that are consumed by the fisher family, and (ii) the family's labor. On this point, the concept of opportunity cost – the value of the best alternative use – can provide helpful guidance. For fish consumed by the household, the opportunity cost consists of the value of the fish if it had been sold by the family, all else held equal. Similarly, for family labor, the opportunity cost comprises the value of hired labor in the fishing activity. An integrated household survey faces this valuation problem in many of its questions, particularly with regards to labor. Ultimately, it is the survey manager that must determine the method by which the opportunity cost of labor will be established across the modules.

4.1.1. Sampling

Integrated household surveys are designed to produce data on the distribution of living standards using nationally representative samples, drawn as part of multi-stage cluster designs, usually involving two stages. PSUs are selected in the first stage with probability proportional to size (i.e. the household count in the sampling frame). Within each PSU, households are then randomly selected in the second stage, following a household listing operation. If each PSU is assigned a non-zero probability of selection in the first stage and the household selection is based on an accurate listing exercise among the selected PSUs, one can then use the sample to make inferences about the entire population.

In the context of fisheries, however, a sample drawn in this fashion is unlikely to contain a sufficiently large number of fishery households as to allow the data user to estimate representative figures for the fishery

sector as a whole. The consideration of alternative sampling designs thus becomes necessary, in order to ensure adequate variation in the characteristics of fishery households to reach meaningful conclusions.

One alternative in the selection of PSUs in the first stage is to rely on disproportionate probability sampling with a focus on fisheries. With this option, PSUs known ex-ante to have higher rates of fishing are allocated a higher probability of selection (i.e., oversampled) and representativeness is gained by reweighting. Unfortunately, the sampling frames generally used for drawing the sample, primarily the most recent population census, often lack the necessary information to allow PSU-based disproportionate sampling.

In addition to, or in lieu of, adopting disproportionate sampling in the first stage, one can consider disproportionate sampling of households within each of the selected PSUs. This method requires a full listing operation in each selected PSU that would identify fishery households and allow them to be oversampled. When using this method, the probability of selecting a fishery household must be known, so that the weights can be constructed accordingly. Relative to an overall survey budget, listing operations are not very expensive and may be the most cost-effective way to identify fishery households. Methods for oversampling fishery households in each stage of selection, if feasible and properly implemented, can provide an adequate probability sample to study fisheries within the context of a traditional multi-topic survey.

Aside from using disproportionate sampling as part of the actual integrated household survey sample, the possibility of drawing an oversample of fishery households, beyond the original sample of households selected for the primary objectives of the survey, can be considered. To save on field work costs, the oversample can consist of fishery households from the same or adjacent EAs that have previously been identified as areas with high levels of fishing activity.

4.1.2 Multi-species, multi-gear production functions

Small-scale fishers usually do not target or capture one sole fish species. In the biodiversity hotspots of the African Great Lakes and in coastal coral reef fisheries, the catch may comprise tens or several dozens of species. These can usually be aggregated into market and price-based groups, but even so, and even in less diverse systems, fishers' weekly catch can comprise up to six or seven fishery products, and up to ten or twelve over the whole calendar year (van der Elst et al, 2005; Weyl et al., 2005). They capture these using various types of fishing gear such as gill nets, cast nets, seine, traps and boats. This combination of diverse fishing targets with different equipment implies that the fixed and variable costs of production vary among these different species. In addition, the market value of the different fish landed does not simply vary between species, but also varies based on the size of the fish – the larger fish being usually valued more per kg than the smaller fish – and is additionally based on the form of processing (e.g., fresh, smoked, sun-dried or salted).

To complicate matters further, fishers and fish traders do not always use kilograms or standardized weight or volume measures, but also rely on non-standard measures, such as 'pieces', 'valises', 'bundles', 'buckets', small or large 'baskets', *inter alia*. Beyond this, a 'small basket' in Cameroon or Mali is often different in terms of weight and volume, and therefore value, from what fishers or traders would consider to be a 'small basket' in Zambia, Mozambique, or even another region of the same country.

As an analogy, in his daily activities, a small-scale fisher is similar to a farmer who grows ten or twelve different crops on a continuous basis, facing different production costs for each, and uses non-standardized measures to harvest and sell them, with each crop sold under different unit prices depending not only on the processing form but also the quantity.

4.1.3 Seasonality

As in planting seasons for crops, fisheries are also characterized by seasonality, posing special challenges for data collection. In fisheries, the concept of 'rainy' and 'dry' seasons, or the idea of 'lean' and 'harvesting' periods, does not strictly apply. While it is correct that, for fisheries operating in floodplains, the 'receding' period (i.e., the period when the water flooding the plain on the edge of the river starts to return into the river's main course) is known to be usually a high fishing period, the length and time of occurrence of this receding season are locale-specific (depending in particular on the morphology of the floodplain as well as river characteristics). Furthermore, this concept of receding season does not apply to all bodies of water. Rivers, ponds, lakes or reservoirs generally have no such peak period, yet the fish species that live in these bodies of water often exhibit seasonal behaviors such as migrating and reproducing which affect their catchability.² The consequence is that, for a majority of fishers, fishing activity is often characterized by some degree of seasonality. This seasonality is species-specific, but it can also be gear-specific: a given fish may be highly 'catchable' with a specific fishing gear during one part of the year and then 'disappear' for another part of the year unless the fisher shifts to another fishing technique (which is common practice).

Seasonality, multi-fish and multi-gear practices have important implications for the way a fisheries module should be designed if one is to capture the fishing activity of various households over the entire calendar year with some acceptable level of accuracy. As with the smallholder farmer owning ten scattered parcels planted at different times with different crops, recall is difficult. If cost were no object, the optimal way to conduct a survey would be to visit on a monthly basis. However, given the scale of integrated household surveys, fielding monthly visits through resident enumerators for the purposes of a fishery module will be cost- and supervision-intensive, and largely unfeasible. An acceptable compromise (which is the option adopted in the module presented below) is to offer to respondents the possibility to identify two main periods during the year: one where the aggregated catch is generally higher than the rest of the year; and one where the aggregated catch is generally lower. The wording of this question should also allow the questionnaire to capture situations when respondents insist that they face random fluctuations but no clear seasonality in the landings.

4.1.4 Even farmers fish...

A second issue to consider – one that has played a central role in misperceptions about the definition of a 'fisher' – is the fact that only a small proportion of fishery-dependent households in inland fisheries are actually full-time fishers (Béné and Friend 2011). As mentioned above, the great majority of households who engage in fishery-related activities are not full-time fishers but rural (farming and herding) households who seize the opportunity of living in the vicinity of bodies of water to strengthen their livelihood basis, increase

² 'Catchability' is a fishery concept that refers to the probability for a given fish species to be captured by a given fishing gear.

their income and improve their food and nutritional security through fishing. These households, however, rarely perceive and define themselves as ‘fishers’, even though sometimes up to 30 or 40% of their income is derived from fishery-related activities. One of the critical points in the design a fishery questionnaire as part of a wider survey is therefore to (i) ensure that these households are not simply defined as farmers but more correctly as diversified households that engage in farming as well as fishing, and (ii) to estimate the level to which fishing actually contributes to their livelihood.

An important point to keep in mind in the development of a fishery questionnaire is the fact that people do not necessarily spend eight hours on their boat or along the river bank when they fish. Often, nets are set up at dusk, left overnight, and checked the next morning. This is particularly the case for households that do not specialize in fishing. Effectively, these households may spend only a few hours per week engaging in this activity, which may also explain why they do not perceive themselves as ‘fishers’. Yet, this overnight, passive fishing activity may be the source of a substantial part of the household’s total income, in particular in rural areas where the flow of cash is not always frequent or regular. Recording the actual time invested in fishing by asking not simply the number of days per week that individuals engaged in fishing, but also the number of hours per day, is therefore critical to achieve a more accurate understanding of the contribution of fishing to the livelihood and economy of these households.

4.1.5 Distinguishing between full-time and part-time fishers

The statistics of the Food and Agriculture Organization of the United Nations (FAO) on employment in the fishery sector distinguish between full-time, part-time and occasional fishers. It is therefore useful to be able to use the results of the surveys to assign fishers in the sample to the FAO categories, which are defined as follows (WorldFish and FAO 2009):

- Fulltime fishers: fishers receiving at least 90 percent of their livelihood from or spending at least 90 percent of their working time on fishing.
- Part time fishers: fishers receiving at least 30 percent, but less than 90 percent of their livelihood from fishing or spending at least 30 percent but less than 90 percent of their working time on fishing.
- Occasional fishers: fishers receiving less than 30 percent of their income from or spending less than 30 percent of their working time on fishing.

We do not however attempt to measure time spent on fishing and other activities; instead, we use income statistics from the surveys to allocate households to these categories. The categories are particularly important in policy contexts such as the promotion of livelihood diversification as a means to reduce pressure on over-exploited fisheries (Brugere et al. 2008).

4.1.6 Fish processing and trading

Another potentially complex issue which has important implications for the structure of a fishery module is the fact that fishery-dependent households do not simply engage in fishing *per se* (the action of catching fish from different types of bodies of water). Conventionally, it is well accepted that ‘fishery-related activities’ also include fish processing (such as salting, sun-drying, and smoking, usually undertaken in an attempt to preserve fish and prolong the period during which these fish can be sold and consumed), as well as fish

trading (that is, the purchase and sale of fish wholesale or retail with the objective to generate value-added profit). A potential issue may emerge when fresh fish is sold directly by the person or household that has caught it: is this part of fishing or is it fish processing? Similarly, do we consider a woman who processes and sells her husband's catch to be a fish processor or a fish trader? The situation becomes further complicated when the same household – or even the same individual within a given household – engages simultaneously in both activities.

If clear directives and definitions are not provided at the beginning of the interview, there are risks that some of the costs or revenues associated with these activities may be double-counted. Two definitions are thus proposed in the first part of the module in order to reduce the risk of confusion:

- “Fish processing is defined as selling directly to consumers or fish traders (i) fresh fish caught by the household, and (ii) processed fish caught by the household, which may have been subject to techniques such as smoking, sun-drying, and salting.”
- “Fish trading is defined as selling (in wholesale or retail) fresh or processed fish bought from other fishers or fish processors. Selling fish caught by the household should not be considered as fish trading but as fish processing.”

4.1.7 Share-cropping contracts

A further complication that may arise when working with fishery-dependent households concerns the nature of the formal or informal contractual arrangements that are agreed upon between boat crew members and boat and/or fishing gear owners. The most frequent type of contract is one that involves sharecropping arrangements similar to the ones described in the farming literature (Platteau and Nugent 1992). In this case, the remuneration of the boat crew is typically either directly made as a percentage of the catch landed, or as a percentage of the gross or net revenues, combined with some fixed benefits. These benefits could include food and drinks supplied to the crew by the boat owner for the days that the crew members are on board. In some situations, a fixed wage is used instead of, or in combination with, this sharecropping component.

Usually, the details of these arrangements are agreed on an individual basis and vary from case to case. Identifying the exact nature of these contracts therefore requests a series of detailed questions, which are necessary in order to precisely estimate labor costs and revenues. However, the analysis may rapidly become cumbersome, particularly if several members in the same household are involved. For example, consider a situation in which the main female member of a household hires external workers to help her in her own fish trading business, while her husband and/or son are hired out as crew members on somebody else's boat. In this case, the details of the individual contracts for all these individuals would need to be separately established.

4.2 Results of the pilot study

During a brief period of field work in early 2010, the fisheries modules presented here were pilot-tested in the Lower Shire region of Malawi and along the shores of Lake Victoria in Uganda. Using the data from two very different socio-economic contexts, the costs and gross and net revenues generated by the different

fishery-related activities were estimated. The data demonstrate the rich diversity of the ways in which fishing and post-harvest activities (such as fish processing and fish trading) contribute to the diversified livelihood of these households. The results are presented in a working paper (Béné et. al 2010) which can be made available upon request.

The results of the two pilot tests also illustrate the capacity of the module to generate important information about fish consumption and the constantly evolving trade-off between the two main roles that fish plays in the household economy: income cash generation and food and nutrition security. Furthermore, the data confirm the importance of accounting for potential seasonal variations in the different variables recorded. On the other hand, the fishery module did not allow us to estimate the *relative* contribution of the fishery sector to the total household income, due to the fact that it was administered as a stand-alone questionnaire. However, since the module has been designed to be administered as part of a larger survey where other sources of income are estimated, it would then be possible to estimate the relative contribution of fishing to the overall household income.

Finally, the two pilot surveys illustrated the difficulty of making generalities with regards to fishery-dependent households. Certainly, the simplistic narrative that “households are poor because they are fishermen” and the perception widely accepted amongst policy-makers or even academics that small-scale fisheries are poverty traps do not seem to reflect the reality depicted by the data. In both the Lower Shire and the Lake Victoria pilot sites, fishery-related households do not appear to be in substantially worse situations than the non-fishery-dependent households who live in the same communities. Instead, the main differences appear between regions, with the Lower Shire households (both fishery-dependent and non-fishery-dependent households) systematically facing a more critical situation, at least in terms of food insecurity and exposure to health issues, than their counterparts along the shores of the Lake Victoria.

5. Structuring the fishery module

The construction of the fishery module must be undertaken with the abovementioned issues in mind. The main objective of the module will be to generate the information necessary to estimate the contribution of fishing-related activities to the economic welfare of households as part of a multi-topic household survey. The core information collected through the fishery module will therefore focus exclusively on the fixed and variable costs (including labor) and gross revenues generated by fishing-related activities, namely fishing, fish processing and fish trading. Other considerations such as status and trend of the resource (actual or perceived), *de jure* and *de facto* fishery management institutions, geographical distribution of the fishing effort, local governance, and interactions with other sectors, despite being essential information to a comprehensive understanding of the fishery system, will not be addressed in this questionnaire.

The module is structured into three main components, which constitute the core elements of the fishery module:

- (i) a “fishery labor” component that covers questions related to the labor (time) invested by the different members of the households in different fishing-related activities over the course of the year;

- (ii) a “fishery input” component that aims at estimating the production costs, including labor costs, of the fishery-related activities; and
- (iii) a “fishery output” component, aimed at estimating the revenues derived from fishery-related activities and fish own-consumption.

Box 2. Main components of fishery module

Component 1: Fishery labor

- full-time/part-time fishing
 - fish processing
 - fish trading
 - remuneration as hired-out labor
 - fixed wage / share in cash / share in catch / other in-kind benefits
- } Number of weeks, number of days per week, number of hours per day for each household member engaged in each of these domains

Component 2: Fishery input

- fishing gear and boats
 - types, numbers owned and operated
 - values and number purchased
 - costs of operating
- labor costs
 - contract type
 - remuneration rate

} fixed wage, share in cash, share in catch, other in-kind benefits
- fish processing costs
- fish trading costs

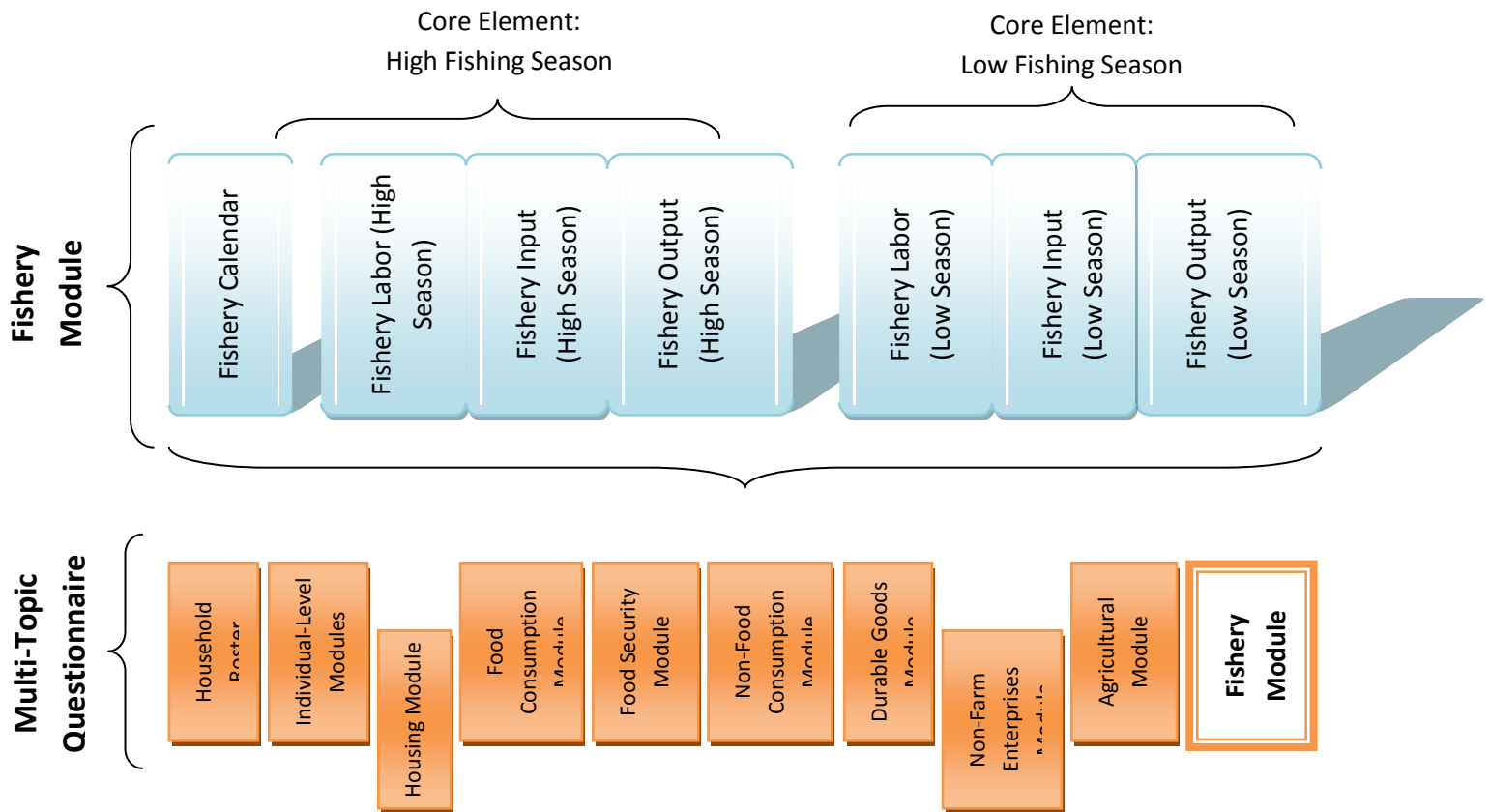
Component 3: Fishery output

- landings (per week / per season)
 - processing
 - self-consumption
 - fish trading
 - additional revenues (e.g., renting out fishing gear and/or boats)
- } quantities, species, packaging form, unit prices

Additional information will be needed in order to design the questionnaire and question wording in order to tailor them to the local setting. This includes, but is not limited to, local names for: (i) fishing gear and types of fishing boats used by the local population, (ii) important fish species fished in the different water bodies of the area, and (iii) packaging units used to handle fish. This specific information should be obtained prior to the finalization of the questionnaire through key informant groups or individual discussion. These key informants can be local staff of the fishery department, small groups of experienced local fishers, or national or local researchers or equivalent persons with solid empirical knowledge of the issues pertaining to local fisheries.

Finally, a “fishery calendar” should be included at the beginning of the questionnaire. The critical role of this calendar will be to evaluate the degree of seasonality characterizing the fishery. In the case where households identify two differentiable regimes (a ‘high’ and a ‘low’ fishing season), the information included in the three components of the questionnaire should be collected for both seasons, meaning that the three components must be duplicated. The overall structure of the module is shown in Figure 3. The module and its associated annotations are presented in Appendix 1.

Figure 3. Structure of the fishery module and its place in the larger multi-purpose questionnaire



6. Conclusion

In the majority of developing countries, the sector of small-scale (inland and coastal) fisheries is characterized by a relative scarcity of data regarding the importance of this activity for the livelihood of households living on the coastlines or in the vicinities of bodies of fresh water. The limited existing data are often generated through small and isolated case studies that do not permit the detailed characterization of the fishery production systems across the entire country. Consequently, local decision-makers and planners often lack basic information about the role and importance of the fisheries sector to their national economy.

The main objective of this guidebook has therefore been to provide the essential technical guidance necessary to design a statistical module aimed at collecting fishery data at the household level. We have

described the main potential issues and difficulties related to the design of fishery questionnaires, and have provided a template module that can be adapted to develop context-specific socio-economic fishery modules. Rather than serving as a stand-alone questionnaire, the template is structured to be included in a larger household questionnaire, within which it aims to provide specific quantitative information on fishery-related income and fish consumption at the household level. We hope the guidance offered here will contribute to a more comprehensive understanding of the fishery sector and an ultimate strengthening of its role in the increasing of food security and the alleviation of poverty in sub-Saharan Africa and beyond.

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Annex 1. Annotations to the Sample Fisheries Modules

In this annex, we provide detailed comments and notes on each module of the two fisheries questionnaires. We begin with the standard questionnaires, consisting of ten modules, and then discuss the expanded questionnaire, consisting of the modules included in the standard questionnaire and two additional modules.

The decision to collect information separately for two seasons was based on the important seasonal variations observable in the landings of the two pilot countries between the high and low seasons. Once the seasons have been established for the local context in Module A, it is important that the enumerators ask questions for both the high and low seasons. Modules B through E pertain to the high season, during which more families tend to engage in fishing. Modules F through I refer to the low season. Beyond the seasonal distinction, the temporal unit of reference is the week.

Lastly, it is essential to note here that these are presented as sample modules and are intended to be taken as such. Any survey effort that makes use of the modules presented here should adapt the module to suit the local specificity of the context in which the survey is being undertaken. For example, fish species and types of fish packaging will vary across regions within a given country and/or across countries, such that the corresponding codes in the questionnaires should be adapted to the local context. The respondent for the modules should be the household member that is deemed to be the most knowledgeable regarding household fishery activities.

Standard Questionnaire

MODULE A: FISHERIES CALENDAR

A1. This is a community-oriented question that asks the respondent to define the fishing season months. Enumerators should ensure that the individual responds on the basis of common practice for the community and not for his/her own specific participation. What is sought is a consensus on the season when fish are more/less available, for example, due to flood cycles or another variable affecting fishing income, such as seasonality in the ability to sun-dry fish for sale, which affects price and market size. Individual answers may reflect the decisions of people with different activity and asset profiles who may engage in fishing on an occasional basis. The identification of a 'high' and 'low' season and its duration will help with scaling up the sample survey results to the community/province/district level.

A2. This question is useful while sifting through the data, as it determines the level of accuracy of the first response. The question also has implications for the length of the interview: if the enumerator answers 'no' to this question, the questionnaire is not to be administered beyond Module E.

A3-A4. These questions establish the respondent to the questionnaire modules and whether he/she is deemed to be the most knowledgeable regarding household fishery activities. There may be scenarios in

which the most knowledgeable household member is not available for the interview, and these instances may have data quality implications that the analyst could try to control for as part of multivariate analyses.

MODULE B: FISHERIES LABOR (LAST HIGH SEASON)

The purpose of this module is to collect detailed information on the type and amount of fishery-related labor provided by household members during the last high season.

Before beginning with B1, question A asks the respondent to list each household member involved in fishery activities during the last high season, including fishing, fish processing or fish trading, full or part time. Household members are identified through their identification code from the household roster administered as part of the Household Questionnaire.

Although the instruction is to administer the questionnaire modules to the most knowledgeable household member, regarding household fishery labor specifically, if individual household members are available to provide information regarding their own activities, they should be probed directly. Towards this end, question B establishes whether or not the individual is responding for him/herself.

B1-B4. B1, B2, B3 and B4 pertain to full-time fishing, part-time fishing, fish processing, and fish trading respectively. Each question solicits labor input at the individual-level, in the form of number of weeks worked during the last high season, number of days per week during those weeks, and number of hours per day during those days. The enumerator should explain the differences between the fishery activities, particularly between fish processing (B3) and fish trading (B4).

MODULE C: FISHERIES INPUTS (LAST HIGH SEASON).

The purpose of this section is to collect information on the household fishery equipment ownership, fishery equipment purchases, operation and associated expenditures during the last high fishing season, and hired labor input and expenditures during the last high fishing season.

The names of fishing equipment are suggestive, hence the survey designer may need to revise the list in accordance with the setting in which the questionnaire will be implemented. It is also recommended that local translations for fishing equipment are included in the questionnaire module.

C1-C3. The primary purpose of these questions is to establish the household fishery equipment stock (i.e. the number of each type of equipment) and its value as reported by the respondent. The information complements the data collected on the ownership of durable and farm assets as part of the larger household survey. The answer to C3 is recorded in local currency.

C4-C5. These questions inquire about the purchases of household fishing equipment and associated expenditures during the last high fishing season. The answers to C5 are recorded in local currency.

C6. This question establishes the fishing equipment operated by the household during the last high fishing season, conditional on which the subsequent questions on expenditures are asked. It is important to collect information about all fishing gear and boats used by the household, as different gear are frequently used to catch different fish species.

C7-C9. These questions are aimed at estimating the total costs associated with the use of the household fishing equipment during the last high fishing season, which should be incorporated into the net revenue calculations. C7 is used to determine the variable costs of operating boats/engines specifically. The answers to C7 can also help the researcher to infer the opportunity cost for purchasing, renting, and/or operating a boat.

C10-C29. These questions provide data on hired labor input and associated cash and in-kind costs during the last high fishing season, eliciting information on formal as well as informal arrangements.

C10. This question determines whether any hired labor was used as part of the fishing activities of the household. If not, the enumerator skips the hired labor section and moves to C20 to inquire about other costs.

C11. The question asks the enumerator to first collect information on the number of people hired, followed by information on the amount of time the hired laborers worked. For this kind of question, where various pieces of information are required, the enumerator should be trained to be able to gather the information step by step. Furthermore, the definition of 'hired labor' must be made clear. This question is also useful in gathering information on child labor.

Note: this questionnaire does not differentiate between men and women. However, in contexts where gender issues are of concern, the questionnaire should be modified appropriately to differentiate between men, women, and children.

C12. This question asks about workers' income as a fixed wage (i.e. regardless of the output).

C13, C17. These questions capture cash earnings of hired labor. The enumerator should encourage the respondent to talk about the last payment to increase the accuracy of this measure. The amount paid will not necessarily be the same for each of the workers. The enumerator should use as many rows as necessary. Question C17 is part of a set of questions on variable earnings.

C15, C19. These questions provide more information on in-kind payments to hired labor, either as fish as a share of the boat catch (C15) or other in-kind compensation (C19). Soliciting comprehensive information on in-kind payments is necessary for accurate net revenue calculations. C15 requires the enumerator to use local packaging units instead of standardized measures, which should be identified during the module design process. In case the respondent cannot provide a detailed response for each hired worker, the enumerator should ask the respondent to give a global estimate of the quantity shared per week and then calculate the share for each worker. For proper administration of C19, qualitative research should be done to determine the most important types of in-kind payments in the surveyed region.

C20. This question determines whether the household bears other costs. If there are none, the enumerator can skip to Module D.

C21. This question identifies the nature of the other costs borne by the household during the last high season. Enumerators write out descriptions and the responses are coded during the analytical phase.

C22. This question determines the amount of expenses for other items that were not quantified in the previous questions. The respondent can choose the temporal unit with which to respond.

MODULE D: FISHERIES OUTPUT (LAST HIGH SEASON)

Most fisheries catch numerous species of fish, each with its own market price. Enumerators should fill out one line for each type of fish species landed during the last high fishing season. Questions have been split into four sections: overview of the fish catch, sales, consumption, and gear rented out. This distinctive split makes it easier for the enumerator to calculate and to check that the answers, which are almost entirely quantitative, make sense. It also better guides the respondent in understanding and responding to the questions.

D1. This question asks the enumerator to check whether any household member was involved in fishing during the time period, which then determines whether the extensive set of questions on catch and sell should be administered.

D2. This question asks the respondent to identify the fish species that were the most caught/landed by the household. Qualitative research and pretesting should be used to refine the list of potential answers.

D3. This question measures how the time dedicated to fish landing is valued (refers to question B2). Household members may combine time with other tasks.

D4, D6 and D8. Each fish species is displayed and processed differently. For each of these questions, the enumerator needs to find out how each fish species is displayed and how it is processed. Allow up to a maximum of two common types of processing.

D5. The question asks the enumerator to calculate numbers to which he/she will refer in question D7 while verifying that the respondent understands the questions and does not have problems dealing with different temporal units.

D11. The fish consumption by the household is valued at the local market prices and is a cost when calculating the net income. Questions on consumption are also important for providing information on sources of and access to food and nutrients, which can then be linked to the consumption module of the household survey.

D12. Fisher families frequently keep and consume low value fish. This question determines whether the household is engaged in full-subsistence fishing, i.e. consuming the entire amount of fish caught.

D13. This question asks the enumerator to verify that the answers given previously are consistent. D4 should be equivalent to D8 + D11. If the answer is no, the reason for the discrepancy should be explained by the respondent and written down by the enumerator in the space provided.

D14-D16. These questions elicit information on household income earned by the rental of fishing gear during the last high fishing season.

MODULE E: FISH TRADING (LAST HIGH SEASON)

These questions solicit information on market activities not related to household capture. This is the last module of the questionnaire for the high fishing season reference period. In this module, the enumerators fill out one line for each fish species traded by any member of the household.

E1-E2. These questions are similar to questions D1 and D2. If the response to question B4 is zero, then the enumerator skips to question E8.

E3-E4. These questions ask about the fishing business activities of the respondent's household, eliciting data on fish purchased and sold during the last high season on a weekly basis. Researchers need the price and quantity of fish traded in order to measure the respondent's household average earnings from fish trading.

E5. This question asks the enumerator to check whether the figures given in E3 and E4 make sense. If the figures in E4 are smaller than those in E3, the respondent is asked to give an explanation. The enumerator writes the answer down to be coded later. This kind of question is necessary to conduct a rigorous analysis of the data collected.

E6. This question provides additional information on the costs of fish trading. The enumerator may assist the respondent by giving examples if necessary.

E7. This question is placed here as it avoids asking the question twice for those households that are involved in fish trading as well as fish processing. For 'hired labor' it asks the respondent to summarize the detailed responses s/he gave in Module C. This is also another way to check that the responses given previously are consistent and can also serve as an indicator of respondent fatigue.

F8. This question determines whether the respondent should be asked the questions concerning the last low season reference period covered in Modules F through I. If not, the questionnaire ends.

MODULES F through I (LAST LOW SEASON)

These modules collect data using the last low fishing season as the reference period. However, they are essentially replicas of the modules for the last high fishing season, thus the annotations above apply to them as well.

Expanded Questionnaire

As noted above, the expanded questionnaire consists of the modules included in the standard questionnaire, a number of additional questions to Modules D, E, H and I, and two additional modules that are not included in the standard questionnaire. The instrument is designed to allow the researcher to better understand the motivation and constraints associated with household fishery activities. The comments below are for questions that appear only in the expanded questionnaire.

MODULE D: FISHERIES OUTPUT (LAST HIGH SEASON)

D17. This question determines whether or not the household reinvests in fishing or uses the income for other household expenses.

D18. The purpose of this question is to understand the importance of selling fish and/or renting gear in helping the household meet their basic needs and/or improve their well-being. The enumerator asks the respondent to rank up to four responses in order of importance.

MODULE E: FISH TRADING (LAST HIGH SEASON)

E8. This question is similar to question D17, except in that it refers to money earned from fish trading exclusively.

E9. The purpose of this question is to understand the importance of purchasing and re-selling fish in helping the household to meet their basic needs and/or improve their well-being. The enumerator asks the respondent to rank up to four responses in order of importance.

MODULES H through I (LAST LOW SEASON)

These modules collect data using the last low fishing season as the reference period. However, they are essentially replicas of the modules for the last high fishing season, thus the annotations above apply to them as well.

MODULE J: FISHERIES IN AND OUT

This module looks at the movement of household members in and out of fishing. In this section, enumerators should directly address the questions to individual household members to get better

responses. Enumerators should fill out a row for every household member listed in questions B1 and B2. This section asks more detailed questions on the motives of household members entering or exiting the fishing sector.

J1-J4. These questions determine whether the members of the household that were involved in fishing during the last high fishing season were already involved in fishing during the previous high fishing season. The purpose of these questions is to know if employment in fishing has changed over time.

J5. The aim of this question is to understand why household members involved in fishing made the decision to begin fishing.

J6. In answering this question, the enumerator determines whether the next question should be administered or not.

J7. This question describes the sources of capital for buying equipment assets, which indicates whether capital is generated from within the sector or if the sector is essentially sustained by capital from other sources. In the context of over-capitalization of fisheries, this information can help researchers understand how such over-capitalization can be addressed.

J8-J11. These questions are used to investigate how household members perceive fishing activities. Reasons for wishing to quit fishing and/or to not see one's children entering these activities can include the difficulty of the job, limited earnings, time, physical health, or the state of the resource. These issues are important in the context of concern for the over-exploitation and unsustainability of fisheries. Designers of programs meant to reduce overcapacity in fisheries can benefit from knowing the attitudes, perceptions and preferences of fisherfolk in regards to their current occupation and its future.

J12. Gathering information on other household members that are no longer involved in fishing is useful for analyzing the motives of members currently involved in fishing and wishing to stop. If the response to this question is negative, then the enumerator shifts to Module K.

J13-J15. These questions first ask the enumerator to identify and code the other household members that are no longer involved in fishing. Second, they determine the explanatory variables of withdrawing from fishing.

MODULE K: FISH STOCK STATUS

The module aims at assessing the current state of the fish resource for the high and low fishing seasons. The enumerator should fill out one row for each fish species the respondent identified as landing in question D2. This section also describes the sector five years ago during the high fishing season.

K2. This question is used to establish the fish species mentioned in part D that will be discussed in the questions that follow.

K3. This question asks the enumerator to remind the respondent about his/her previous responses given in question D6. In addition to saying “five years ago”, the enumerator should help the respondent by giving the exact year he/she is referring to. Questions K2 and K3 help identify fish catch fluctuations.

K4. This question qualifies the stock of the fishery resource. The enumerator needs to adjust the question depending on the responses given in K2 and K3. This means he/she has to check whether landings five years ago were higher or lower than those in the current year. If there were no changes between the two time periods, the enumerator shifts to question K6.

K5. This question helps the researcher obtain an improved understanding of the reasons that the figures in questions K2 and K3 don’t match. The enumerator needs to guide the respondent in providing up to two main reasons to explain these differences.

K6. In answering this question, the enumerator determines whether to administer the next set of questions. If the answer to question F1 and/or F2 was negative, then the questionnaire ends.

K7-K10. This is a subset of questions K2-K5. The corresponding comments above also apply to these questions.



**Design and Implementation of Fishery Modules
in Integrated Household Surveys in Developing Countries**

**Annex 2:
Standard Fishery Questionnaire**

May 2012

MODULE A: FISHERIES CALENDAR

ENUMERATOR: MAKE SURE THAT THE RESPONDENT ANSWERS THE FOLLOWING QUESTIONS BELOW BASED ON THE ENTIRE COMMUNITY'S SITUATION, NOT ON HIS OWN INDIVIDUAL EXPERIENCE.

1. In your community, among people who fish, which are the HIGH season months?
 Which months are the LOW season months?
 And in which months is there almost no fishing?

ENUMERATOR: RECORD STATUS OF EACH MONTH AS H (HIGH), L (LOW) OR N (NO FISHING).

IF THE RESPONDENT CLAIMS THAT THERE ARE NO DISTINCT HIGH VS. LOW SEASON MONTHS, RECORD H (HIGH) FOR MONTHS IN WHICH ANY FISHING TAKES PLACE AND ONLY ADMINISTER THE HIGH-SEASON RELATED MODULES.

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec

2. ENUMERATOR: FOR THE MONTHS THAT ANY FISHING TOOK PLACE IN THE COMMUNITY, WAS THE RESPONDENT ABLE TO DISTINGUISH BETWEEN HIGH VS. LOW SEASON MONTHS?

YES...1 NO...2	<input style="width: 15px; height: 15px;" type="checkbox"/>
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3. ENUMERATOR: WHAT IS THE HOUSEHOLD ROSTER ID CODE OF THE HOUSEHOLD MEMBER THAT IS RESPONDING TO THIS QUESTIONNAIRE?

HH ROSTER
ID CODE

4. ENUMERATOR: IN YOUR DISCUSSIONS WITH THE HOUSEHOLD, HAS THE RESPONDENT BEEN IDENTIFIED AS THE HOUSEHOLD MEMBER MOST KNOWLEDGEABLE ABOUT FISHERY ACTIVITIES?

YES...1 NO...2	<input style="width: 15px; height: 15px;" type="checkbox"/>
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MODULE C: FISHERIES INPUT (LAST HIGH SEASON)

PART A: FISHING EQUIPMENT										
GEAR ID	FISHING EQUIPMENT	1.	2.	3.	4.	5.	6.	7.	8.	9.
		How many [FISHING EQUIPMENT] does your household currently own? IF NONE, ENTER ZERO, >> 4.	What is the age of [FISHING EQUIPMENT] owned by your household? IF MORE THAN ONE, ASK FOR THE COMBINED AGE OF ALL [FISHING EQUIPMENT].	If you wanted to sell [FISHING EQUIPMENT] owned by your household today, how much would you receive? IF MORE THAN ONE, ASK FOR THE COMBINED VALUE OF ALL [FISHING EQUIPMENT].	How many [FISHING EQUIPMENT] did your household purchase during the last HIGH fishing season for immediate use? IF NONE, ENTER ZERO, >> 6.	How much did your household pay for all [FISHING EQUIPMENT] purchased during the last HIGH fishing season? IF MORE THAN ONE, ASK FOR THE COMBINED PURCHASE VALUE OF ALL [FISHING EQUIPMENT].	How many [FISHING EQUIPMENT] were operated during the last HIGH fishing season, regardless of ownership status? IF NONE, ENTER ZERO, >> NEXT FISHING EQUIPMENT	What were the costs of fuel, oil and maintenance (altogether) per week for [FISHING EQUIPMENT] operated during the last HIGH fishing season? ASKED ONLY OF ENGINES/BOATS.	How many [FISHING EQUIPMENT] were rented in during the last HIGH fishing season, regardless of ownership status? IF NONE, ENTER ZERO, >> NEXT FISHING EQUIPMENT	How much did your household pay to rent [FISHING EQUIPMENT] for use during the last HIGH fishing season? (THEN >> NEXT FISHING EQUIPMENT)
		NUMBER OWNED	AGE (YEARS)	VALUE (CURRENCY)	NUMBER PURCHASED	VALUE (CURRENCY)	NUMBER OPERATED	COST (CURRENCY / BOAT / WEEK)	NUMBER RENTED IN	CURRENCY
1	Dugout									
2	Plank boat									
3	Outboard engine									
4	Mosquito net									
5	Beach seine									
6	Long hand line									
7	Gill net									
8	Fish traps									
9	Cast net									
10	Other, specify _____									

MODULE C: FISHERIES INPUT (LAST HIGH SEASON)

<p>16. As part of the remuneration for hired workers, did you pay these hired workers with cash as a share of the boat benefit during the last HIGH fishing season?</p> <p>YES..1 NO...2 >> 18</p>		<p>17. On average per week, what share of the boat revenue did you pay to each hired worker as a salary during the last HIGH fishing season?</p>		<p>18. During the last HIGH fishing season, did you pay the hired workers any other in-kind benefit such as meals, cigarettes, etc.?</p> <p>YES..1 NO...2 >> 20</p>		<p>19. On average per week, what was the cash value of any in-kind benefit such as meals, cigarettes, etc., that you paid to each hired worker during the last HIGH fishing season?</p> <p>ENUMERATOR: ESTIMATE WITH THE RESPONDENT THE CASH VALUE OF IN-KIND BENEFIT / WEEK / WORKER.</p>	
CODE	ADULT: SHARE (CURRENCY / WEEK)	CHILD: SHARE (CURRENCY / WEEK)	CODE	ADULT: CURRENCY / ADULT / WEEK	CHILD: CURRENCY / CHILD / WEEK		

PART C: OTHER COSTS			
<p>20. Have there been other types of costs related to fishing activities during the last HIGH fishing season?</p> <p>EXCLUDE PURCHASES/ RENTALS OF FISHING GEAR / BOATS/ ENGINES, EXPENDITURES FOR HIRED LABOR, AND COSTS ASSOCIATED WITH FISH TRADING ACTIVITIES.</p> <p>YES..1 NO..2 >> NEXT MODULE</p>		<p>21. What were these costs for?</p>	
<p>22. What was the total expense for these other types of costs during the HIGH fishing season?</p> <p>UNIT WEEK.....1 SEASON...2</p>			
CODE	TEXT DESCRIPTION	CURRENCY	UNIT CODE

MODULE D: FISHERIES OUTPUT (LAST HIGH SEASON)

PART B: FISHING GEAR RENTED OUT

		<p>14. During the last HIGH fishing season, did your household rent out any [GEAR] to other fishers?</p> <p>YES..1 NO...2 >> NEXT GEAR</p>	<p>15. How many [GEAR] did your household rent out during the last HIGH fishing season?</p>	<p>16. For how much in TOTAL did your household rent these [GEAR] out to other fishers during the last HIGH fishing season?</p> <p>(THEN >> NEXT GEAR)</p>
	GEAR	CODE	NUMBER OF UNITS	CURRENCY
1.	Mosquito net			
2.	Beach seine			
3.	Long hand line			
4.	Gill net			
5.	Fish traps			
6.	Cast net			

MODULE E: FISH TRADING (LAST HIGH SEASON)

<p>5. ENUMERATOR: ARE THE SELLING PRICES IN QUESTION 4 GREATER THAN THE BUYING PRICES IN QUESTION 3? IF NOT, ASK THE RESPONDENT TO ADJUST HIS/HER ESTIMATION AND INDICATE BELOW THE REASON FOR THE INITIAL ERROR YES, THE FIGURES MATCHED...1 NO, THE ENTRIES WERE ADJUSTED...2</p>	<p>COST ITEM</p>	<p>6. Did your household have any costs for [COST ITEM] in relation to your fish trading activities during the last HIGH season? YES..1 NO...2 >> NEXT COST ITEM</p>	<p>7. How much did your household have to pay for [COST ITEM] on a weekly basis during the last HIGH season? (THEN >> NEXT COST ITEM)</p>	<p>8. ENUMERATOR: REFER TO MODULE A: FISHERIES CALENDAR. IS THE ANSWER TO QUESTION 2 "YES"? YES..1 >> NEXT MODULE NO...2 >> END OF QUESTIONNAIRE</p>
<p>CODE</p>		<p>CODE</p>	<p>AMOUNT (CURRENCY / WEEK)</p>	<p>CODE</p>
<p>TEXT:</p>	<p>1. Hired Labor</p>			
	<p>2. Transport</p>			
	<p>3. Packaging</p>			
	<p>4. Ice</p>			
	<p>5. Tax</p>			
	<p>6. Other (Specify) _____</p>			

MODULE G: FISHERIES INPUT (LAST LOW SEASON)

PART C: OTHER COSTS			
<p>17. Have there been other types of costs related to fishing activities during the last LOW fishing season?</p> <p>EXCLUDE PURCHASES/ RENTALS OF FISHING GEAR / BOATS/ ENGINES, EXPENDITURES FOR HIRED LABOR, AND COSTS ASSOCIATED WITH FISH TRADING ACTIVITIES.</p> <p>YES . 1 NO . 2 >> NEXT MODULE</p>	<p>18. What were these costs for?</p>	<p>19. What was the total expense for these other types of costs during the LOW fishing season?</p> <p style="text-align: right;">UNIT WEEK 1 SEASON . . . 2</p>	
CODE	TEXT DESCRIPTION	CURRENCY	UNIT CODE

MODULE H: FISHERIES OUTPUT (LAST LOW SEASON)

PART B: FISHING GEAR RENTED OUT

		<p>14. During the last LOW fishing season, did your household rent out any [GEAR] to other fishers?</p> <p>YES..1 NO...2 >> NEXT GEAR</p>	<p>15. How many [GEAR] did your household rent out during the last LOW fishing season?</p>	<p>16. For how much in TOTAL did your household rent these [GEAR] out to other fishers during the last LOW fishing season?</p> <p>(THEN >> NEXT GEAR)</p>
	GEAR	CODE	NUMBER OF UNITS	CURRENCY
1.	Mosquito net			
2.	Beach seine			
3.	Long hand line			
4.	Gill net			
5.	Fish traps			
6.	Cast net			

MODULE I: FISH TRADING (LAST LOW SEASON)

<p>1. ENUMERATOR: CHECK MODULE B. WERE ANY HOUSEHOLD MEMBERS ENGAGED IN FISH TRADING IN THE LAST LOW SEASON?</p> <p>YES..1 NO...2 >> END OF QUESTIONNAIRE</p>	<p>2. Please list up to five main species of fish that you or any member of your household sold as part of your fish trading business.</p> <p>COUNTRY SPECIFIC LIST OF FISH SPECIES NAMES AND ASSOCIATED CODES SHOULD BE INSERTED HERE</p>	<p>3. During the last LOW fishing season, how much [FISH SPECIES] did you or any member of your household purchase from other fishers and/or fish processors on average per week as part of your fish trade business?</p> <p>During the weeks of operation, what was the average buying price per packaging unit?</p> <p>ENTER AMOUNTS FOR UP TO TWO DIFFERENT TYPES OF PROCESSING. LEAVE TYPE 2 BLANK IF ONLY ONE TYPE OF PROCESSING.</p> <p>CODES FOR FISH PACKAGING: CODES FOR PROCESSING:</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> PIECE1 DOZEN.....2 KILOGRAM.....3 5 KG BAG.....4 10 KG BAG.....5 25 KG BAG.....6 SMALL BASKET...7 LARGE BASKET...8 OTHER (SPECIFY) .9 </td> <td style="width:50%; border: none;"> FRESH.....1 SUN-DRIED..2 SMOKED.....3 ICED.....4 OTHER (SPECIFY) .5 </td> </tr> </table>				PIECE1 DOZEN.....2 KILOGRAM.....3 5 KG BAG.....4 10 KG BAG.....5 25 KG BAG.....6 SMALL BASKET...7 LARGE BASKET...8 OTHER (SPECIFY) .9	FRESH.....1 SUN-DRIED..2 SMOKED.....3 ICED.....4 OTHER (SPECIFY) .5	<p>4. During the last LOW fishing season, how much [FISH SPECIES] did you or any member of sell on average per week as part of your fish trade business?</p> <p>During the weeks of operation, what was the average selling price per packaging unit?</p> <p>ENTER AMOUNTS FOR UP TO TWO DIFFERENT TYPES OF PROCESSING. LEAVE TYPE 2 BLANK IF ONLY ONE TYPE OF PROCESSING.</p> <p>CODES FOR FISH PACKAGING: CODES FOR PROCESSING:</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> PIECE1 DOZEN.....2 KILOGRAM.....3 5 KG BAG.....4 10 KG BAG.....5 25 KG BAG.....6 SMALL BASKET...7 LARGE BASKET...8 OTHER (SPECIFY) .9 </td> <td style="width:50%; border: none;"> FRESH.....1 SUN-DRIED..2 SMOKED.....3 ICED.....4 OTHER (SPECIFY) .5 </td> </tr> </table>				PIECE1 DOZEN.....2 KILOGRAM.....3 5 KG BAG.....4 10 KG BAG.....5 25 KG BAG.....6 SMALL BASKET...7 LARGE BASKET...8 OTHER (SPECIFY) .9	FRESH.....1 SUN-DRIED..2 SMOKED.....3 ICED.....4 OTHER (SPECIFY) .5				
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PIECE1 DOZEN.....2 KILOGRAM.....3 5 KG BAG.....4 10 KG BAG.....5 25 KG BAG.....6 SMALL BASKET...7 LARGE BASKET...8 OTHER (SPECIFY) .9	FRESH.....1 SUN-DRIED..2 SMOKED.....3 ICED.....4 OTHER (SPECIFY) .5																
CODE	FISH SPECIES CODE	PROCESSING TYPE # 1				PROCESSING TYPE # 2				PROCESSING TYPE # 1				PROCESSING TYPE # 2			
		QUANTITY	PACKAGING CODE	PROCESSING CODE	PRICE (CURRENCY)	QUANTITY	PACKAGING CODE	PROCESSING CODE	PRICE (CURRENCY)	QUANTITY	PACKAGING CODE	PROCESSING CODE	PRICE (CURRENCY)	QUANTITY	PACKAGING CODE	PROCESSING CODE	PRICE (CURRENCY)
1																	
2																	
3																	
4																	
5																	

MODULE I: FISH TRADING (LAST LOW SEASON)

<p>5. ENUMERATOR: ARE THE SELLING PRICES IN QUESTION 4 GREATER THAN THE BUYING PRICES IN QUESTION 3? IF NOT, ASK THE RESPONDENT TO ADJUST HIS/HER ESTIMATION AND INDICATE BELOW THE REASON FOR THE INITIAL ERROR YES, THE FIGURES MATCHED...1 NO, THE ENTRIES WERE ADJUSTED...2</p>		<p>6. Did your household have any costs for [COST ITEM] in relation to your fish trading activities during the last LOW season? YES...1 NO...2 >> NEXT COST ITEM</p>	<p>7. How much did your household have to pay for [COST ITEM] on a weekly basis during the last LOW season? (THEN >> NEXT COST ITEM)</p>
<p>CODE</p>		<p>COST ITEM</p>	<p>CODE</p>
<p>TEXT:</p>	<p>1. Hired Labor</p> <p>2. Transport</p> <p>3. Packaging</p> <p>4. Ice</p> <p>5. Tax</p> <p>6. Other (Specify)</p>		



Design and Implementation of Fishery Modules in Integrated Household Surveys in Developing Countries

Annex 3:

Expanded Fishery Questionnaire

May 2012

MODULE A: FISHERIES CALENDAR

ENUMERATOR: MAKE SURE THAT THE RESPONDENT ANSWERS THE FOLLOWING QUESTIONS BELOW BASED ON THE ENTIRE COMMUNITY'S SITUATION, NOT ON HIS OWN INDIVIDUAL EXPERIENCE.

1. In your community, among people who fish, which are the HIGH season months?
 Which months are the LOW season months?
 And in which months is there almost no fishing?

ENUMERATOR: RECORD STATUS OF EACH MONTH AS H (HIGH), L (LOW) OR N (NO FISHING).

IF THE RESPONDENT CLAIMS THAT THERE ARE NO DISTINCT HIGH VS. LOW SEASON MONTHS, RECORD H (HIGH) FOR MONTHS IN WHICH ANY FISHING TAKES PLACE AND ONLY ADMINISTER THE HIGH-SEASON RELATED MODULES.

Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec

2. ENUMERATOR: FOR THE MONTHS THAT ANY FISHING TOOK PLACE IN THE COMMUNITY, WAS THE RESPONDENT ABLE TO DISTINGUISH BETWEEN HIGH VS. LOW SEASON MONTHS?

YES...1 NO...2	<input style="width: 15px; height: 15px;" type="checkbox"/>
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3. ENUMERATOR: WHAT IS THE HOUSEHOLD ROSTER ID CODE OF THE HOUSEHOLD MEMBER THAT IS RESPONDING TO THIS QUESTIONNAIRE?

HH ROSTER
ID CODE

4. ENUMERATOR: IN YOUR DISCUSSIONS WITH THE HOUSEHOLD, HAS THE RESPONDENT BEEN IDENTIFIED AS THE HOUSEHOLD MEMBER MOST KNOWLEDGEABLE ABOUT FISHERY ACTIVITIES?

YES...1 NO...2	<input style="width: 15px; height: 15px;" type="checkbox"/>
-------------------	---

MODULE C: FISHERIES INPUT (LAST HIGH SEASON)

<p>16. As part of the remuneration for hired workers, did you pay these hired workers with cash as a share of the boat benefit during the last HIGH fishing season?</p> <p>YES...1 NO...2 >> 18</p>						<p>17. On average per week, what share of the boat revenue did you pay to each hired worker as a salary during the last HIGH fishing season?</p>		<p>18. During the last HIGH fishing season, did you pay the hired workers any other in-kind benefit such as meals, cigarettes, etc.?</p> <p>YES...1 NO...2 >> 20</p>		<p>19. On average per week, what was the cash value of any in-kind benefit such as meals, cigarettes, etc., that you paid to each hired worker during the last HIGH fishing season?</p> <p>ENUMERATOR: ESTIMATE WITH THE RESPONDENT THE CASH VALUE OF IN-KIND BENEFIT / WEEK / WORKER.</p>	
CODE	ADULT: SHARE (CURRENCY / WEEK)	CHILD: SHARE (CURRENCY / WEEK)	CODE	ADULT: CURRENCY / ADULT / WEEK	CHILD: CURRENCY / CHILD / WEEK						

<p>PART C: OTHER COSTS</p>			
<p>20. Have there been other types of costs related to fishing activities during the last HIGH fishing season?</p> <p>EXCLUDE PURCHASES/ RENTALS OF FISHING GEAR / BOATS/ ENGINES, EXPENDITURES FOR HIRED LABOR, AND COSTS ASSOCIATED WITH FISH TRADING ACTIVITIES.</p> <p>YES . 1 NO . . 2 >> NEXT MODULE</p>		<p>21. What were these costs for?</p>	
<p>22. What was the total expense for these other types of costs during the HIGH fishing season?</p> <p><u>UNIT</u> WEEK 1 SEASON . . . 2</p>			
CODE	TEXT DESCRIPTION	CURRENCY	UNIT CODE

MODULE D: FISHERIES OUTPUT (LAST HIGH SEASON)

FISH CAUGHT ID		CONSUMPTION						
		9. For how many weeks did you sell [FISH SPECIES] during the last HIGH fishing season?	10. ENUMERATOR: IS THE NUMBER OF WEEKS IN QUESTION 9 DIFFERENT FROM THE NUMBER OF WEEKS IN QUESTION 3? IF DIFFERENT, ASK THE RESPONDENT FOR THE REASON FOR DISCREPANCY BETWEEN THE TWO NUMBERS. YES....1 NO.....2	11. How much [FISH SPECIES] caught by you and/or other members of your household during the last HIGH fishing season were kept <u>on average per week</u> for household consumption? ENTER AMOUNTS FOR UP TO TWO DIFFERENT TYPES OF PROCESSING. LEAVE TYPE 2 BLANK IF ONLY ONE TYPE OF PROCESSING. <u>CODES FOR FISH PACKAGING:</u> PIECE1 DOZEN.....2 KILOGRAM.....3 5 KG BAG.....4 10 KG BAG.....5 25 KG BAG.....6 SMALL BASKET...7 LARGE BASKET...8 OTHER (SPECIFY)9			12. Overall, during the last HIGH fishing season, how much [FISH SPECIES] did you keep for your own family consumption (in proportion)? READ RESPONSES Almost none.1 1/4.....2 1/2.....3 3/4.....4 Almost all..5	
NUMBER OF WEEKS	CODE	PROCESSING TYPE # 1			PROCESSING TYPE # 2		CODE	
		QUANTITY CONSUMED	PACKAGING CODE	PROCESSING CODE	QUANTITY CONSUMED	PACKAGING CODE	PROCESSING CODE	
1.								
2.	TEXT:						TEXT:	
3.								
4.								
5.								

MODULE D: FISHERIES OUTPUT (LAST HIGH SEASON)

PART B: FISHING GEAR RENTED OUT

GEAR	CODE	NUMBER OF UNITS	CURRENCY
14. During the last HIGH fishing season, did your household rent out any [GEAR] to other fishers?		15. How many [GEAR] did your household rent out during the last HIGH fishing season?	16. For how much in TOTAL did your household rent these [GEAR] out to other fishers during the last HIGH fishing season?
YES..1 NO...2 >> NEXT GEAR			(THEN >> NEXT GEAR)
1. Mosquito net			
2. Beach seine			
3. Long hand line			
4. Gill net			
5. Fish traps			
6. Cast net			

RE-INVESTING FISHING MONEY

CODE	CODE
17. Do you try to use the money generated through the fish-selling and/or the gear-renting for particular purposes or for specific house-related expenses?	18. What do you use the money generated by your fisheries activity during the HIGH season in priority for?
YES..1 NO...2 >> NEXT MODULE	ENUMERATOR: IF THE RESPONDENT INDICATES SEVERAL USES, ASK HIM/HER TO RANK THEM FROM THE HIGHER PRIORITY TO THE LEAST IMPORTANT TO BUY NEW FISHING GEAR...1 TO BUY FARMING INPUTS (FERTILIZERS, SEEDS).....2 TO PAY HIRED WORKERS.....3 TO BUY FOOD.....4 TO PAY SCHOOL FEES.....5 TO PAY MEDICATION AND VISITS TO HEALTH CENTER...6 TO BUY HOUSE GOODS7 OTHER (SPECIFY).....8 I DON'T KNOW.....9
	1.
	2.
	3.
	4.

MODULE E: FISH TRADING (LAST HIGH SEASON)

<p>5. ENUMERATOR: ARE THE SELLING PRICES IN QUESTION 4 GREATER THAN THE BUYING PRICES IN QUESTION 3?</p> <p>IF NOT, ASK THE RESPONDENT TO ADJUST HIS/HER ESTIMATION AND INDICATE BELOW THE REASON FOR THE INITIAL ERROR</p> <p>YES, THE FIGURES MATCHED...1</p> <p>NO, THE ENTRIES WERE ADJUSTED...2</p>		<p>6. Did your household have any costs for [COST ITEM] in relation to your fish trading activities during the last HIGH season?</p> <p>YES...1 NO...2 >> NEXT COST ITEM</p>	<p>7. How much did your household have to pay for [COST ITEM] on a weekly basis during the last HIGH season?</p> <p>(THEN >> NEXT COST ITEM)</p>
		<p>CODE</p>	<p>CODE</p>
<p>TEXT:</p>	<p>1. Hired Labor</p> <p>2. Transport</p> <p>3. Packaging</p> <p>4. Ice</p> <p>5. Tax</p> <p>6. Other (Specify)</p>		

RE-INVESTING FISH TRADING MONEY

<p>8. Do you try to use the money generated through the fish-trading for particular purposes or for specific house-related expenses?</p> <p>YES...1 NO...2 >> 10</p>	<p>9. What do you use the money generated by fish trading during the HIGH fishing season in priority for?</p> <p>ENUMERATOR: IF THE RESPONDENT INDICATES SEVERAL USES, ASK HIM/HER TO RANK THEM FROM THE HIGHER PRIORITY TO THE LEAST IMPORTANT</p> <p>TO BUY NEW FISHING GEAR...1 TO BUY FARMING INPUTS (FERTILIZERS, SEEDS)...2 TO PAY HIRED WORKERS...3 TO BUY FOOD...4 TO PAY SCHOOL FEES...5 TO PAY MEDICATION AND VISITS TO HEALTH CENTER...6 TO BUY HOUSE GOODS...7 OTHER (SPECIFY)...8 I DON'T KNOW...9</p> <p>YES...1 NO...2 >> 10</p>	<p>10. ENUMERATOR: REFER TO MODULE B: FISHERIES CALENDAR.</p> <p>IS THE ANSWER TO QUESTION 2 "YES"?</p> <p>YES...1 >> NEXT MODULE NO...2 >> MODULE J (FISHERY IN & OUT)</p>
<p>CODE</p>	<p>CODE</p>	<p>YES/NO</p>
	<p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p>	

MODULE G: FISHERIES INPUT (LAST LOW SEASON)

PART C: OTHER COSTS			
<p>17. Have there been other types of costs related to fishing activities during the last LOW fishing season?</p> <p>EXCLUDE PURCHASES/ RENTALS OF FISHING GEAR / BOATS/ ENGINES, EXPENDITURES FOR HIRED LABOR, AND COSTS ASSOCIATED WITH FISH TRADING ACTIVITIES.</p> <p>YES . 1 NO . 2 >> NEXT MODULE</p>	<p>18. What were these costs for?</p>	<p>19. What was the total expense for these other types of costs during the LOW fishing season?</p> <p style="text-align: right;">UNIT WEEK 1 SEASON . . . 2</p>	
CODE	TEXT DESCRIPTION	CURRENCY	UNIT CODE

MODULE H: FISHERIES OUTPUT (LAST LOW SEASON)

PART B: FISHING GEAR RENTED OUT

GEAR	CODE	NUMBER OF UNITS	CURRENCY
1. Mosquito net			
2. Beach seine			
3. Long hand line			
4. Gill net			
5. Fish traps			
6. Cast net			

RE-INVESTING FISHING MONEY

CODE	USES OF FISH MONEY
1.	
2.	
3.	
4.	

14. During the last LOW fishing season, did your household rent out any [GEAR] to other fishers?

YES..1
NO...2 >>
NEXT GEAR

15. How many [GEAR] did your household rent out during the last LOW fishing season?

16. For how much in TOTAL did your household rent these [GEAR] out to other fishers during the last LOW fishing season?

(THEN >> NEXT GEAR)

17. Do you try to use the money generated through the fish-selling and/or the gear-renting for particular purposes or for specific house-related expenses?

YES..1
NO...2 >> NEXT MODULE

18. What do you use the money generated by your fisheries activity during the LOW season in priority for?

ENUMERATOR: IF THE RESPONDENT INDICATES SEVERAL USES, ASK HIM/HER TO RANK THEM FROM THE HIGHER PRIORITY TO THE LEAST IMPORTANT

- TO BUY NEW FISHING GEAR...1
- TO BUY FARMING INPUTS (FERTILIZERS, SEEDS).....2
- TO PAY HIRED WORKERS.....3
- TO BUY FOOD.....4
- TO PAY SCHOOL FEES.....5
- TO PAY MEDICATION AND VISITS TO HEALTH CENTER...6
- TO BUY HOUSE GOODS7
- OTHER (SPECIFY).....8
- I DON'T KNOW.....9

MODULE I: FISH TRADING (LAST LOW SEASON)

<p>5. ENUMERATOR: ARE THE SELLING PRICES IN QUESTION 4 GREATER THAN THE BUYING PRICES IN QUESTION 3? IF NOT, ASK THE RESPONDENT TO ADJUST HIS/HER ESTIMATION AND INDICATE BELOW THE REASON FOR THE INITIAL ERROR YES, THE FIGURES MATCHED...1 NO, THE ENTRIES WERE ADJUSTED...2</p>		<p>6. Did your household have any costs for [COST ITEM] in relation to your fish trading activities during the last LOW season?</p>	<p>7. How much did your household have to pay for [COST ITEM] on a weekly basis during the last LOW season?</p>
		<p>YES...1 NO...2 >> NEXT COST ITEM</p>	<p>(THEN >> NEXT COST ITEM)</p>
CODE	COST ITEM	CODE	AMOUNT (CURRENCY / WEEK)
	1. Hired Labor		
TEXT:	2. Transport		
	3. Packaging		
	4. Ice		
	5. Tax		
	Other (Specify)		
	6. _____		

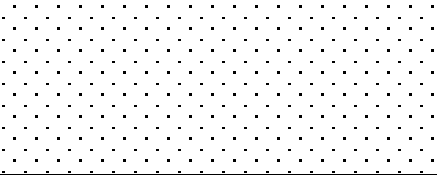
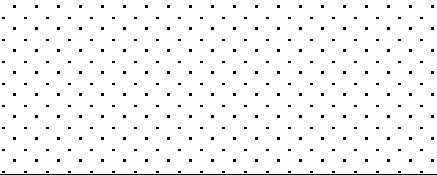
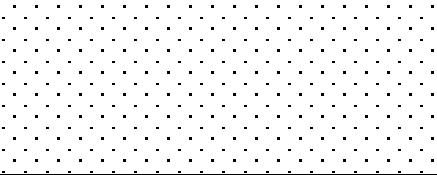
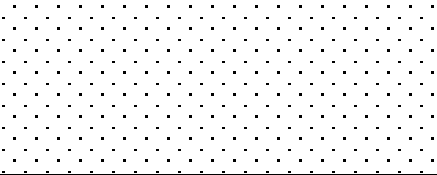
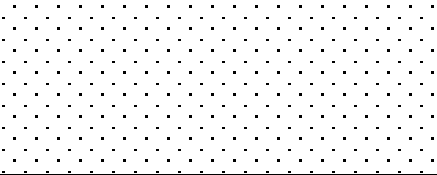
RE-INVESTING FISH TRADING MONEY

<p>8. Do you try to use the money generated through the fish-trading for particular purposes or for specific house-related expenses?</p>	<p>9. What do you use the money generated by fish trading during the LOW fishing season in priority for? ENUMERATOR: IF THE RESPONDENT INDICATES SEVERAL USES, ASK HIM/HER TO RANK THEM FROM THE HIGHER PRIORITY TO THE LEAST IMPORTANT TO BUY NEW FISHING GEAR...1 TO BUY FARMING INPUTS (FERTILIZERS, SEEDS)...2 TO PAY HIRED WORKERS...3 TO BUY FOOD...4 TO PAY SCHOOL FEES...5 TO PAY MEDICATION AND VISITS TO HEALTH CENTER...6 TO BUY HOUSE GOODS...7 OTHER (SPECIFY)...8 I DON'T KNOW...9</p>
<p>YES...1 NO...2 >> NEXT MODULE</p>	
CODE	CODE
	1.
	2.
	3.
	4.

MODULE J: FISHERIES IN & OUT

<p>1. ENUMERATOR: CHECK MODULE B. WERE ANY HOUSEHOLD MEMBERS ENGAGED IN FISHING (Q1 or Q2) IN THE LAST HIGH SEASON?</p> <p>YES..1 NO...2 >> END OF QUESTIONNAIRE</p>	<p>2. ENUMERATOR: PLEASE LIST THE MEMBERS OF THE HOUSEHOLD WHO WERE INVOLVED IN FISHING DURING THE LAST HIGH FISHING SEASON. THIS INCLUDES THOSE FISHING FULL OR PART TIME.</p>	<p>3. Was any household member involved in fishing activities during the last HIGH fishing season already involved in fishing during the previous HIGH fishing season (the year before)?</p> <p>YES..1 NO..2 >> NEXT HH MEMBER</p>	<p>4. For how many years has each household member involved in fishing activities during the last HIGH fishing season been fishing?</p> <p>IF LAST HIGH FISHING SEASON WAS THE FIRST TIME, ENTER 0 FOR THAT SPECIFIC HH MEMBER</p> <p>(THEN >> NEXT HH MEMBER)</p>	<p>5. For each household member involved in fishing, what was the main reason for starting fishing?</p> <p><u>CODES FOR STARTING FISHING:</u></p> <p>MY FARTHER/RELATIVE(S) WERE ALREADY FISHING BEFORE.....1 FISHING BRING MORE MONEY THAN OTHER ACTIVITIES.....2 FISHING IS NOT THE MAIN ACTIVITY BUT IT BRINGS COMPLEMENTARY REVENUES TO MY FAMILY.....3 THERE WAS NO OTHER JOB FOR ME.....4 BECAUSE I DON'T HAVE (ENOUGH) LAND.....5 BECAUSE I NEED CASH TO GET MARRIED / TO PAY FOR MY STUDIES.....6 TO BRING SOME FISH (AS FOOD) FOR MY FAMILY.....7 BECAUSE I LIKE BEING A FISHER.....8 OTHER</p> <p>(THEN >> NEXT HH MEMBER)</p>
CODE	HH ROSTER ID CODE	CODE	NUMBER OF YEARS	MAIN REASON
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

MODULE J: FISHERIES IN & OUT

<p>12. Has any OTHER household member(s) who was NOT fishing during the last HIGH fishing season been fishing in the past?</p> <p>YES...1 NO...2 >> NEXT MODULE</p>	<p>13. ENUMERATOR: PLEASE LIST THE MEMBER(S) OF THE HOUSEHOLD WHO HAD BEEN FISHING IN THE PAST BUT HAVE STOPPED SINCE.</p> <p>START WITH PERSON(S) WHO WERE LISTED IN THE HH ROSTER, THEN USE 101 AND SUCCESSIVE NUMBERS (102, etc.) FOR PERSON(S) WHO WERE NOT LISTED IN THE HH ROSTER.</p>	<p>14. ENUMERATOR: FOR THOSE LISTED 101, 102, ETC., INDICATE THE RELATION TO THE HEAD OF THE HOUSEHOLD.</p> <p>HEAD.1 WIFE/HUSBAND.2 CHILD/ADOPTED CHILD .3 GRANDCHILD.4 NIECE/NEPHEW.5 FATHER/MOTHER6 SISTER/BROTHER. . . .7 SON/DAUGHTER-IN-LAW .8 BROTHER/SISTER-IN-LAW .9 GRANDFATHER/MOTHER. .10 FATHER/MOTHER-IN-LAW.11 OTHER RELATIVE. . . .12 SERVANT OR SERVANT'S RELATIVE13 LODGER/LODGER'S RELATIVE14 OTHER NON-RELATIVE. .15 OTHER (SPECIFY) . . .16</p> <p>(THEN >> NEXT HH MEMBER)</p>	<p>15. What was the main reason for these household members to stop fishing?</p> <p><u>CODES FOR STOPPING FISHING:</u></p> <p>TOO OLD.....1 DIED.....2 SICKNESS/HANDICAP....3 LEFT THE HH AND FOUND ANOTHER JOB....4 MIGRATE TO FISH SOMEWHERE ELSE.....5 FOUND A BETTER PAID JOB NEARBY.....6 FISHING WAS ONLY A TEMPORARY JOB.....7 CONTINUE SCHOOL.....8 THE CATCH WERE NOT HIGH ENOUGH.....9 OTHER (SPECIFY).....10</p> <p>(THEN >> NEXT HH MEMBER)</p>
<p>CODE</p>	<p>HH ROSTER ID CODE</p>	<p>CODE</p>	<p>CODE</p>
	<p>1.</p>		
	<p>2.</p>		
	<p>3.</p>		
	<p>4.</p>		
	<p>5.</p>		
	<p>6. 101</p>		
	<p>7. 102</p>		
	<p>8. 103</p>		
	<p>9. 104</p>		

MODULE K: FISH STOCK STATUS

<p>1. ENUMERATOR:</p> <p>CHECK MODULE B.</p> <p>WERE ANY HOUSEHOLD MEMBERS ENGAGED IN FISHING (Q1 or Q2) IN THE LAST HIGH SEASON?</p> <p>YES...1 NO...2 >> END OF QUESTIONNAIRE</p>	<p>2. ENUMERATOR:</p> <p>PLEASE LIST THE FIVE MAIN FISH SPECIES LISTED IN MODULE D Q2.</p> <p>COUNTRY SPECIFIC LIST OF FISH SPECIES NAMES AND ASSOCIATED CODES SHOULD BE INSERTED HERE</p>	<p>ENUMERATOR:</p> <p>PLEASE COPY BELOW THE QUANTITIES, PACKAGING AND FORM OF PROCESSING THAT WERE RECORDED IN MODULE D Q6 (ONLY FOR PROCESSING TYPE # 1).</p> <p>ENUMERATOR: RECALL THE QUANTITY AND FORMS OF PACKAGING RECORDED IN MODULE D Q6 SO THAT THE RESPONDENT CAN ADJUST HIS/HER ANSWER</p> <p>IF THE RESPONDENT WAS NOT FISHING THAT SPECIES 5 YEARS AGO, ENTER 0</p>	<p>3.</p> <p>What was the quantity of [FISH SPECIES] that you and any other members of your household were catching on average over the <u>HIGH fishing season</u> five years ago?</p> <p>ENUMERATOR: RECALL THE QUANTITY AND FORMS OF PACKAGING RECORDED IN MODULE D Q6 SO THAT THE RESPONDENT CAN ADJUST HIS/HER ANSWER</p> <p>IF THE RESPONDENT WAS NOT FISHING THAT SPECIES 5 YEARS AGO, ENTER 0</p>	<p>4.</p> <p>Do you consider this to be a major or slight increase, a major or slight decrease, or normal natural fluctuations in the stocks?</p> <p>CODES FOR CHANGE:</p> <p>MAJOR INCREASE.....1 SLIGHT INCREASE....2 MAJOR DECREASE....3 SLIGHT DECREASE....4 NATURAL FLUCTUATIONS.....5 OTHER (SPECIFY)6</p>	<p>5.</p> <p>What are the two main reasons for the changes in your household's catch of [FISH SPECIES] over the last 5 years?</p> <p>ENTER UP TO TWO DIFFERENT REASONS PER FISH SPECIES. LEAVE REASON 2 BLANK IF ONLY ONE REASON IS GIVEN.</p> <p>CODES FOR CHANGE:</p> <p>MY HH HAS MORE OR BETTER FISHING GEAR NOW.....1 MY HH HAS FEWER OR OLDER FISHING GEAR NOW.....2 WE SPEND MORE TIME FISHING NOW.....3 WE SPEND LESS TIME FISHING NOW.....4 THERE ARE TOO MANY FISHERS NOW.....5 THERE ARE FEWER FISHERS NOW.....6 THE NUMBER OF FISHERS HAS NOT CHANGED BUT THEY ALL HAVE MORE GEAR.....7 THIS IS JUST DUE TO NATURAL FLUCTUATIONS.....8 OTHER REASON (SPECIFY)9</p>	
					FISH CAUGHT ID	PROCESSING TYPE # 1
CODE	FISH SPECIES CODE	QUANTITY LANDED	PACKAGING CODE	PROCESSING CODE		
	1.					
	2.					
	3.					
	4.					
	5.					

MODULE K: FISH STOCK STATUS

<p>6. ENUMERATOR:</p> <p>CHECK MODULE F.</p> <p>WERE ANY HOUSEHOLD MEMBERS ENGAGED IN FISHING (Q1 or Q2) IN THE LAST LOW SEASON?</p> <p>YES..1 NO...2 >> END OF QUESTIONNAIRE</p> <p style="text-align: center;">CODE</p>	FISH CAUGHT ID	<p>7. ENUMERATOR:</p> <p>PLEASE LIST THE FIVE MAIN FISH SPECIES LISTED IN MODULE H Q2.</p> <p>COUNTRY SPECIFIC LIST OF FISH SPECIES NAMES AND ASSOCIATED CODES SHOULD BE INSERTED HERE</p>	<p>ENUMERATOR:</p> <p>PLEASE COPY BELOW THE QUANTITIES, PACKAGING AND FORM OF PROCESSING THAT WERE RECORDED IN MODULE H Q6 (ONLY FOR PROCESSING TYPE # 1).</p>	<p>8.</p> <p>What was the quantity of [FISH SPECIES] that you and any other members of your household were catching on average over the <u>LOW fishing season</u> five years ago?</p> <p>ENUMERATOR: RECALL THE QUANTITY AND FORMS OF PACKAGING RECORDED IN MODULE H Q6 SO THAT THE RESPONDENT CAN ADJUST HIS/HER ANSWER</p> <p>IF THE RESPONDENT WAS NOT FISHING THAT SPECIES 5 YEARS AGO, ENTER 0</p>	<p>9.</p> <p>Do you consider this to be a major or slight increase, a major or slight decrease, or normal natural fluctuations in the stocks?</p> <p><u>CODES FOR CHANGE:</u></p> <p>MAJOR INCREASE.....1 SLIGHT INCREASE....2 MAJOR DECREASE....3 SLIGHT DECREASE....4 NATURAL FLUCTUATIONS.....5 OTHER (SPECIFY)6</p>	<p>10.</p> <p>What are the two main reasons for the changes in your household's catch of [FISH SPECIES] over the last 5 years?</p> <p>ENTER UP TO TWO DIFFERENT REASONS PER FISH SPECIES. LEAVE REASON 2 BLANK IF ONLY ONE REASON IS GIVEN.</p> <p><u>CODES FOR CHANGE:</u></p> <p>MY HH HAS MORE OR BETTER FISHING GEAR NOW.....1 MY HH HAS FEWER OR OLDER FISHING GEAR NOW.....2 WE SPEND MORE TIME FISHING NOW.....3 WE SPEND LESS TIME FISHING NOW.....4 THERE ARE TOO MANY FISHERS NOW.....5 THERE ARE FEWER FISHERS NOW.....6 THE NUMBER OF FISHERS HAS NOT CHANGED BUT THEY ALL HAVE MORE GEAR.....7 THIS IS JUST DUE TO NATURAL FLUCTUATIONS.....8 OTHER REASON (SPECIFY)9</p>			
			PROCESSING TYPE # 1						
		FISH SPECIES CODE	QUANTITY LANDED	PACKAGING CODE	PROCESSING CODE	QUANTITY LANDED 5 YEARS AGO	CODE	CODE 1	CODE 2
	1.								
	2.								
	3.								
	4.								
	5.								