Fisheries Value Chains in CLCGoM Project Areas in the Gulf of Mottama, Myanmar

A study to assess the opportunities for strengthening the position of the small scale fishers in the value chains

A study undertaken for

NETWORK ACTIVITIES GROUP (NAG), MYANMAR

Venkatesh Salagrama
Member, International Collective in Support of Fishworkers (ICSF)

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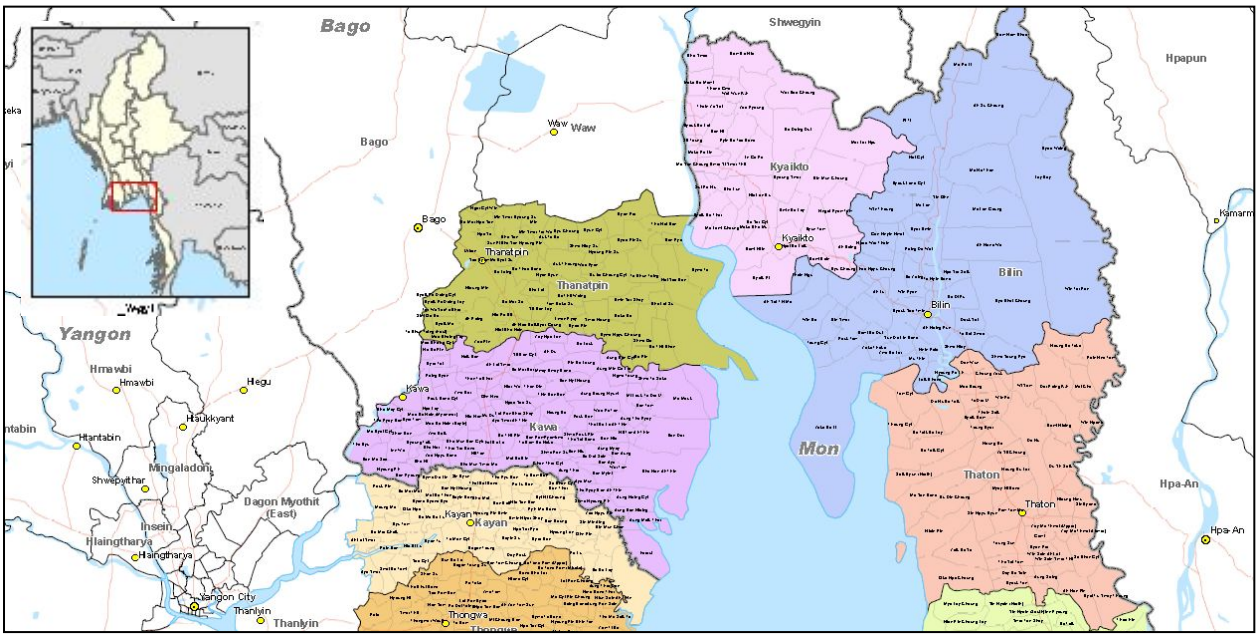
Finally, my heartiest thanks go to the ICSF team without whose initiative, interest, perseverance, support and exceptional logistics, the study would not have been possible.

Venkatesh Salagrama

Map showing project locations covered in the study



Abbreviations

CLCGoMP	Community-led Coastal Management in the Gulf of Mottama Project
DOF	Department of Fisheries
ICSF	International Collective in Support of Fishworkers
IUU fishing	Illegal, unregulated and unreported fishing
NAG	Network Activities Group
NGO	Non-governmental organisation
SSF	Small Scale Fisheries

Weights and currency

Viss is the most common measure of weight used in Myanmar. One *Viss* equals 1.6kg.

At the time of the field research, 1 US$ was equal to about 1,250 Myanmar Kyat (MMK)

Fisheries Value Chains in CLCGoM Project Areas in the Gulf of Mottama, Myanmar: A study to assess the opportunities for strengthening the position of the small scale fishers in the value chains

1. Introduction and background to the study

A fishery value chain refers to the full range of activities that are required to bring fish from capture, through the intermediary phases of landing, processing, transporting and delivery to final consumers, and final disposal after use[1]. Depending on factors such as the species harvested, post-harvesting methods adopted, consumer preferences and economic benefits, there may exist a number of fishery value chains in an area, their reach extending from the local to the district, national, regional or international markets. The length of a value chain may be long and involve a number of intermediate stages, each requiring a specific set of actions and actors, skills and institutional arrangements, and physical infrastructure and financial investments.

In the developing countries, small scale fishers - both men and women - are widely represented at almost every level of a fishery value chain: as producers, processors, traders, ancillary workers and – of equal importance - as consumers. A number of factors – access to fish and fishing grounds, market arrangements, policy environment, power & patronage relationships, and social equity and development context etc – contribute to wide disparities in terms of the availability of, and access to, the necessary resources for the small scale fisheries (SSF) actors at different stages in a fishery value chain, influencing the extent to which they can benefit from their activities and actions.

Focusing on the SSF actors in the fishery value chains is obviously important to secure their rights to sustainable and equitable livelihoods and to enable them to obtain better incomes and working conditions. An equally important consideration is the critical direct role they play in various stages of the fishery value chains, which has significant ecological, economic and food security implications for the society at large.

The **Community-led Coastal Management in Gulf of Mottama Project (CLCGoMP),** being implemented by a consortium of three agencies (HELVETAS, IUCN and NAG), works to improve the livelihood security of the vulnerable women and men in 5 townships in the coastal areas of the Gulf of Mottama, focusing on sustainable and equitable fisheries management, effective fisheries value chain development and livelihoods diversification. The **Networks Activities Group (NAG)**, a leading national NGO in Myanmar, is coordinating the implementation of activities relating to sustainable fisheries management,

[1] Adapted from ILO 2015

including effective value chain support and equitable market access arrangements for the SSF actors. NAG approached the **International Collective in Support of Fishworkers (ICSF)**, a global NGO working for small-scale fisheries development since 1980s, to undertake a fishery value chain assessment in the five project townships in coastal areas of the Gulf of Mottama. The study was implemented by a member of ICSF, Venkatesh Salagrama, who has experience of working on post-harvest, trade and value chain interventions in several developing countries. The study was undertaken during August-September 2015 in collaboration with the NAG project team in Yangon and in the project locations. The NAG project staff also took part in the data collection during the field research.

2. Objectives of the study

The general objective of the assignment was to assess the capture fishery value chain in the 5 key townships of CLCMGoMP – Thaton, KyiteTho and Belin in Mon State; Thanatpin and Kawa in East Bago Region[2] – to inform on how programming could strengthen the position of small-scale fishers in the chain. The suggested areas for analysis were:

- To provide a comprehensive overview of the selected captured fish value chain, its economic potential and relevance for small-scale fishers to increase income and provide opportunities which can enhance the development of their communities;

- To examine the institutions which support producers, processors, marketers and distributors, also highlighting the power differentials among different actors that influence the chain;

- To identify constraints and opportunities - especially for women - to improve market outcomes, raise productivity and wages, and foster pro-poor growth in the fishery sector;

- To identify particular bottlenecks/hindrances that limit the growth potential of the sector and address power and inequalities along the value chain, especially for small-scale fishers;

- To provide recommendations to the CLCMGoMP Consortium in effectively facilitating/brokering market-based livelihood interventions that focus on empowering small-scale fishers, integrating risk management, engaging and influencing government, private sector and strengthening cooperation among key stakeholders;

[2]The names of the townships seem to lend themselves to different spellings, with the result that it has not been possible to stick to one standard spelling.

- To provide gender analysis that highlights the different positions of men and women across the chain and addressing issues of power reflected in the production and marketing

The specific terms of references for the consultant are given in **Annexure 1.**

3. Methodology

The analytical framework employed for the fishery value chain analysis drew largely from the Sustainable Livelihoods Approach (SLA), which was suitably modified and, where necessary, simplified to fit the requirements of the study. **Annexure 2** provides a summary of the key components of the framework. Based on the framework for value chain analysis a set of checklists were prepared for interactions at the community level, with the key actors in the fishery value chains, and - to focus on critical areas of importance - with specific categories of informants (government staff and women). **Annexure 3** provides the checklists used in interactions with different categories of informants.

The study began with a two-day orientation programme for the NAG project team, in order to familiarise them with the key components of fishery value chain analysis. This was followed by field testing of the checklists in two project villages, one in Thanatpin Township and the other in Bilin Township, to modify the methodology to suit the local context. The field team spent about a week visiting different project villages to collect the necessary information, which was consolidated at a review meeting. **Annexure 4** provides a list of the villages covered by the study. Alongside, a series of meetings were held with the government, representatives of the fishworkers' bodies, international agencies and other key institutional informants. A final summary of findings and key recommendations was presented to the NAG project coordinator and the project team members (also including their HELVETAS counterparts), and the final report is drafted accordingly. A fuller description of the methodology is provided in **Annexure 5**.

4. Study limitations

The project area covers five townships which show a wide diversity of fishing systems and processes and this makes any generalisation across all the five townships difficult and frequently inappropriate. Thus, while the report does make some generalisations as a matter of necessity, they may not always apply equally across all project areas.

Time is always a constraint in a study of this nature, but the *timing* of the study is probably of bigger concern: the period of the study, coinciding with the rainy season and closely following upon devastating floods of the project areas, meant that (i) fishing activities - and consequently value chain actions - were at a low ebb; (ii) physical assessment of quality

control systems and post-harvest losses could not done; (iii) some activities like dried fish production came across as being relatively insignificant; and (iii) the quality of information obtained - either in interactions with the fishers or by physical observation - was influenced by their immediate experiences, possibly overlooking the seasonal and other variations with regard to the value chains.

The available documentation - both quantitative and qualitative - about the project areas is woefully inadequate. There is hardly any information on critical areas like the value chain actors, fishing systems and fish landings; production and market trends; supply and demand characteristics; and social and economic indicators. The Department of Fisheries' annual fishery statistics are not disaggregated to the district or township level. In any case, their focus is more on aquaculture, hatcheries and exports, with only limited information on capture fisheries and none at all on small-scale fishers. Although NAG has recently undertaken a baseline study in its project areas in the Gulf of Mottama, the information is not yet synthesised into a usable format and, in any case, does not seem to have focused much on the fishing communities. Still, information from the baseline report has been used to highlight the broader contours of life and livelihoods in the project areas. The gaps in quantitative information mean that the analysis remains qualitative for the time being.

The paucity of documented information on the project areas also required, wherever possible, referring to secondary data available on neighbouring areas, such as the Ayeyarwady Delta, on the assumption that the conditions in the project villages may mirror to a greater or lesser extent those in these areas. Wherever such information has been made use of, it is made clear in the text.

The conclusions from this study have been validated to a large extent both by comparing them with published data and, more importantly, in discussions with several people (especially the NAG project staff) who have better knowledge of the country, its fisheries and the prevailing socio-economic, political and institutional context. All the same, it is suggested that this study be treated as the beginning of a longer and deeper process of engagement with value chain actors in SSF communities in the target areas, rather than a fully finished product.

5. Structure of the report

This report focuses on providing a summary of the key issues of relevance to the fishery value chains in the study locations and offers a set of recommendations for strengthening the role of the local SSF actors in a sustainable and equitable manner. It does not attempt to provide a broad picture of the value chain context beyond the immediate project locations; it also avoids elaborate descriptions of the value chain systems and processes in favour of presenting the key issues arising out of the observations and analysis (a choice that was

also necessitated by the paucity of documentation on the project areas and the relatively short time period of the study itself).

The report is divided into two parts. Part 1 provides an analysis of the fishery value chains in the project areas in the Gulf of Mottama, while Part 2 discusses the potential interventions for strengthening the role of the SSF actors in the fishery value chains.

The next section provides a brief background to the fisheries and socio-economic context in the project villages in an attempt to set the stage for the analysis that follows. The following sections identify the key fishery value chains in the project areas, the main actors involved in each and the role of women in the various value chain activities. Section 10 provides a SLA-based analysis of the project villages in terms of their access to different resources necessary for value chain actions, the policy-institutional context, and the vulnerability issues especially relating to seasonality and natural disasters. This is followed by a summary of the key issues arising out of the analysis which then leads to - from Section 12 onwards - a discussion on potential interventions and the appropriate mechanisms for interventions. The report concludes with a list of suggested actions and some recommendations for NAG to strengthen its capacity for effective interventions in the fishery value chains.

Part 1: Analysis of the Fishery Value Chains in the Project Area

6. Brief description of the fisheries- and the socio-economic context of the project villages

While many of the points made in this section will reappear in more detail in the following sections, it is however necessary to discuss some broad characteristics of the fisheries in the project areas here, in order to prepare the readers about what to expect (and what *not* to) from the study.

The CLCGoM Project covers 5 townships - Thaton, Kyite Tho, and Bilin in Mon State and Thanatpin and Kawa in Bago Region - all located on the Gulf of Mottama. The Gulf of Mottama (formerly known as the Gulf of Mortaban), named after the port city of Mottama in the southern part of Myanmar, is an arm of the Andaman Sea with two major rivers - Salween Sittaung and Yangon - emptying into it. The Sittaung River flows into the head of the gulf about 75 miles north of the entrance, while the Yangon and the Mawlamyine rivers enter the gulf on the northwest and east sides respectively[3]. The Gulf of Mottama is characterised by a tide-dominated coastline[4], with the tidal range shifting between 4-7m. As a result, the highly turbid zone reportedly migrates back and forth in synchrony with every tidal cycle by nearly 150km. This gives rise to a number of floodplains in the coastal areas, which form the basis for several small-scale fisheries. Alongside, the monsoon rains cause the rivers to flood the low-lying parts of the gulf, providing extensive shallow-water areas seasonally (Reeves et al 1999), which give rise to a wide range of waterbodies fit for capture fishing operations to be undertaken by a majority of small-scale fishing communities in the project area.

The important fishing grounds for the project areas thus cover every one of the six natural types of inland fisheries bodies that U Khin (1948, cited by Reeves*et al*, 1999) identified throughout Myanmar: (i) the main channels of rivers; (ii) seasonally formed riverine lakes (*inn*, *aing*, *gayet*); (iii) estuaries, including *ton*; (iv) inundated paddy fields and low-lying areas within the flood line of rivers; (v) perennial lakes and tanks; and (vi) irrigation canals and distributaries. Besides, some communities in Mon State also undertake fishing in the sea, which suggests that the communities are practically fishing in every known type of waterbody. While the diversity helps to keep the fishers in business round the year, it has implications for standardisation and bulking up: different fishing areas play host to different fish species so the fish catches (already small to begin with) tend to be too heterogeneous to be marketed together.

[3]https://en.wikipedia.org/wiki/Gulf_of_Martaban

[4]http://www.sea-seek.com/?geo=8349

Most of the villages under each Township area are small and frequently remote, and capture fishing in these villages is mostly subsistence-oriented, i.e., the income from fishing covers the basic subsistence needs of the households with little or no surplus leftover. Obviously, such conditions have implications for any potential value chain improvements: the small-size of the fish landings makes achieving the economies of scale difficult; remoteness of the village, frequently requiring long and uncertain means of transport, restricts access to markets and other services; and subsistence operations leave little surplus for up-scaling/upgrading existing activities at the individual level.

The conditions are further complicated in the project areas by the seasonal nature of occupations. While fishing may be an important - or even the most important - livelihood activity for some of the project communities, it is also essentially a seasonal activity, with peak fishing spanning about 4-5months in a year. Many fishers have a secondary occupation in agriculture or petty trade, while migration out of the country (mostly to Thailand) is also fairly widespread. Without a better understanding of the livelihood context and incomes from diverse income sources, it is difficult to judge the importance of fisheries for the local economies - or even the domestic economy of the fishers - but it is clear from the field research that, for some of the project communities, it may not be very significant. It may be necessary that, given the differences in the importance of capture fisheries in different project villages, a prioritisation of the villages may be attempted to implement value-chain related interventions in *selected locations* rather than go for a broad-brush intervention strategy covering all villages with a one-size-fits-all package.

Such conditions in the project communities make them significantly different from their counterparts in, say, Rakhine or Ayeyarwady, where capture fishing is reportedly a major livelihood and economic activity with a significant influence at the national level. The scale of operations and the catches, the value chains and value chain actors, and the market linkages in those areas are reported to be such as to justify investments in improving the fishery value chains for the immediate benefit of the SSF actors. This may not always be the case in the project villages, which require a much less ambitious and low-intensity intervention strategy, with a longer gestation period for the results to show.

On the other hand, the existing conditions make the small-scale fishers in the project villages some of the most vulnerable and marginalised groups anywhere; the severity and extent of deprivation is quite high and, from all indications, further increasing. The vulnerability and marginalisation aspect, with its specific implications on the fishery value chains, will appear in more detail in the analysis of the livelihood resources. The point for now is that, while there may be limited scope for immediate or large-scale improvement of the existing systems, the communities happen to be the most needy while, given the size of their investments and returns, even a small scale intervention can potentially increase their

incomes significantly. *In other words, there is both a sizeable need and a significant opportunity to support them.* As this study will show, opportunities do exist for improving the existing value chains to help the SSF actors to play a bigger and better role with reasonable enhancement in incomes. At the same time, working to improve the existing fishery value chains in the project village may involve going beyond the conventional value chain strategies in favour of a broader-based, livelihood-focused, engagement with the target SSF communities.

7. Key fisheries value chains in the project areas

Broadly, based on the level of development of fisheries in a particular area, it is possible to distinguish at least five broad fishery value chains:

- **Local fresh fish supplies**, generally carried out by women and small-scale male traders, usually involving small quantities and low margins of trade and including the fishers' own consumption - as a result, its importance is frequently underrated in preference to more lucrative - and expensive - value chains, even by the fishers themselves. The importance of this particular value chain may lie in its food security implications for the fishing communities themselves and the poorer sections of the consumers.

- **Dried/processed fish value chains**, which usually depended on bulk landings, semi-fresh/unsold catches and small fish. Women usually take the lead in the processing and trading activities, although their role seems to diminish as the markets grow bigger and more distant. Their importance from a food security perspective lies in that they cater to the interior, upland areas in Myanmar, where processed fish is the single most important source of protein for the poorer ethnic communities.

- **Urban fresh fish value chains**, which are relatively new and became possible as a result of ice and transport systems becoming more widely accessible. The fastest growing fishery value chain in many countries (including Myanmar), participation in this value chain involves having access to a ready set of large-scale resources: finance, infrastructure, organisation, market information and market linkages, which effectively restricts the scope for most SSF actors to play a direct role in the transactions beyond the local levels. Although women participate actively in this value chain, their role tends to be less pronounced than in the first two value chains and may frequently involve supplementary activities.

- **Export value chains**, which are by far the most lucrative but also the most tricky, owing to the distant location of markets with many (frequently invisible) intermediaries, stricter regimes of quality control and other requirements. Although

the fish/prawns from the SSF sector go into this value chain from the Gulf of Mottama, this is also the least understood by the SSF actors. The economies of scale, international connections, and the high-end processing and quality control requirements mean that the fishers' - including the women's - role is confined to provide the supplies and act as ancillary workers in the processing activities.

- **Animal-feed supply chains**, account for a sizeable proportion of the fish landings in certain areas owing to the inability of markets to lift glut landed catches as well as the poor preservation, processing and transportation systems leading to spoilage of fish. The proximity of aquaculture, poultry and other livestock rearing farms generally encourages the producers to resort to animal-feed supplies. Though the SSF producers supply glut landed catches to this value chain, it is mainly trawling and purse-seining which tend to be the main sources of its supply.

Coming to the project villages, the field research clearly shows that it is the fresh fish value chain catering to the distant/urban markets which accounts for almost 80% of the total capture production, and this includes some 10% going into the export markets as well. The existence of a well-oiled, largely informal, network of traders at different levels - village, township, district and urban centres like Yangon, Bago and Mawlamyine - ensures that most catches are funnelled into this value chain. In many villages, it is mostly those fish which fail to make the grade for this value chain that go into the other value chains.

Within this value chain, once the fish start moving up the value chain from the local to the distant urban centre like Yangon, it is possible to see some quantities moving laterally into the local markets at every level: thus, the township markets receive a proportion of these fish and then the district markets (including some neighbouring markets), until the fish eventually reaches the Yangon's Sanpya market, which is the biggest fresh fish market in Myanmar. According to one estimate, about 60-70% of the fish procured in the project villages reach Sanpya - the rest being distributed laterally along the value chain.

Once the fish reaches the urban centres, the exportable varieties of fish and shrimp are segregated and sent off to the processing factories. This indicates that both urban supplies and the export supplies follow the same channels and the same intermediaries until they reach the wholesalers in Yangon.

The local fresh fish supplies, including the own consumption of the SSF actors, may account for about 10-15 percent of the catches, which include:

i. Mostly small fish and/or fish that are not very fresh hence unfit for sending to the urban centres.

ii. Some fish varieties are not included in the contract with the traders, so these get into the local markets.

iii. The catches by the very small-scale fishers (cast-netters and other backwater fishers who do not get trader advances) go into the local markets or directly sold to the consumers.

iv. Finally, the same traders who send fish to the distant markets can also be a major source of supply to the local markets: they sell some quantities of fish to the local fish traders, either because the catches are not big enough to send to the distant market or are too small or partly spoiled. This gives them a grip on the local fish supplies as well.

The fishers' wives carry such fish by head loads for door-to-door sale within the village or to the nearby villages and occasionally to the Township markets.

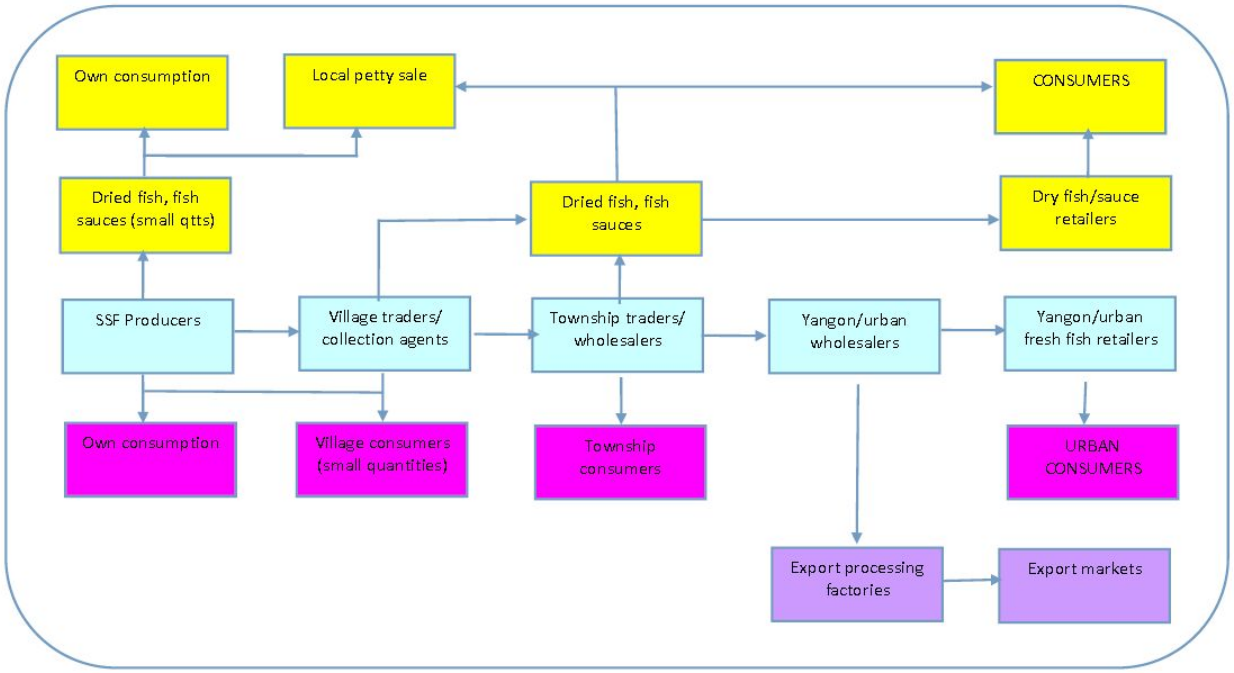
In the project villages, the field research found very little evidence of dried fish being made in significant quantities. Some women do make dried fish, fish balls and fish sauces, using mostly small or not-so-fresh fish that they could not sell fresh. The quantities are small, and intended mainly for household consumption although some quantity is reportedly sold to the neighbours. In some villages, it is the ubiquitous fish traders who undertake dried fish processing too: they employ their family members or wage labourers to salt and dry fish that could not be sold in fresh condition.

In all cases, the one constant appears to be that people would prefer to sell their fish fresh as much as possible; drying or making fish sauces was an activity of last resort and is only a minor income generating activity for a small proportion of the SSF actors.

The size of the landings rules out the possibility of regular supplies to animal feed markets, although there may be some seasonal production in a few villages that the traders from the outside come to collect during the good production months.

Thus, *the fishery value chain that is of utmost significance to the SSF actors and to the local fishing economies in the project areas is that of the distant/urban trade, involving a number of intermediaries from the village up to the distant urban/export markets.* All other supply chains are of minor significance to the SSF actors and any interventions to enhance the role of the SSF actors in the fishery value chains must necessarily focus on the distant urban trade activities.

The following diagram provides a summary of the key fishery value chains in the project villages, although it does not indicate the relative weight of the different value chains:



8. Key SSF actors in the fishery value chains

The study is focused on capture fishing activities, so the actors in aquaculture are not considered in the following discussion, although they do have a significant – and growing – importance in the fishery value chains.

In most capture fisheries, four broad categories of SSF actors may be involved in different value chain activities: (i) producers (ii) traders (iii) processors and (iv) ancillary workers (i.e., those who take part in the activities as wage labourers).

Producers

In the project areas, as discussed, capture fisheries take many forms and this gives rise to a number of producer categories, with varying levels of social and economic status, access to fish and markets, and overall wellbeing. These producers can be differentiated in a number of ways, based on:

A. *Fishing grounds*: the fishing grounds are quite diverse and different kind of fishing methods are employed to fish in different kinds of waterbodies. This ranges from operating fairly decent sized (>32') motorised boats in the sea to people manually wading in the submerged rice paddies or floodplains and using cast nets, stake nets and bag nets to catch fish. The fish varieties captured, quantities and marketing mechanisms vary according to the source of capture, and the incomes too vary accordingly.

B. *Fishing duration and quantum of fish catches*: Some fishers reportedly stay in the fishing grounds for up to 2 weeks at a stretch, using iceboxes to store their catches until the boxes are full or using a 'mother boat', where a bigger boat is used to ferry the catches and the daily necessities back and forth. At the other extreme are the fishers who go for a few hours of fishing in the floodplains, and the fishers using cast nets and stake nets who always stay on the shore. The quantum of fish catches per trip also ranges from an average of 15 *viss* in the bigger operations to 2-3 *viss* in the smaller ones. (A *viss* is the standard weighing measure in Myanmar, a *viss* approximately equals to 1.6kg)

C. *Gender*: although fishing is considered to be a 'men's activity', there is plenty of evidence in the project areas showing women taking part actively in fishing, especially in the inland waterbodies. Depending on the circumstances, the women may fish along with their husbands, with other women, or on their own; they may go fishing in a boat or by wading in the shallow waters.

D. *Size of fishing operations*: the size of a fishing boat - and the facilities onboard - determine the size of fishing operations. In the project areas, at least three (possibly more) categories of fishing boats can be identified:

   a) Very small, non-motorised, boats carrying one or two persons – men and women – each for fishing in the floodplains, paddy fields, backwaters and irrigation canals.

   b) Small motorised fishing boats (with outboard motors), with a size of 18-24', carrying 2-4 crewmembers, mostly men, involved in fishing in the river, estuaries and the near shore waters of the Gulf of Mottama.

   c) Medium-sized boats - ranging in length from 24-35', using both outboard motors and inboard engines, employing up to 6 crewmembers, all men, involved in gillnetting operations in the river and the Gulf of Mottama.

   d) There are no large-sized boats or mechanised trawlers or purse-seiners in the project areas.

E. *Nature of involvement in fishing*: an important distinction can be made between the boat owners and the crew, in that the latter are frequently wage labourers who get paid a fixed wage per trip, week or month. Although family-based operations also exist, it is the wage labour that dominates the fishing operations in the project area and this has implications in terms of the fishing crew's immediate and direct interest to seek a higher return from the fishery value chains.

F. *Seasonality of fishing activities*: while fishing in the project area is itself largely a seasonal activity, the extent of dependence of different communities on the sector

varies. While some communities undertake fishing seasonally and move on to other activities – usually wage labour in agriculture or construction – during the rest of the year, other communities remain in fishing through thick and thin. The latter are those closer to the Gulf of Mottama, whose access to other occupations may be limited on the one hand, while the fishing activities – though less productive during the lean months – may still yield at least enough to meet the subsistence needs.

G. *Extent of dependence on the traders for advances*: some of the very small-scale operators - i.e., those working in the floodplains or using cast nets - do not get advances from the traders; at the other end, the bigger boat operators receive investments of about MMK 200,000 (probably more). In between, there are several producer groups who receive varying amounts as advance depending on the capacity of their fishing systems. The terms for receiving advance also vary from village to village: at one level, they may require selling the entire fish catch, or only some commercially important fish to the traders. At another level, it may also require repaying the advance in small instalments as a proportion of the sale value of fish in each transaction or repaying all at once at stipulated time intervals. All such arrangements influence the extent to which a producer can manage his activities independently.

Traders

At the village level, there are two kinds of wholesale fish traders catering to the distant/urban fish trade:

i. The first of these, generally located in bigger villages with reasonably good catches, are the collection agents belonging to the local community who are employed by the Township (or District) traders on payment of a fixed salary or a commission on the supplies, the latter working out to about 3% of the gross.

ii. The second kind of traders, generally located in smaller or remote villages with seasonal/small fish landings, are involved in purchasing the fish directly from the producers and selling it in the next level of market, generally on arrangement with a Township/District trader but, in rare cases, in open market.

At the village level, two kinds of small traders may also exist: the women head loaders and the men traders, who usually employ a motorcycle or bicycle for fish trade. These traders procure fish from the local landing sites, the traders' sheds and from the neighbouring landing sites.

Beyond the village level, there exist larger wholesale traders in the Township areas, at the District level, and - beyond the project area - in the urban centres like Yangon, Bago and

Mawlamyine. They procure their supplies from many fish landing centres through collection agents or independent traders, and – critically from the perspective of this study – also from aquaculture, whose contribution to the traders' turnovers is on the increase. There exist strong linkages between the traders at different levels of the value chains, which are based on cash advances, trust and mutual need.

At the Township, District and urban centre-levels, there are a sizeable number of retail traders who procure their supplies from the wholesalers at each level and sell their fish through (i) public markets, (ii) roadside sale or (iii) door-to-door sale, the specific mode of sale being determined by the size of these businesses. Most of these traders - especially at the Township level - can be considered as small-scale operators. The market-based retailers depend on aquaculture supplies from Yangon during lean fishing periods in the local area.

Dry fish and fish sauce producers and traders

As suggested above, there are no specific actors in the project areas who are involved dried fish or fish sauce production. Although some women do make dried fish, they are essentially fish producers or traders who resort to drying only secondarily. It is however necessary to substantiate this conclusion further - especially during the summer months - as there are a few vague indications that dried fish may be a bigger source of revenue at least for some villages during certain parts of the year.

Ancillary workers

There are several categories of wage labourers in the fishery value chains in the project areas. These include: helpers in fish landing and transportation to the collection centres, packing assistants, transporters, ice suppliers, cleaners and market assistants. Most of these people fall into the SSF category, with average daily incomes of about MMK 5,000 ($4). Export processing factories employ a large number of women, especially young women, as processors and processing assistants, but there is no evidence of girls from the project areas being employed this way.

9. Women in fishery value chains

From the field research, it is apparent that women are generally well represented at all stages of the fishery value chains and their role in the various activities is very important. Women have an active role to play in:

- *Fish production*: women do take part in fishing either with their husbands or independently; they also undertake fishing during the lean season to meet the subsistence needs of the family; men don't consider such labour worth the return, but for the women it is necessary to ensure the family's food security.

- *Fish trade*: women are strongly represented in trading activities all along the fishery value chains, including the local fish trade (as both collection agents and as petty fish traders); Township and district trade (again, both in wholesale and in retail); and in urban fish trade (e.g., Sanpya market in Yangon, where women take on multiple responsibilities including the maintenance of accounts, making payments and ensuring quality and correct weighing of the fish for different trade channels)

- *Ancillary activities*: women take part in net mending, supervise landing and transportation of fish to the traders' sheds, monitor weighing and collect payments; work as traders' assistants in fish handling, sorting and packing in the fish collection centres; take part - albeit as a secondary option - in manufacture of dried fish, fish sauces and fish balls for domestic consumption and petty sales.

- *At the household level:* Women - possibly by virtue of supervising the fish sales to the traders - have direct access to the fishing incomes which they reportedly manage themselves. Obviously, this will need further validation, but in many villages, women are said to hold the family's purse strings. NAG's baseline study also found that women had a significant role in managing the household finances in a sizeable proportion of the households (93.3% in Mon State and 86.1% in Bago). The baseline study finds that women have a considerable say in decision-making at the household level.

Notwithstanding the seemingly positive overall picture, there are considerable gaps in the current understanding about women and their social and economic roles. A study from Ayeyarwady Delta indicates that a quarter of the households may be headed by women, a majority of them having no adult males in the household (Puskur R, 2015). This raises some important questions with regard to the social and economic status of the single women-headed households and their capacity to withstand the seasonal differences in access to different livelihood activities, frequent disasters and the macro-economic trends affecting the way fish are caught and consumed in Myanmar.

According to the field research, women may be receiving about 20-30% less than men in the project areas, especially in agriculture. This echoes information from Ayeyarwady Delta where female workers are reported to be receiving at least 50% less than the male workers (MMRD, 2014).

10. Livelihoods-based analysis of the key fishery value chains

A. Livelihood resources

In this section attempts a discussion about the extent of availability of, and the SSF actors' access to, different livelihood resources (categorised into natural, physical, social, human

and financial resources in the SLA framework) that are necessary for the SSF actors to play a meaningful role in the fishery value chains. While the *availability* aspect relates to the physical reality of the existence of a resource, service or an enabling policy framework, the focus on *access* relates to the more critical issue of the SSF actors' rights (or entitlements) to make use of the resources, services and enabling policies sustainably and equitably.

1. Natural resources

Natural resources, in the case of the Gulf of Mottama communities, comprise mainly of fish and fishery resources, waterbodies (sea, estuaries, rivers, floodplains, canals etc), beaches along these waterbodies, and mangroves and other vegetation. Although the size of land-holdings by the SSF actors tends to be small, they do own some agricultural land and also seasonally depend on agriculture as wage labourers. From the fish value chain perspective, we shall focus mostly on the fish and fishery resources here.

Issues relating to availability of fish for value chain actions

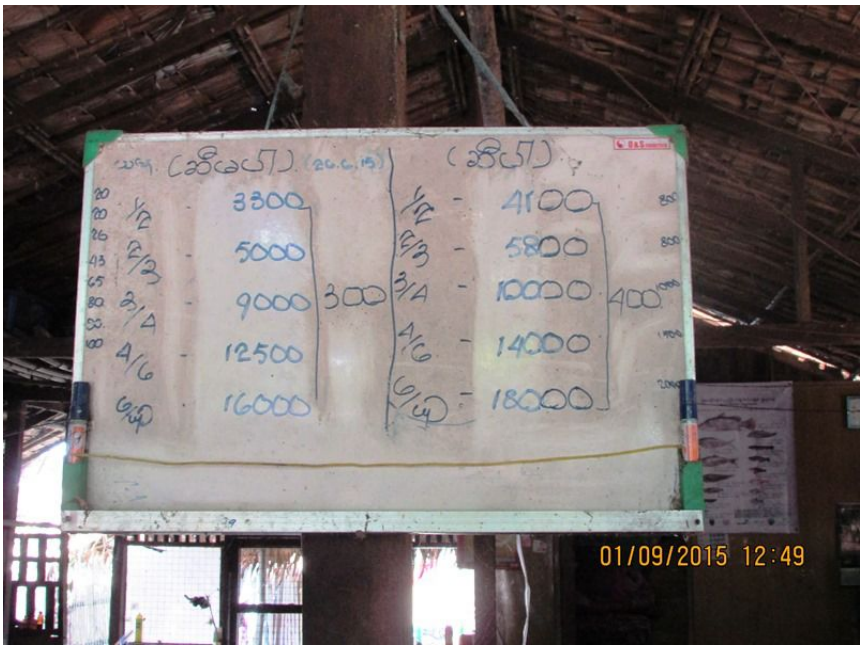
Given the wide diversity of the natural waterbodies on which the fishers depend, the fish catches tend to be quite diverse, comprising of inland, estuarine and marine species. **Annexure 6** provides a list of the key species captured in each Township area, the average catch of each fish caught in a fishing trip, and the average price range per *viss*. The important species from the five township areas are: croakers, Bombay Duck, catfish (various - marine and inland), mullet, sea bass, barb (*Barbus* spp), perch (various), snakehead, feather back, eel, shrimp (various), prawn, freshwater shark and barracuda. Although crabs haven't been mentioned in the table, mud crabs are reportedly caught in good numbers in the estuarine waters.

While most of the fish species are commercially valuable, they are too diverse; are caught in a wide range of fishing areas; involve a diversity of fishing systems, with varying levels of on-board and on shore efficiencies in handling and preservation, and landed at different times of day or night. Moreover, the average catch of each fish variety, or even the overall catch per boat or a village, is quite small. Table 1 gives the average quantity of fish catches per trip in *viss* for each variety, which show mostly single digit landings. In the focus group discussions, most producer groups indicated that the highest *total daily catch* per boat may come to about 8-10 *viss* (13-16kg), while the average daily catches could be much less - 5-6 *viss* (8-10kg). In a similar exercise conducted in two Townships (Laputta and Bogalay) in the Ayeyarwady Delta, as many as 60% respondents in Laputta and 84% in Bogalay reported an average fish catch *per month* of less than 30 *viss* (MRRD, 2014), which makes the designation of these fisheries as 'small-scale' apt; more to the point, it makes the task of up-scaling or upgrading these businesses quite tough.

Information from the traders supplying to distant markets - who account for the bulk of landings in a village - also indicates that the total average quantity handled in some of the bigger villages during the peak period does not exceed 200 *viss* (320kg) a day, while in smaller villages it averages at less than 80 *viss* (100kg). This has significant implications for bulking up the catches for distant urban trade.

The production systems are also constrained by the fact that peak fishing lasts only 3-4 months in a year. For the fishers working the inland waterbodies like the floodplains and the inundated rice paddies, the fishing grounds themselves disappear for up to 9 months in a year, while for the riverine and marine fishers, the peak fishing season is followed by subsistence-based fishing activities for the rest of the year. The fact remains that any fishery-based enterprise must make do with a three-to-four month business in a year.

A more critical issue is that the catches of the same species fall into a number of size groups, which is reflected in the prices they fetch. The distant market traders in each village display a board indicating the price for not only different fish species but also for different size ranges within the same species.



While the immediate conclusion to draw from the traders' display boards is that the smaller sized fish get only 20% of the value of the larger fish of the same species, the more disturbing aspect is that a number of small-to-very small fish are being fished, with potentially serious fisheries management implications.

And fisheries management concerns are certainly a very important issue with the fishing communities. In every village, the focus group discussions with the producers indicated an

overall fish decline by at least half in the last 10 years in all types of waterbodies, with some villages pegging the declines at 80%. Some fish species have been suggested to have declined significantly, some others have disappeared from the catches, and the appearance of several species has become erratic and uncertain in the catches. The fishers attribute the declines to illegal/destructive fishing activities and the poor enforcement of the existing management regulations. The other reason commonly cited is environmental factors, including climate change.

Given that the size of fishing fleets or fishing efficiencies is not increasing and that the systems remain largely small-scale to a significant extent, the reasons for the steep declines in fish catches do need a more thorough investigation. For the moment, though, the trend must be taken into account while planning any value chain interventions.

Coming to the other natural resources, the beaches on both sides of the River Sittaung are in grave threat of being eroded. In some villages on the western bank, the erosion is said to have led to the disappearance of hundreds of acres of paddy fields. While the implications of this are not always clear for fishing and related activities, erosion does pose an existential threat to the communities as people are forced to move inland, thereby losing their fisheries-based livelihoods. Already some villages located on the edge of the Sittaung River are forced to find alternative spaces for en masse relocation, and the people fear about the potential implications of such large-scale movement away from the river.

Loss of mangroves has been reported from some project areas. Natural disasters - floods and cyclones in particular - have been cited as contributing to the erosion and the destruction of natural shelter-belts, but it is beyond the scope of this study to go into these issues in depth.

To summarise, any value chain interventions in the area are necessarily constrained by the small catches - per boat and overall - which also show a growing trend of decline. *There is a clear case for a rigorous fisheries management programme - preceding and overarching the value chains programme at every stage - to be put in place, in order that the fishing communities can have sustainable and adequate availability of fish for supplying to the markets.*

Issues relating to the SSF actors' rights to the fishery resources

The producers in the project communities have two kinds of access to fishing grounds: the first involves the 'tender' system, where the fisheries are auctioned off to the highest bidder, who in turn allows the fishers access to the fishing grounds on payment of a fee. In the second system, the fishers are allowed to fish in the open waters - i.e., the fishing grounds not covered by the lease system - through payment of a license fee to the government at a

fixed rate for each net, which ranges from MMK 3500 to MMK9500 per year. Offshore waters are generally off-limits for the SSF in the project areas owing to the small size and capacity of their fishing craft, but some near-shore fisheries do prevail in some locations.

With the open waters neither very productive nor often accessible to the SSF actors in the project areas, the potential for increasing their access to fish is limited to the leased waterbodies. And the problem is that the leased waterbodies are not easily accessible to them, as the following box will show.

Auction lease system in Myanmar fisheries[5]

There exist no customary systems of tenure or rights for the SSF actors to the waterbodies in the project areas. Historically, such rights may never have taken root in Myanmar, owing to the long practice of leasing of inshore waterbodies to private individuals. Given the importance of the inland waterbodies - both seasonal and perennial - to the national economy, the State had been asserting its ownership of the inland fisheries resources even by the mid-18th Century, and collecting both taxes and rent from the users. Alongside the public fisheries, there also existed hereditable private fisheries, where hereditary *Innthugyis* held sway, collecting rent from the users and paying a tax to the government. While the hereditary system was supposed to be not free from exploitation, it was argued - by some sympathetic British administrators - that it at least offered some stability as well as secure revenues to the government.

In the 1860s, the British colonial administration in Burma, based on the proposals of Dr Francis Day, initiated a process that would eventually introduce a system of auction leases for different fisheries - both public and private - in place of the prevailing hereditary rights, which were considered to lead to mismanagement of fisheries. The process reached its culmination with the enactment of the Burma Fisheries Act, 1875, though not without considerable opposition and consequent prevarication from within the Government. The Act led to the introduction of a lease system for fisheries, which was implemented through an open auction process, where the fishing rights were granted to the highest bidders, provided they were *bona fide* fishermen resident for at least three years within four miles of the fishery to which they had lease rights. The lease period was five years and the local fishers were to obtain licences to use nets, on payment of a fee, from the lessee.

The implementation of the auction lease system went through several ups and downs and - after considerable soul searching on the part of the colonial government - led to the 'reformed' Act of 1905, which attempted to address some of the perceived shortcomings of the earlier Act. What is apparent from a review of this early history (Reeves et al 1999) was that (i) despite the notional ownership of the rights by a fisherman, the real ownership actually resided with moneylenders and traders; (ii) that the local fishers have always found it difficult to come up with the required sums of money to bid in the auctions; (iii) that the ownership of the lease fisheries gradually concentrated in the hands of a few rich people; and (iv) that the auction process itself was frequently neither free nor fair. To add to the trouble, the 'reformed' Act of 1905 went one step ahead and opened the auction to 'any persons' rather than just to 'fishermen', leading to the entry of outsiders into lease ownership.

The conclusions from this review are equally topical. It suggests that the introduction of the auction lease system subjected Lower Burma's fisheries to very great pressures. The system alienated the traditional

[5]The information in this section is drawn from a historical review of the auction lease policies by Reeves et al 1999.

lessees (*innthungyis*) and subjected the actual fishers to new pressures from money lending and trading interests, which crowded in to benefit from the system. Finally, the paper argues that:

> *[t]he effective penetration of local capital - through the financial controls exerted over fishers who bid for leases or through the sub-letting of large fisheries at exorbitant rents taken in advance - was the main source of the burdens with which [the fishers] were encumbered by the end of the century.*

And the fishers continue to be encumbered by the same burdens even now!

A recent assessment of the livelihood context in the Ayeyarwady Delta (MMRD 2014) came to similar conclusions: that wealthy businessmen who were not involved in fishing bagged the lease rights as the fishers could not compete with these businessmen even when they attempted to do so by pooling their resources. And the study also found that the amount paid by the fishers for the fishing rights in the leased waterbodies is growing by the year as the competition in the auction gets stronger.

In the project areas, the lease rights to the local waterbodies are reportedly held by businessmen in Yangon or (in case of Mon State) Mawlamyine. The fishers' inability to bid for the lease rights to the water bodies in their vicinity is said to be owing to three critical constraints:

- The tender process takes place in a district centre, like Mawlamyine, Yangon or Bago, and the physical distances involved to travel to the distant urban centres to participate in the auction reduce the fishers' interest in taking part in the process;

- More critically, the amounts quoted for the lease rights are so high that they are simply beyond the community's capacity to match: the need to generate higher revenues for the government thus acts as a hindrance for the fishers' obtaining rights to their own resources.

- In many cases, the final decision as to who would eventually get the contract is considered to be a foregone conclusion, making the fishers' efforts meaningless from the beginning.

The contractors who finally obtain the lease rights will then sub-lease them to the local businessmen - frequently the wholesale fish traders - thereby contributing to a further increase in the traders' hold on the fishery value chains. Focus group discussions at the community level indicate three major implications of the tender system:

- It reduces access to the local fishing communities to the fishing grounds right next to the villages or are more productive. In order to fish in these waters, the fishers have to pay a fee, which many find too steep and are consequently forced to fish in the less productive but open fishing grounds. Also, during the peak fishing season, the

lease-holders may restrict all outsider fishing in the lease area in order to fish the waters themselves, thereby depriving the local communities of a large proportion of their income.

- On the other extreme, when the fishers are indeed allowed to fish in the leased waters, the leaseholders allow entry for *anybody* who is willing to pay the fees - the local communities not only face stiff competition from the outsiders, including occasional skirmishes, but also complain that the outsiders indulge in all sorts of illegal and destructive fishing methods with impunity.

- Finally, the system encourages reckless fishing and leads to several negative fisheries management outcomes.

    - For the contractors, located in remote urban centres, the leasing of fishing grounds is reportedly just one of many enterprises they are involved in. With the growing competition and increasing value of the lease bids, they must try and maximise their profits in the shortest possible time - and if higher profits come at the cost of the sustainability of the waterbodies to support fisheries, they can always move on, either to new fishing grounds to lease or into an altogether new enterprise.

    - For the fishers, even from the local communities, the relatively high fees paid for access to the fishing grounds is an incentive to maximise *their* earnings in the shortest possible time as well. That the access to fishing grounds fluctuates between closed access to a virtual open access - with the local communities having no stake whatsoever in the decision making - means that the fishers are forced to catch even the smallest fish as quickly as they can. Both overfishing and destructive fishing activities have been reported in the leased waterbodies.

    - The rules stipulate that the lease contractors spend a proportion of their profits (10%) on restocking the waterbodies and other management measures. In discussions with the people knowledgeable about the system, it appears that the contractors seldom show any profit: this helps them not only to avoid fulfilling the fisheries management requirements, but also keeps the tender amounts from escalating. In the few cases where stocking may actually be undertaken, there is hardly any way to assess the quantity or the quality (age, size range and health) of the stocked fish species, or to assess the impacts of the restocking on the resource health in the waterbodies. There is little government supervision either of the management of the waterbodies or of the implementation of the management practices. In fact, the Department of Fisheries' source of information on the fish catches for their records is reportedly the contractors themselves!

For all the inequities in the auction lease system, it is however not practical to suggest dismantling them both for historical and for practical reasons, especially when the alternative to the lease systems is open access. Moreover, it can be argued that the negative equity and sustainability implications of the tender system lay in the fact that the lessees are frequently wealthy businessmen in remote urban centres with no interest in the long-term sustainability of the fisheries resources or the wellbeing of the local SSF communities. What is a more practical option to improve the systems may be to initiate community-based advocacy campaigns to get the government to give the lease for the waterbodies to the local fishing communities, with adequate support for institutional and human capacity building to them to help manage the resources equitably and sustainably. *Having the rights to the local fisheries resources not only ensures effective community-based fisheries management, but also enhance the fishers' access to fish that will in turn strengthen their role in the fishery value chains.*

Already, NAG's own experience with the Myanmar Fisheries Association in the Ayeyarwady Delta area seems to indicate the feasibility of such a course of action; the Association is reported to have managed to obtain the lease for some local waterbodies. If the Fisheries Development Committees (FDCs) in the villages can have a broader remit to implement some value chain-related interventions alongside the fisheries management programmes, the project can evolve into a sustainable community-based fisheries management and value chain development initiative.

2. Physical resources (tools, implements and infrastructure)

Fishing systems and infrastructure

Reeves et al. (1999, 250-1) describe the traditional systems of capture fishing in Myanmar in the 19th Century:

> *[The] broad spectrum of fisheries used a wide range of techniques and equipment: some practised bunding and baling, despite the destructive aspects of these methods; estuarine fisheries employed fixed engines and a variety of fixed and unfixed nets, as well as hooks and lines; and special methods were used in shallow or narrow waters such as paddy fields and irrigation channels. The working of the* inn*, the most important of the inland fisheries, depended on various kinds of screens [*se*] that prevented fish from escaping as the waters subsided and they made for the outlet creeks. The capture of the fish thus held in the* inn *was done by driving the fish towards traps from which they could not escape. Towards the end of the process - once the majority of fish had been trapped - the remainder were driven into a corner of the* inn *using a movable screen [*gyan*] pushed by a number of men through the water. If it was not possible to use the* gyan*, then "outside men" were brought in by the lessee to work with nets and scare fish into the traps... In*

deep inns*, drag nets were used from boats.*

Visiting the project villages now, nearly a century-and-a half later, it is hard not to conclude that, aside from motorisation of the fishing boats in some areas and the increasing use of ice, fishing systems may have remained almost the same as they were back then.

The fishing boats are small, with limited carrying capacity, which precludes any possibilities to catch more (even if that were possible from a fisheries management perspective), or to diversify into new fishing areas such as the offshore waters. The boats can allow only limited space to carry iceboxes and ice; together with long fishing trips in the rivers and near shore waters (lasting about a week or more in several cases)would suggest a high potential for spoilage even when the catches are iced.

This is further aggravated by the poor infrastructure facilities that characterise the fisheries in most villages: the fish landings take place on the small, muddy and frequently slushy beaches; even the traders' sheds are makeshift affairs with little infrastructure for sorting, grading and packing; transport facilities are infrequent and uncertain, it takes long to get to the nearest Townships or - in Kawa region - even to the nearest road points; all-weather roads are not always available (though there are some indications that new roads may be in the process of being laid); most villages don't have electricity (they depend on individual/ community-owned generators, both fuel-driven and solar) or clean water, which reduce the scope for better preservation or hygienic handling practices.

The poor state of infrastructure leads to: long delays in market access; long chain of market intermediaries; and lack of control for the SSF actors over the markets or market information. Such conditions must contribute to significant losses - both quality and value related - but a realistic estimate of the losses is still not available.

Access to ice

A positive feature of the fisheries in the project areas - even the remotely located ones - is the widespread availability and usage of ice. Insulated iceboxes - made of Styrofoam or HDPE - are widely used. However, the icing practices appear to require some improvements to realise their full potential. For instance, most small boats - especially in the floodplains and the canals - don't use ice despite their fishing times lasting about12 hours at a time. Even in the medium-sized boats, icing practices can be further improved: evidence from other countries in the Bay of Bengal region indicate that the prevailing practices in the project areas, such as usage of block ice that gets to be crushed manually at the fishing grounds, insufficient quantity of ice used for fish storage, long duration of fishing and hauling of nets can all have significant implications in terms of quality loss. The practice of local women fish-sellers to keep the unsold fish in ice overnight for the next day's sale

doesn't help reduce the spoilage that has already occurred during the day, but it helps to reduce the effectiveness of ice in keeping further spoilage from happening.

Ice is also not used during lean fishing periods: the quantity of landings does not really justify bringing ice over long distances. This may imply that the catches must be either locally consumed or made into dried fish for domestic consumption. With limited usage of ice, especially during the summer months, the spoilage losses can be high. The fishers have no means (such as a semi-permanent community icebox) to store the catches until such time that sufficient quantities can be collected to justify sending them to the urban markets, thereby losing a market opportunity.

A critical factor - relating to both availability and access to ice - is that, for most project villages, the wholesale fish traders are the only source of ice. They arrange for ice to be brought to the village (possibly using the same transport systems that carried the fish out to the markets) and provide it to the fishers for on-board usage and - in smaller quantities - to the local fish sellers. The cost of ice is deducted at the time of procurement of fish. Apparently, the fishers are charged only the cost price which is possible - according to the fishers - owing to the traders' arrangements with the ice plants for regular ice supplies in bulk that allow them to get ice at a discounted price.

The more critical issue here is that, if the traders did not bring the ice over long distances to the villages, the fishers would not have access to ice at all. The traders being the sole suppliers of ice in the village puts them in a strong position in their dealing with the fishers; even those fishers who may not be interested in a credit tie-up with the trader must be beholden to them on account of the latter's control over ice.

Fish processing technology

The quantities of dried fish, fish sauces, pastes and balls etc. made in the project villages tend to be small and are intended for domestic consumption and local sale. The fish used for processing tend to be semi-spoiled or unsold from a day's sale. Glut landings may contribute to larger-scale dried fish production, but the current level of information does not justify such conclusions for the project areas. The processing techniques and infrastructure appear to be necessarily small, just about adequate for the level at which drying is currently carried out. However, with incessant rains and consequent losses owing to infestation and moisture-related infections, the processing activities might further improved, if found to be sufficiently important to the community members.

There is a huge demand for dried and other traditionally processed fish nationally, with big urban markets like Bago acting as major channels for dried fish supplies around the country. Observations at the markets indicate the processed products to be of good quality, and are

sold for very high prices indeed. *This may justify exploring if any potential exists for larger scale, better quality, dried fish production in the project areas, especially during the summer months as an income generating venture for small, women-based, enterprises, for which - as we shall discuss - the government support is forthcoming.*

3. Social resources

Social resources cover social development and the community-based governance and support systems in the project areas.

Social development in the project communities: a quick summary

Fishery value chains are embedded in the social reality of the SSF communities, and the social development context strongly influences the fishers' interest in, and the effectiveness of, their fishery value chain actions.

Many project communities are characterised by high levels of vulnerability and marginalisation - both physical and institutional. Remoteness of the villages, constant waterlogging owing to the capricious tidal patterns in the areas, difficult access to the villages pose serious difficulties in the way of obtaining even basic services like electricity, healthcare, education, and other necessities of daily life (groceries, clothes etc.). Waterlogging may also imply health concerns, especially among children, but neither safe living and working conditions nor ready healthcare facilities are readily available in the communities.

Household incomes tend to be low: in NAG's baseline survey of the project areas, over 85 percent of the households in the project areas report a monthly income of less than MMK 100,000 ($80), while the FGD interactions at the community level gave an average figure of MMK 150,000 ($120), which - for an average family with five members - still works out to be very low. NAG survey also indicates, for some project townships, a sizeable gap between the annual income and expenditure at the household level, indicating an overall deficit and the consequent dependence on credit to meet basic survival needs.

However, in an area characterised by poor services, service delivery systems and ready means of mobility, income is perhaps not the most important criterion to determine poverty, deprivation, vulnerability and marginalisation. The physical isolation makes everyone - including some of the better-off families like the wholesale traders - equally deprived in terms of their access to basic services, healthcare or education, and vulnerable in the face of an emergency or a natural disaster.

According to NAG's baseline data, access to own house is near universal in all project areas, however most of the houses are smaller than 20 sq. feet in area, while more than 90%

houses occupy less than 40 sq. feet. Over 80 percent of the houses are wooden structures or huts, which are not weather-proof and certainly can't withstand natural disasters, let alone provide a safe shelter to the residents.

Fish stands next only to rice in the food consumed by the fishing communities in Myanmar. The extensive use of fish paste and sauces as an ingredient in the daily menu assures them of a reasonably protein-rich diet. However, the seasonal nature of fishing may mean that the access to fish - and even food - tends to remain highly uneven. Occasional skipping of meals and malnutrition (both for adults and children) are reported to prevail in relatively more affluent regions like Ayeyarwady Delta. There, food insecurity is reported as a major issue of concern, with 68% of the respondents having no food stored for the next day (MMRD, 2014). Similar conditions may prevail in the project areas.

For most households, firewood is the most important source of cooking fuel, the proportion of households using firewood ranging between 75% and 97% in the project villages. The implications of this on the local vegetation - mangroves etc. - need to be further investigated. Drinking water is a scarce commodity, public water distribution systems being totally absent. Rainwater harvesting remains the main source of drinking water during the monsoon months, while village tanks, public and private wells meet the drinking water needs during the summer months. Sanitation facilities - though they exist - are rudimentary. Limited access to clean water and sanitation facilities has direct impacts on fish quality.

Access to electricity remains patchy, with only 30% houses in Bago Region and 55% houses in Mon State having electricity - many of them receiving electricity from community or private sources. In the absence of small-scale fish freezers, ice remains the only means to store the fish over long periods resulting in losses.

Only 20% of the respondents in the NAG Baseline Survey are reported to have middle and high school level education, the majority having confined their studies to primary education.

Community-based institutional support systems

For an effective fishery value chain intervention in the small-scale fisheries sector, one of the important pre-requisites is a collective mechanism at the community level, which allows the SSF actors to gain control over the first point of sale of their produce. Pooling their resources and fish catches into a collective entity, they can, on the one hand, obtain the necessary economies of scale to reach the distant markets using fewer intermediaries and, on the other, have the leverage needed to bargain with the existing market intermediaries for a bigger share in the final value of the product.

At the moment, there exist no effective community-based organisations, collectives or cooperatives in the project villages. Most value chain actions are marked by individual or at best semi-individual efforts, where the assistance of another person may be taken only when absolutely necessary. That the fishing crew in most villages (though not everywhere) work as wage labourers - and are paid a fixed sum per trip or week or month - leaves the boat owners to look after even basic activities like arranging the transport of fish from the landing site to traders' work place by using a separate set of workers, under the supervision of the owners' wives. Without the owners and crew having a shared interest in implementing value chain improvements, bringing them under one umbrella organisation may not be easy.

Myanmar Fisheries Federation (MFF), which is the national level fishworkers' organisation in the country, currently has no presence or even plans to work in the project areas.

It is difficult to know what role the fishing communities' common religious affiliation (to Buddhism) and ethnic background (a majority of the communities belong to Bamars) play in bringing people together, and for what purposes. From the available evidence, the Buddhist monasteries provide a range of social services, especially education to the children, but they don't seem to get involved in fisheries matters.

There is thus an institutional vacuum in the project villages, which can be a significant bottleneck for any fishery value chain initiatives, especially if they involve establishing - or at least strengthening - the fishers' control over the resources and on the first point of sale. The reason for this vacuum may be historical, but the current political climate does allow for collectivisation efforts to take root. However, the few community institutions set up with government support in some project villages are reportedly non-functional, or are focused too narrowly on implementing specific government programmes. In either case, the potential for these to be revived or restructured into people-centred organisations for market-oriented fishery value chain interventions is considered to be limited.

Interactions with the fishers - both men and women - indicated substantial support for taking up collective actions as a means to reduce dependence on traders and increase incomes. This will obviously require considerable effort not just to bring people together into groups, but also to enhance their capacity to manage the collective actions meaningfully, equitably and sustainably. The blueprint for the right kind of organisational framework may be found in the communities as the following paragraphs suggest.

The existence of strong, informal, systems for social protection and reciprocity within a village as well as between neighbouring villages is documented in several small-scale fisheries in the Bay of Bengal region, and it is possible that some such mechanisms for mutual support exist among the project communities as well. In fact, the near absence of

formal social security systems in the project villages would argue for the existence of some informal support networks to exist at the grassroots level. Otherwise, it is simply impossible for an individual or a household to survive on their own in what is frequently a hostile environment where deprivation - both seasonal and long-term - is a fact of life. Such arrangements usually concern both social protection as well as governance systems, which make them relevant to any collectivisation efforts focused on fisheries management and fishery value chains.

Interactions with the SSF actors during the field research indicated that men and women do socialize much within the communities. What is lacking is the evidence for the extent of 'connectedness' between people, especially in terms of their livelihood/value-chain related activities and how such informal 'social capital' can contribute to developing more formal community-based organisations. Obviously, this requires more in-depth studies to identify the existence of such networks, understand their role and effectiveness, and the degree of trust and respect that people have in such a system as well as for one another. *Without a strong basis in such shared experience, trust and respect for one another among the members, mere imposition of a collective enterprise on the communities is unlikely to survive beyond the project support period, as evidenced repeatedly in other countries in the region.*

The arrival of strong civil society organisations into the coastal areas of Myanmar is a relatively recent phenomenon, which may explain several gaps in the current systems and processes, as well as in the knowledge/understanding about them. Under the circumstances, it becomes absolutely necessary that *any civil society organisation willing to engage with the fishing communities in Myanmar must be prepared for the long haul and for a very broad plan of action starting at the very grassroots level of community organisation*.

4. Human resources

The experience, skills, knowledge and expertise that prevail among the different SSF actors is, in many respects, adequate to cover their current livelihood needs. Obviously, their understanding of the systems and processes is derived from experience, often harsh and bitter, and their conservatism when it comes to new ideas, however lucrative they might seem, is eminently justifiable.

Linked to the above is the issue of traditional knowledge and traditional technologies. There may be large areas in the fishers' understanding of the sector - and its biological, environmental, technical, economic, social, cultural and governance aspects - that have been acquired over centuries and that, by 'virtue' of their relative isolation from the mainstream, may have remained largely intact. It makes immense sense to begin any major intervention with these communities by documenting their traditional knowledge on various issues and to explore the interconnectedness of things, processes and people in a

way that makes sense to them as well as to the intervening organisation. Finding such common themes of interest allows for mutual trust, better participation and sustainable outcomes.

On a positive note, the fishers' willingness to use ice and iceboxes - even in the smallest fisheries in the project areas - reflects their understanding that ice is where the future lies. The apparently near-total disappearance of fish drying as ice made inroads into the coastal villages mirrors similar experiences elsewhere, in relatively better developed fisheries. To that extent, the fishers in the project areas are very much in tune with the changing trends in preservation and processing. Equally positive is the emphasis that the fishers place on hygiene and cleanliness on the boats, in the traders' workplaces, and - to a lesser extent - in the markets. There is certainly scope for further improvements in this regard, but the existence of a culture of cleanliness indicates positive uptake of new ideas.

On the other hand, it can be argued that while the SSF actors' skills, knowledge and expertise are sufficient to address their immediate livelihood needs, they may prove to be inadequate when it comes to undertaking improvements to the existing systems or to diversifying the value chain actions (in terms of products, prices, markets or intermediaries). This is obviously influenced by several more critical factors - poor infrastructure, lack of investments etc - but individual beliefs, attitudes and worldviews are equally important defining the SSF actors' acceptance of the need for change.

For most fishers, the existing systems are as good as they can get, because they have evolved over long experience. The existence of quality and value losses and the near-total dependence on the traders for every business-related need are accepted as the norm and as being integral to the system. It is difficult for the fishers to imagine that things could be done differently or that such losses/dependencies could be avoided. Over time, such factors have come to be rationalised as the norm and are seen as a matter of routine so much so that the loss of a part of the catch owing to spoilage is not considered as a loss at all, but as an occurrence which is as inevitable as the monsoon rains.

This explains the fishers' response - to a question whether they experience any fish losses - that there were no losses or, even if there were losses, they did not exceed 1-2%, while the prevailing conditions in the area would suggest a much higher proportion of losses.

This is not to suggest that the fishers are wrong: their hard-won experience cannot be easily doubted. Suggestions like efforts to reduce dependence on traders cannot be frivolously made without taking account of the substantial costs that would entail, some probably too expensive for the fishers to pay. What however needs to be said is that things need not remain the same forever: that, as systems and societies evolve, new ways of doing things become possible and improvements can be made. How one goes about making those

improvements, however, depends very much on the people's understanding of not just the existing processes, but also the suggested new processes, including their impacts.

In a way, lack of exposure (more than knowledge per se) is a key constraint in the project villages for the fishers to understand the potential for change, however slight it may begin at first. Most fishers hardly ever visit an urban centre like Yangon, which effectively puts them at a disadvantage when dealing with the more urban-savvy fish traders. The fishers are also used to eking out an existence in largely individualised activities and the possibility of collectivisation - historically frowned upon - can only become apparent when exposed to seeing such systems in action elsewhere.

A case can thus be made for the fishers to obtain first-hand exposure to, and awareness of, the new opportunities to improve their role in the existing value chains, be they physical/technical, financial, institutional, market-related or all of these, and this can only come from taking them out of their current setting which practically insulates them - both physically and psychologically - from all but the least outside contact.

Currently, there are no programmes for training and capacity building on any aspects of fisheries, be it fisheries management, fishery value chains, social and community institutional development, policy advocacy or disaster risk reduction. This curtails the access that the fishers can have to effective means of improving their stake in the fishery value chains. Broadening the scope of this assertion, it can even be argued that such training/capacity building programmes are not available for the government staff themselves, which seriously curtails their ability to provide appropriate guidance to the SSF actors to improve their actions. The in-country fisheries research capacity is acknowledged as requiring to be built up further for more searching questions to be asked and answered about critical areas of concern within the sector.

Another important constraint in building up the knowledge base and the capacities of the SSF actors may be the traders who currently have absolute control over the fisheries and hence a stake in ensuring that things continue remain as they are. It is to their advantage to attempt to scuttle the community capacity development process and one needs to be alert to this potential threat and make sure to avoid it especially in the early stages of the engagement with the SSF actors - this is a topic which will be further discussed in a later section of this report.

5. Financial resources

Given the extremely low incomes from fishing and related value-chain activities, which - as indicated - are barely adequate to cover the basic subsistence needs of the people, the capacity of the fishers to invest in improved systems and practices, to increase efficiencies

in the existing systems or to bear the risks implicit in new ventures is very weak.

Virtually all fishers are indebted to traders in all project villages. The extent of the indebtedness varies according to the kind of production systems (size and fishing capacity of the boats etc.), but the average loan amount in the project areas seems to be around MMK 150,000 to 200,000 - around $160 on the higher side. Nominally interest-free, this kind of credit (or 'advance' as it is usually called) obliges the fishers to sell their catches - selected species in some villages or the whole catch in others - to the traders who may pay a little less than the going price, the shortage being around 10%.

That a relatively small sum as $160 could be a significant consideration in the fishers' inability to move out of the credit-market relationships with the traders illustrates their weak financial base. Although the traders do supply a range of other services (see the next section), it is the advance system which is claimed to be the important link that binds the fishers to the traders. And the credit linkage also means that there is very limited space for other SSF actors - e.g., retail fish traders in the local, township and district markets - to play a bigger role in the value chains, and consequently reduces the availability of fish to local (usually poorer) consumers.

The advantage with the advance system is that it is readily available with no questions asked about the purpose for which the money will be used, there is no pressure on the fishers to make regular repayments, and the repayment is done in kind thereby making it somehow easier for the fishers. Any system to replace the advance system with a more equitable alternative (say, micro-credit or bank finance) faces the daunting task of having to do one better than the traders and theirs is indeed a hard act to follow, let alone improve upon!

The other challenge for any alternative system is not just to provide a sum that is equal to what the traders give, but which is actually twice as much, so that the fishers can use half the money for redeeming their existing loans and the other half to use in their businesses. Inability to do so would mean that the fishers may end up going back to the trader for fresh loans, and the project ends up with not only subsidising the traders' business investment, but also making them even stronger. On the other hand, finding the resources to provide twice as much credit as the fishers can usually handle may prove to be stressful for the SSF actors as well as being risky for the lending agency.

Where the credit from the traders is either not available (for very small-scale fishing or local fish sale) or inadequate to meet the expenses, especially in emergencies, people take recourse to moneylenders. The cost of credit in this instance is very high: averaging 10% per month, even going up to 20% in some cases. For daily businesses, the cost of private credit can be as high as 20% *per day*! The cost of credit decreases as larger sums are lent -

obviously because the borrowers are considered more 'credit-worthy' and can provide a security for the loan. In other words, the poorer people pay higher interest rates.

The near absence of women's organisations or self-help groups to support some group initiatives or the usual micro-finance activities remains a major handicap in the fishing communities. Although a burgeoning micro-finance movement exists in Myanmar, with banks having specific portfolios to cover micro-finance, the fact remains that they haven't reached the SSF actors. The attention of the financial institutions remains drawn entirely to the agriculture and micro-enterprises, and the needs of the women in fishing communities are unaddressed. The absence of a micro-credit movement in fisheries also means that the women remain unorganised, though not for lack of interest.

The interactions with the Myanmar Fisheries Federation indicated that the banks' unwillingness to lend to the fisheries sector, especially capture fisheries, is owing to the lack of secure 'collateral'. Although aquaculture was once considered 'bankable' as the land could be used as security, the situation changed after the enactment of the new Myanmar Constitution in 2008 and the banks have begun to refuse accepting land as collateral and stopped lending to aquaculture as well. In conclusion, it is clear that the fisheries sector in Myanmar remains more or less ignored as far as formal credit sources are concerned.

B. Policy-institutional issues

This section will summarise the key issues in two major areas of relevance to the value chain actions of the SSF actors: markets and government policies and support systems.

1. Markets and market access

A major constraint for understanding the flow of fish along the value chains from the local to the national and global markets is that the SSF actors have little understanding of the movements of fish beyond the local/township traders. Once the fish moves beyond the township level, it gets mixed up with fish coming from other areas and districts, while a small proportion of it also branches off into the retail markets at different levels, making it difficult even for the traders to know which fish came from where. At Yangon level, the wholesalers receive fish from so many different regions and in such abundant quantities that it is probably not even practical to expect them to know the exact origins of the fish they deal in. The exporters - especially those dealing with the US and the EU markets - are supposed to maintain records for traceability of the exported varieties, but it wasn't possible to ascertain this; from the field evidence, the accuracy of such information may be confined to landings from major fishing harbours.

What this means is that it is extremely difficult to trace the movements of fish from the

project locations within the country and beyond. This makes it difficult to understand issues such as the transformation of fish according to the 4-Ps: product, place, price and promotion, especially the quantitative aspects.

- The chief **product transformation** involves icing and packing in iceboxes for urban trade, accounting for some 80% of the catch. If a part of this catch is also being used for drying or - as in Yangon - making fish balls, this could not be ascertained.

  In the absence of hard data, quality losses in the value chain - from capture to the final markets - can be assumed to be in the range of 10-30 percent, possibly more especially in relatively inaccessible villages in Kawa region etc. Even more than the actual losses, the practice of the traders to automatically deduct a certain portion of the value - roughly 10% - in each consignment citing spoilage reduces the fishers' incomes.

- **Place transformation**: Large fish go to urban markets - Yangon in particular - while the district and township markets account for a small proportion of the large and medium varieties. It is possible that the large fish reaching the intermediate markets are not so fresh or substantial enough in quantity to be sent to a distant urban market. The village-level markets make do with small or not-so-fresh fish, or when the catches are too small to justify sending them out. Export varieties - snakeheads, sea bass, shrimp and crab - are procured like every other large fish intended for the urban markets, but the process of how they actually reach export processing units is not clear.

- **Price transformation**: Remote location of the project fishing villages means that market access for SSF actors is mediated frequently by a long chain of intermediaries, reducing their share in the final value, making them essentially price-takers. In general, the fishers' share in the final urban market price may be no more than 20-40%. The wholesale traders at the township level may get a higher share than the fishers themselves, but this needs to be further ascertained.

- **Promotion**: Fish is an essential ingredient in Myanmar diet and the per capita consumption of fish compares favourably with most countries in the world. It is suggested, in the interactions, that if people are not consuming more fish, it is owing to their non-availability or high prices rather than the lack of demand. The growth of aquaculture appears to increase access to fish in the country, but its implications on the capture fish production are - as yet - minimal.

  While the consumer interest in consumption of fish is high, and doesn't really need any promotion, what may need to be promoted are aspects relating to food safety, quality control and hygienic practices. At the same time, the producers' and traders' awareness of the food quality standards, quality control, good management practices

also need to be further increased. Alongside, the ecological (the sustainability implications of destructive fishing on the resources etc.) and social (the importance of small-scale fisheries and the SSF actors, the equity implications of production, processing and trade) aspects of fisheries may also need to be promoted for more responsible consumer responses in their choices.

It appeared that some amount of promotion - through mainly posters in local language, and with support from international agencies - is taking place at the community level on fisheries management aspects, covering issues like endangered species, good fishing practices, and seasonal fishing ban. The effectiveness of such campaigns is not known.

The quality of infrastructure in the markets - from the township level to the national one like Sanpya in Yangon - is functional without being outstanding. This can be improved, in terms of proper drainage systems, appropriate pathways for the movement (both in and out) of the fish, enhancing visibility and safety of fish products, reducing potential for contamination from other sources, and streamlining the market processes overall for more equitable access to SSF actors. The rights for the management of some of the markets is reportedly auctioned off to private contractors, which has implications for the small-scale traders in terms of costs (entry fees and other taxes) and access (the SSF actors may be displaced in favour of more affluent large-scale traders).

A frequent complaint that the fishers have against the traders relates to the use of faulty or inappropriate weighing measures. Using a balance with a sensitivity of 1-5kg for daily fish catches that average about 5-10kg means that the fishers tend to lose quite a lot as the traders 'round off' the figures to the nearest numbers. However, as discussed, most such losses are built into the operations so the fishers have no clear idea about how much they are losing from such practices or from the losses in quality or value.

An important characteristic of the fishery value chains in Myanmar is that all transactions involve ready payments in hard cash. Bank-based transactions are virtually unheard of, and large sums of cash are hand-delivered. The payments at different levels of the value chain - to the producers and to the various intermediate traders - are made on the spot. This implies - for anyone interested in getting into fish trade - carrying wads of hard cash in hand. Moreover this suggests that the fishers are used to being paid instantly after every transaction: which is necessary as their domestic economies are based on daily incomes from fishing. Involving them in a collective enterprise where the transactions might require staggered payments can lead to disruption of the household economic cycles and consequent hardships. In any case, for a collective to be involved in cash-based transactions on a regular basis may not be a good way to foster trust among the members.

Where the traders have the edge...

The wholesale traders and their agents in the villages are the single most important link in the value chains connecting the SSF actors in the project locations to the wider markets. It is customary to view the role of the traders with suspicion and, in most cases, to treat their relationships with the producers as exploitative. While there is a modicum of truth in this conventional understanding of the traders' role, it must be accepted that they are also by far the single most important reason why the fishers can actually reach the distant urban markets. In the absence of the traders, it is extremely difficult to see how the fishers in a remote village in Kawa could even envisage selling their fish even in a township market. It is also difficult to envisage an alternative system that provides the same kind of services as a trader while also trying to be more equitable. Also frequently ignored in assessing the role of traders are the risks involved in the production and trade: in case of a sudden upset (failure of a fishing season, a natural disaster, spoilage of fish owing to transport/ice failures etc), it is frequently the traders who lose the most.

Discussions with the producers as well as the traders at the village-, Township-, and Yangon-levels suggest that the strength of the wholesale traders comes from a number of interrelated sources, several of which have already been discussed. Here, an attempt is made to summarise what makes the traders so indispensable to the system:

- They are the main - if not the only - source of credit, a much needed commodity in the low-surplus, seasonal, activity like fishing; the traders ensure maximum coverage of the producers with credit supply in order to have access to the largest proportion of the fish catches. Their own self-interest apart, the risks implicit in such a strategy also make them daring risk-takers.

- They act as the main channel of ice supplies in the village; they are obviously the only people with the requisite transport facilities to bring sufficient ice; the daily transport of fish to the markets allows them to negotiate with the ice factories to supply ice regularly, in bulk, and for a cheaper price, which also assures that the fish transport vehicles do not return empty. Ice provides the traders with de facto control over all producers, irrespective of whether they took an advance or not.

- (In some places) the traders also obtain *de facto* control over the fishing grounds through sub-leasing of the lease rights from the contractors in the distant urban areas, thereby controlling access for the fishers to the fishing grounds; during the peak fishing periods, when the contractors employ their own equipment and labour for fishing in the lease area, the traders make direct purchases from contractors.

- With limited individual quantities, the fishers cannot manage to send their fish to the

distant markets (or frequently even to the local township markets); the traders manage to bulk up the catches to obtain the required economies of scale in order to reach the distant markets. When the quantities are small, the traders allow the catches to be sold locally or at best in the township markets.

- The trust- and advance-based business relationships the traders at different levels in the value chain have forged with each other are developed over long periods of business association and are not easily replaceable, either by a new producers' cooperative or a government-supported collective. The strong ties and market linkages not only make the traders indispensable to make the system work, but also make them impervious to the need for reform, especially if it seeks to change the status quo, which may be to their disadvantage.

- Versatility: the trader acts as the sole source of supplies to everyone from village-based traders to exporters, including dried and other processed fish; their sources of supply cover both capture and culture. In some townships like Bilin, the traders send the more expensive marine fish supplies to Yangon wholesale market and bring back the cheaper aquaculture produce for sale in the local markets. In other words, they buy as well as sell fish to the local communities, just as they sell as well as buy fish from their trade contacts! This versatility keeps them in business through lean fishing periods and other such eventualities.

- Flexibility: A critical requirement in a very informal, uncertain and highly fluctuating business like fish trade is the ability to be flexible in the dealings, to sell cheap or buy dear as necessary, to take losses occasionally, to quickly shift gears to reach a different market or sell a different product, and generally be able to play by the highly idiosyncratic rules of the market. This kind of flexibility is virtually impossible in a more formal enterprise.

- The traders also have enough ready cash for instant payments, which help keep the fishers' domestic economies in order and also reduce risk for them. For the traders, this is a good way to hide their incomes thus avoiding having to pay taxes etc.

In conclusion, as things stand, the traders play an indispensable role in the value chains, and there is no easy way of bypassing them by providing more equitable and less exploitative alternatives. Any intervention strategy must proceed on the clear understanding that the traders will continue to remain an important actor in the fishery value chains in the foreseeable future and that disturbing the relationship between them and the SSF actors in the project villages can be catastrophic especially in the short term.

2. Government policies/support systems

To the extent that it could be ascertained during the field research, the Department of Fisheries has one programme of support for SSF actors. This programme, called *Mya Sein Yaung*, involves setting up a revolving credit fund to the tune of MMK 30 million ($24,000) for each village, covering a few selected villages in each township. The fund is open to all SSF actors as individuals or in small groups to develop small fisheries-based enterprises - covering areas like aquaculture, renovation of village tanks, fish processing and alternative income generation - and each fisherman is eligible to get a maximum of MMK 300,000, which carries a rate of interest of 18% per annum.

Field research indicated that some fishers received loans from this fund, but the purpose of the loan or to what extent this programme helped reduce the fishers' dependence on the advances from the traders is unclear. Given that in most villages, a majority of the fishers continue to have an advance-based relationship with the traders, the programme's overall impact appears to be low, at least for the moment.

The *Mya Sein Yaung* fund aside, there do not seem to be any other programmes of support from the government's side to cover the needs of the SSF actors in the fishery value chains. Government's support is minimal, if not non-existent, for social protection, market support, credit & financial assistance (in the form of subsidies, both in cash and kind), institutional and infrastructure development (either fisheries- or social development-related) and capacity building. A quick assessment of the social protection programmes in fisheries in the project areas, using a questionnaire developed by ICSF for a recent study, show little evidence of the existence of much state support for:

i. **protective measures** to guarantee relief from deprivation, which is endemic and especially severe during lean seasons or at times of disasters; as indicated, most basic services - water, education, healthcare, sanitation - are frequently not available or, when they do, are either inadequate or out of immediate reach of the project communities. Specifically vulnerable groups - women (especially single women), aged people, children, disabled persons, migrants, asset-less workers - are not singled out for any special support.

ii. **preventive measures** to avert deprivation: insurance is an alien concept for a majority of people even in the urban centres, and no insurance benefits are available even in extreme instances like death or disability.

iii. **promotive measures** to enhance capabilities and strengthen resilience: fisheries management is largely confined to controlling IUU fishing and seasonal fishing ban for three months; in the absence of active support for livelihood diversification, illegal

migration occurs across the border with increasingly severe consequences; with the exception of one specific programme to support small enterprises in fisheries (which will be discussed in a later section), programmes to support savings, credit and marketing are generally lacking in the project areas.

iv. **transformative measures** to secure access and use of the various resources on which the SSF actors depend: as discussed, programmes like the auction lease system actually further alienate the communities from the resources they need to make a living; while rights to food, education, and other enabling rights are recognised, few systems are in place for the people to take advantage of the rights.

On the other hand, the DOF does collect some taxes and user fees for access to the fishing grounds, fish markets etc. The tender system requires the fishers to pay a user fee to the contractor and the open fisheries too are characterised by a license fee to be paid according to the number of fishing gears carried on-board (some small fishing operations are excluded from the payment of fees). Some of the policies, such as those relating to tender systems and the offshore fisheries licensing, actually contribute to marginalisation of the SSF actors, increased competition and overall negative management outcomes.

Part of the reason why there appear to be so few policies to help the SSF actors may be that the fishers' awareness of the government policies is very limited; their access to the government departments and programmes tends to be very difficult and constrained by a number of factors, with the result that even where a favourable policy may exist, the fishers may be failing to take advantage of it. Similarly, in the absence of an easy working relationship with the government departments, especially at the decision-making levels, the fishers seem unable to lobby for more pro-active policies to improve their lot, as for instance, by seeking better roads & transport systems, institutional credit, and social protection measures.

Fisheries management, though taken seriously at the policy level, seems mainly confined to controlling IUU fishing and imposing a 3-month fishing ban from May to July in all water bodies - although some kinds of fishing are allowed during the ban period as well. The impacts of the ban on resource rejuvenation are not known. Aside from these, the DOF's main role seems to be confined to collection of the license fee from the fishers. Fish landing data, though collected for annual statistics, appear to be largely cosmetic exercises based on the information obtained from the lease holders (or sub-lease holders) and reflecting the annual production targets set by the national government (which envisage some 10% increase in production every year).

Consequently, existing gaps in information on capture fisheries are quite big, which include reliable statistics on:

- Fish production and trends therein
- Numbers and the role of the SSF actors in different stages of the capture fisheries and value chains
- Supply sources, supply, transformation and demand characteristics of the domestic fishery value chains

Export statistics are more reliable and so are, possibly, aquaculture production figures. However, without further clarity on the sources of supply for the exports, the extent to which a particular area may be contributing to the exports remains unclear.

On the positive side, there is a process currently underway to decentralise fisheries policy-making in the inland water bodies to the states (there is a growing demand from the state governments to bring the near shore marine waters under their jurisdiction as well). Important fishing states like Ayeyarwady and Rakhine are in the process of drafting new fisheries policies and legislations, with the active collaboration of the NGOs like NAG. The new policies, it is reported, make space for specific SSF-friendly policies and also for the involvement of the SSF actors in the decision-making processes.

Alongside, there is much policy-level emphasis on more effective fisheries management, with attention paid to co-management initiatives. This gives an opening for effective value chain interventions as well, because the co-management mechanisms must reflect - and relate to -the economic realities of the value chains for effective resource management. In any case, market intermediaries like the wholesale traders are simply too powerful to be ignored in any fisheries management programme.

Equally heartening is the active interest taken by the Department of Fisheries and its staff to participate in all NGO and community interactions and to support the development initiatives in a spirit of friendship and give-and-take. This bodes well for any future fisheries development interventions. At the same time, it may be necessary to develop a strong capacity building programme for the DOF staff in the development and implementation of successful value chain interventions.

C. Seasonality and shocks

Seasonal nature of fishing operations means that effective fishing period in the project areas is limited to 4 months in a year. Aside from the disruption of the supplies - and the consistency of market access to the producers - this also means that the income generated in a short peak fishing period will need to suffice to meet the subsistence needs for the whole year, leaving next to nothing in terms of surplus. In fact, in many cases, the SSF households are caught in a downward spiral of credit which is as much a part of their

livelihood strategy as fishing itself. While for some of the project villages, access to other livelihood activities - agriculture, mostly - is an option to seek work during the lean periods, this does not hold true for others, who are forced to depend on fishing throughout the year.

Seasonality of production also has a major impact on the fish value chains: during the good fishing season, as large quantities of fish are landed all along the Gulf of Mottama as well as in the neighbouring Ayeyarwady Delta and other areas, the prices crash frequently, forcing the fishers take a smaller price.

The areas are frequently subject to floods and cyclones, and they affect the fishers' assets and livelihood options, lead to coastal erosion and siltation, destroy the few infrastructure facilities, and reduce the investment potential in these areas. They also put additional pressure on the already-weak services and support systems in the villages. No disaster risk reduction (DRR) programmes appear to have been implemented in these communities. In times of the all-too frequent natural disasters, access to support for the communities can be very difficult in an area which is hard to reach at the best of times and which has very little penetration of government services and support systems.

Many fishers, when discussing the declining fish catches and increasing incidence and intensity of natural disasters, attributed such trends to climate change. It is not clear specifically how climate change is affecting the local conditions; although - given the location of the Gulf of Mottama - it can certainly be considered as an important threat factor for the local communities. It may be necessary to undertake a more thorough analysis of the different changes - weather patterns, water movements etc. - that may have an influence on the productive potential of the SSF actors in the project areas.

Part 2: A framework to strengthen the role of SSF actors in the fishery value chains in CLCGoM Project areas

This section discusses a potential framework for value chain interventions in the project areas, based on the analysis presented in the previous part. It starts by discussing the key challenges confronting any value chain development programme in the project areas. Using these challenges as a starting point, an attempt is then made to suggest a set of objectives for an effective intervention programme targeting the SSF actors, along with some recommendations to achieve the objectives. These recommendations are necessarily indicative; they require further validation, prioritisation and adaptation to suit the local context and more detailed planning prior to implementation. These are followed by a discussion of some key considerations/assumptions to keep in mind when developing the intervention strategies. Finally, some suggestions have been made to NAG in order to enhance its capacity to implement the programme.

11. Key conclusions from the analysis

Target SSF actors for the project: Part 1 of this study discussed the different aspects that have an influence on the role of SSF actors in the fishery value chains. From the analysis, it is clear that **the small-scale producers (i.e., those involved in capture fishing, including women)** are the key value chain actors to be supported for meaningful outcomes. The other categories of SSF actors, though important, hold rather minor positions in the overall fishing economy. That is not to say that they needn't be supported, but in a context limited by available intervention resources (financial, human and organisational), it may be necessary to prioritise, in the initial phases, people and actions that are most likely to yield maximum benefits.

Target fishery value chain for the project interventions: The fishery value chain involving the **supply of fish to the distant urban areas** (covering small portions of the township and district markets along the way) is by far the most significant in terms of the catches it handles and the incomes it generates for the SSF actors. All other fishery value chains - local fresh fish supply, dried and processed fish supply, animal-feed, export supply - pale into relative insignificance (at least in economic terms) when compared to the importance of the distant urban supplies.

The strategy: The priority actions must be focused on *enhancing the SSF fish producers' capacity to play a stronger role in the distant urban fish supply chain and to obtain better and more sustainable incomes.* .

The key challenges: Based on the analysis in the foregoing sections the key challenges to be addressed for effective value chain interventions to enhance the role of SSF actors in the

Gulf of Mottama are:

- **Small and seasonal fish catches**: the individual, or even the overall fish catches are too small to make a major difference in the markets or to give a strong upper hand to the fishers in bargaining for better deals with the traders. Tender lease systems, small and diverse fishing activities and seasonality of operations reduce the scope for further enhancement of production.

- **Poor social, economic and institutional infrastructure and services**: remote locations, lack of infrastructure, low and seasonal operations and frequent natural disasters contribute to weaken the SSF actors' access to markets.

- **Traders' tight control on every aspect of the fishing economy**: the fishers are obliged to the traders in a number of ways that curtail the fishers' ability to bypass the traders and tread an independent path.

- **Poor capacity of the fishers**: existing human capacity and exposure not enough for upscaling, upgrading or diversifying the activities.

- **Policy indifference**: few enabling policies exist to ensure a level playing field or to support the SSF actors to have a stronger position in the fishery value chains.

12. Objectives for a value chain intervention programme

Turning the key challenges around, the objectives for any intervention strategy to strengthen the role of the SSF actors in the fishery value chains will include the following:

1. To **enhance the fishers' access to fish** through establishing community rights over the fisheries resources, reduce fish losses and enable collective actions for bulking up so the catches can be big enough to bargain for a better deal or to directly reach higher levels in the value chains.

2. To **improve the infrastructure conditions** - access to better landing sites, ice and preservation systems, transport facilities to: reduce losses, enable storage and ready transport, and ensure good quality of supplies until they reach the markets.

3. To strengthen the fishers' bargaining capacity and **reduce their dependence on traders** by establishing their rights over the first point of sale through community institutional development, provision of credit, ice and market access; government and bank linkages for institutional credit and social protection; information services and value addition.

4. To undertake **capacity building programmes for the SSF actors** and the staff of

relevant government bodies (DOF), including training, exposure visits and pilot-scale interventions and to provide hand-holding and monitoring support until the interventions are internalised and self-managed confidently by the communities.

5. To **promote sustainable and equitable fisheries policies**, incorporating fisheries management, social protection, equity and equality objectives, to provide a level playing field for the small-scale fisheries actors, including women, in the fishery value chains and to help them maximise their incomes sustainably.

13. Suggested plan for intervention

The activities to be implemented, and the objectives to be achieved move from immediate to long term, and can be categorised as:

Short term (1-4 years): The systems remain the same, only the SSF actors improve their practices to reduce losses, wastage and costs for better returns within the existing systems, while their capacity to address more systemic problems - dependence on traders, poor government support - are strengthened. The NGO role in this phase will be critical.

Medium term (3-6 years): The systems remain the same, but the power relationships between the traders and the SSF actors will start to change in favour of the latter. The NGO's role is more one of a facilitator than an active participant.

Long term (5-9 years and beyond): The systems will change as the SSF actors take on a stronger decision-making role in their relationship with the other value chain actors. The NGO's role is minimal.

Long-term is taken to mean the lifespan of the CLCGoM Project which is reported to have a 9-year timeframe. Given the ambitious scale of the objectives, it is doubtful that 9 years will be long enough to achieve them. The project will need to define its objectives in the short term (i.e., 1-4 years) and in the medium term (3-6 years), which is important in order to retain the communities' interest in the programme by showing some immediate benefits from the engagement and, more importantly, to initiate, test and validate the various interventions whose incremental benefits over the project life will eventually lead towards the medium-term and the long term project outcomes.

The three levels thus represent a hierarchy of objectives - the immediate term activities lead to the achievement of the project *outputs,* which are discussed in Section 12 above. The medium term objectives are the *expected outcomes* of the programme, in that the SSF actors begin to take on a stronger role in the value chains. The long term objectives, extending beyond the project life, are the *impacts* of the project when the SSF communities are in full control of their life and livelihoods, which include their value chain activities as well.

Activities to be implemented in the short term (1-3 years)

The key objectives for the project in the **immediate term** will be to undertake activities that will show direct benefits to the target categories of SSF actors without affecting the current systems of production and trade adversely. This will involve:

1. *Exploring options to enhance the access to fish for the SSF actors*. Given the small size of current landings, there is need for the fishers to have steady access to good fishing grounds or alternative sources of fish supplies.

    a) Work with the government to obtain rights to the local communities to the leased waterbodies[6]

    b) Efforts to reduce fish losses along the supply chain - from capture to consumer - will contribute to ready increase in the supplies

    c) Support co-management initiatives to control and restrict IUU fishing, destructive practices and overfishing as a means of long-term increase in supplies

    d) Explore potential opportunities in small-scale aquaculture for producers - especially women

2. *Reducing losses, wastage and costs by increasing quality and efficiencies* for increased supplies and better returns; these activities may be led by pilot studies to ascertain their benefits and to familiarise the communities with the necessary actions. The pilot scale interventions may include:

    a) Technical aspects (better use of ice, good practices, loss reduction strategies, value addition for low-value fish, dried fish)

    b) Social development and governance related actions (collective actions: use of collective ice storage systems, ice supply arrangements, credit supplies, mother boats);

3. *Establishing systems for collective actions* to reduce dependence on the traders, including:

    a) Setting up SSF-actor based collectives (cooperatives, associations or groups) in the project areas

[6] Already, Myanmar Fisheries Association, with the support of NAG, has managed to obtain lease rights for the waterbodies in Ayeyarwady, and the same can be replicated in the project areas in GOM as well.

b) Project support for micro-credit programmes, to be supplemented (and eventually supplanted) by the community's own savings and credit programmes and by linkages with institutional credit/social support systems.

c) Collective procurement, storage, distribution systems for ice and other supplies (fuel, engine spare parts etc); collective transport of fish etc, which will gradually support other input and output market services for SSF actors.

4. *Capacity building* programmes for the project staff, government and other partner organisations, and the SSF actors and their associations. Capacity building spans across technical, biological, social, economic and institutional issues and may include:

   a) Regular programmes for capacity enhancement, including training, exposure programmes, pilot studies and demonstrations

   b) Establishing linkages with banks, government departments and media, through raising awareness of the existing policies and processes

5. Undertaking *action-oriented research studies*:

   a) Obtian a better quantitative picture of the fishery value chain actions and actors, including loss assessment and reduction, market assessments and options for value addition including dried fish;

   b) Undertake other studies relevant for effective value chain actions and interventions (traditional knowledge and governance/social support systems; climate change; fisheries management concerns) .

6. *Establishing linkages and networking* with the government, financial institutions, donor and technical support organisations, other NGOs and research bodies for enhancing the support to the SSF actors. This will include two sets of programmes:

   a) Raise awareness among the government and institutional actors about the SSF context

      i. Training and exposure programmes for government staff

      ii. Arrange regular interactions with the communities

      iii. Workshops, research publications, action plans, joint monitoring and review programmes to share ideas, experiences and needs

      iv. NGO/community participation in policy making processes

b) Work with government and other institutional actors for better support and service delivery

   i. Highlight the economic and social infrastructure needs for inclusion in the development plans

   ii. Seek other donor support for transport systems, ice-storage and hygienic fish landing and handling systems; freshwater supplies etc.

In the medium term (3-5 years)

The key activities in the **medium term** will draw upon the strength of the interventions in the first phase to move on to more pro-active assertion of the SSF actors' rights to the fishery resources and to the fishery value chains. The activities will include:

1. Obtaining *government and banks' support* for meeting some of the value chain related needs and scaling up: transport systems, institutional credit, regular supplies and storage facilities for ice, and fish landing and sorting facilities.

2. Undertaking *cooperative marketing and fisheries management activities*, which may include:

   i. collective trade arrangements with the local and Township traders;

   ii. encouraging competition at the fish landing sites through collective marketing actions;

   iii. reduce/bypass – wherever possible – local traders to deal directly with the township traders;

   iv. accessing institutional support for management of the waterbodies and reducing IUU fishing.

In the long term (5 years and more...)

The main objective in the **long term** for the project will be self-sustaining SSF groups in the project villages with rights to the fishery resources, adequate supplies of credit, ice, and transport systems, good market linkages, strong linkages with the government to obtain necessary support for development, infrastructure and social protection, and sufficient human resources to manage the collective efforts on their own.

Given the current status of things in the project areas as well as the experiences elsewhere, and the uncertainty implicit in any intervention that takes a long time to fructify, it is

probably highly optimistic to expect the conditions to reach the outcome during the life of the project, but it is intended as a benchmark to show the distance that the SSF actors will need to go!

Some of the activities in the long term will involve:

1. The producer organisations in the project area networking with other producer groups within and beyond the area to scale up the business in a sustainable manner.

2. Establishing regular linkages with traders in urban centres for direct supply to the urban/export markets

3. Market promotion for consumer awareness about, and acceptance for, ecologically and socially sustainable fisheries products; efforts to develop and trade in convenience foods.

4. Diversify products and markets - as is happening in some NAG project areas in Ayeyarwady Delta, the project area communities may also explore mutual sale arrangements with upland communities, thereby expanding the scope of their business physically as well as commodity-wise.

14. Some considerations in developing an implementation plan

Long-term engagement with incremental benefits: It is clear from the livelihood analysis of the SSF actors in fishery value chains that the prevailing conditions in the project villages are not conducive for the fishers to undertake and sustain any significant change in the value chain systems and processes without significant risks. Minor improvements can only lead to small increases in income without really strengthening the role of the SSF actors in the value chains or making much difference in their life and livelihoods. The strategy to achieve the project objectives will require carefully phased interventions involving a *long-term engagement, with incremental benefits* for the SSF actors.

Holistic intervention strategy extending beyond fishery value chains: The interventions cannot be focused entirely on value chain activities, but will need to be more *holistic*, involving investments in a range of areas - ecological, technical, economic, social, and political - with a view to strengthening the existing capacity of the communities and their livelihood activities prior to further enhancing the people's stake in the value chains. The implementation strategy must also necessarily involve all key actors - SSF communities, the government, the NGOs, the international donors, the research community, the media and especially the private sector, i.e., the traders.

Importance of fisheries management: Any value chain intervention which focuses exclusively

on enhancing incomes without giving due importance to the fisheries management is impossible to justify for both ecological and economic reasons. Similarly, no fisheries management programme can succeed if it does not take account of the market-related factors. There is a strong case for the fisheries management programmes and value-chain interventions to go hand in hand at all stages. NAG's ongoing coastal governance programme can be expanded to include the fishery value chain component, while any new community-based institutions in the project areas must incorporate fisheries management programmes as well.

Sensitive handling of the traders: An important risk in any value chain intervention - if not sensitively handled - may be the potential alienation of the traders on whom the existing systems depend more or less fully. The *immediate* objective for any intervention thus is not to avoid or bypass the traders as to enhance the capacity of the SSF actors to raise their productivity, to bargain for a better deal in the fish trade and - where possible - to increase competition at the landing sites for fish.

Need for collectivisation of SSF actors: Most critically, no intervention can be possible in the project areas without a strong community-based organisational system being in place. All value-chain actions, aimed at supporting the SSF actors, demand a collective set up especially in a context like that prevailing in the Gulf of Mottama. *The essential pre-requisite for beginning any value chain related interventions will be to start encouraging the SSF actors to explore options to develop appropriate models for collectivisation with the project's help.*

Enabling policy support: An enabling policy environment is an absolute requirement for undertaking the value chain interventions; the policies must not only allow the fishers to do what they are already doing, but also strengthen their role through supportive policies aimed at sustainable and equitable access to the various resources and institutional processes for the SSF actors. It is of utmost importance that the government is included and involved in the intervention strategies at all important stages, and that the government officers clearly understand the need for the project actions and ensure the necessary support this will require. The government's support is also essential in terms of enhancing the SSF actors' access to safe and adequate social and economic infrastructure - the huge investments this will require can only be met by the government.

Capacity building at all levels: Capacity building will be a constant theme throughout the project life and will involve not only fishery value chains, or even fisheries, but also a range of decidedly non-fisheries areas, such as institutional, financial and market management and related issues. The emphasis is also as much on building the capacities of the intervening organisations as on that of the SSF actors. Of special note here is the need to train the DOF staff to handle the fisheries programmes more efficiently.

Gender as a crosscutting theme: Gender will be a cross-cutting issue in all development interventions and it is necessary to give due recognition to the roles of both men and women in the value chains and make adequate space for them in the implementation processes.

15. Suggestions for NAG

NAG's role would be to act as a facilitator of the change process, and this will require strengthening its own capacity to undertake a full-fledged, market-based, intervention strategy in a complex sector like fisheries. Based on the Small Scale Fisheries Guidelines (SSF Guidelines), the role of NAG will encompass the following areas:

- Ensuring policy coherence:
  - Production concerns *vs* sustainability/equity/livelihoods/trade concerns
  - Large-scale *vs* small-scale considerations
  - Revenue *vs* equity considerations (e.g., lease policies)
  - Relationships between social development/protection/wellbeing, resource management and economic development
  - Top-down fisheries management *vs* co- & community-based fisheries management
  - Revenues and taxes *vs* investments in infrastructure and services
- Institutional coordination and collaboration (linkages with Department of Fisheries, MyFish, MFF etc; horizontal linkages with ongoing initiatives in Ayeyarwady Delta and Rakhine etc; networking with global initiatives like TBTI)
- Information, research and communication (undertaking studies to fill the gaps in the current understanding of the ecological, technical, social, economic, trade and governance aspects relevant to the fishery value chain actors; designing and implementing appropriate dissemination strategies covering the communities, government, NGOs, and other relevant agencies; establishing two-way communications between the communities and the government etc.)
- Capacity development (training, awareness programmes, workshops, exposure programmes, pilot studies and demonstrations for the target SSF actors and for the institutional actors in the DOF, banks, NGOs and other relevant bodies)
- Implementation support and monitoring (pilot studies on technical and collective

aspects, institutional development, financial and business management, hand-holding and monitoring)

Actions needed at the institutional level:

- NAG needs to employ a full-time expert having strong fisheries and post-harvest (technical and marketing) background to lead the value chains programme
- There is a strong need for capacity building of the project staff and partners (e.g., DOF), covering a range of areas:
  - fisheries and post-harvest (including fisheries policy and management), fish loss assessment and reduction methodologies
  - socio-economic context, including institutional development & strengthening, credit & financial management
  - value chain monitoring and market assessment to understand the emerging trends and to identify potential opportunities for SSF actors.
  - Forging partnerships with government and other relevant bodies to mobilise necessary support for the SSF actors and to institutionalise the processes
  - undertaking studies/research - in collaboration with bodies like MyFish - to fill knowledge gaps relating to SSF actors, livelihoods, markets and value chains, fisheries and management issues
- Once the project team is in place, NAG may consider supporting some exposure programmes for the NAG staff and DOF officers to neighbouring countries
- Undertake detailed planning to work out the specific activities, locations, timeframes, responsibilities, funding and other resources needed for implementation, monitoring systems and periodical review plans; equally important is to undertake a risk assessment, with community representatives, to ensure that all risks are identified and adequately addressed.

Suggested actions at the community level

1. Considering the diversity of fisheries, scale of production, dependence on fishing, and seasonality of operations, not all project villages are likely to be suitable for fishery value chain interventions; there is need to focus on those villages which show a greater potential and work in those villages at least in the early stages.

2. Given the diversity of fisheries in each village, there is need for developing village-specific intervention plans and strategies with the community participation rather than one-size-fits-all approaches. As mentioned, risk assessment is a crucial component at this stage.

3. In all selected villages, the project must recruit field staff to implement the project activities, motivate the local people and undertake day-to-day management of the project, and train them adequately to be able to address all local-level challenges.

4. Extensive programme for orientation and awareness raising to the SSF communities on the potential scope for improvement, the options for improving the conditions, the need for, and requirements of, institutional development and management

5. Based on the interest shown by the SSF actors, set up community-based organisations - use existing models of community organisation from Ayeyarwady delta with appropriate modifications to incorporate value chain interventions and reflecting the local conditions.

6. Set up revolving credit funds as an entry-point to start and strengthen the community-based organisations, and develop savings programmes; monitor the impact of micro-credit on existing credit sources, incomes and livelihoods of the target actors.

7. Undertake capacity building for the CBO members, including training, exposure visits, awareness raising, demonstrations and pilot-scale activities and covering:

    a) Improved fish preservation and processing methods

    b) Simple methods and good management practices for reducing fish losses and better quality control

    c) Fisheries resource management and responsible fishing

    d) Community institution building, management and strengthening

    e) Financial management

    f) Community-based enterprise development in fisheries

    g) Policy awareness and advocacy issues

    h) Networking with government, banks and other relevant fishworkers' organisations

8. Undertake advocacy efforts at the government level to obtain tenders/lease to

waterbodies and to fish ponds for the local community organisations

9. Undertake pilot-scale technical interventions:

    a) Better handling, preservation and processing techniques: use of ice and iceboxes (individual and community-based); good management practices

    b) Quality control, loss reduction strategies

    c) Explore opportunities for small-scale value addition enterprises - better quality dried fish

    d) Community-group based collective efforts to reduce costs, losses and wastage

10. Networking with the DOF and financial institutions for infrastructure, credit, social and technical support to the target groups

11. Undertake studies and assessments, preferably in collaboration with support bodies like MyFish.

12. Hand-holding, monitoring and course correction for all project interventions at the community level.

13. Documentation and dissemination for up-scaling and wider replication

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Annexures

Annexure 1: TOR for the consultant

The specific tasks for the consultant are:

- Developing the analytical framework and the checklists for assessment of the fishery value chains (to be validated by NAG), implementation of field data collection, and analysis of primary and secondary data;
- Providing training to the local project team, who were to assist the consultant throughout the value chain assessment process
- Undertake interactions with different stakeholders in the fishery sector through key informant and focused group discussions, including with potential project beneficiaries;
- Propose practical recommendations for interventions to support NAG in designing collective marketing/small fishery enterprise interventions for CLCMGoMP in Bago Region and Mon State;
- At the end of the assessment, to present initial findings and then produce a final and comprehensive value chain analysis report, to be validated and approved by NAG.

Annexure 2: Analytical framework for fishery value chain analysis

1. Resources: The fishery value chain depends on access to, and availability of, the following:

- Fish and other fisheries-related resources (waterbodies, landing places, mangroves...)
- Physical infrastructure, including tools and implements used in the value chains
- Investments and returns, including sources of investment and their cost and market implications
- Social services, systems and networks that support fishery value chains
- Human knowledge, skills and capacity to take active part in the fishery value chains

2. Institutional factors influencing SSF actors' role in value chains (i.e., by increasing or reducing access to different resources)

- Markets and market intermediaries, access to markets and market information for SSF
- Policy-institutional environment - formal and informal - to support the value chain actors and to provide a level playing field for the SSF actors in the markets
- Gender roles and gender equity issues

3. Also important to take note of, especially in the project areas, are the issues of vulnerability affecting the fishery value chains adversely (i.e., reducing the resource base on which the SSF actors take part in the value chains)

- Impacts of seasonality, shocks and trends

Annexure 3: Checklists for field data collection

Checklist for community level interactions

1. Supply sources for fish:

    a) Important fishing methods:

Variety of fishing methods	Number of boats	No of crew/ boat	Fishing gears	Target species	Seasonality	Advancesi f any	Main buyers of fish

    b) Other sources of fish, i.e., other than local production (imports from outside, procurement from deepsea vessels, small-scale aquaculture, etc.)

2. Details of fish landed:

Fish species	Seasonality of catch	Quantities landed on average	Prices at landing site	Proportion of the total landings (by weight)

3. Key fishery value chains in the capture fisheries in the community

Value chain	No of people employed	As a proportion of total landings by volume	As a proportion of number of people employed	As a proportion of value realised	Relative priority for the fishers (rank 1 to 5)
Local fresh fish trade					
Processed fish trade					
Urban/ municipal fish trade					
Export fish trade					
Animalfeed trade					
Others (details)					

4. Value chain process steps - flowchart from producers to consumers for each value chain

5. Key actors and their generic profile - put into a table

Category	Numbers	Gender	Age characteristics	Ethnic origin	Geographic origin
Producers					
Processors					

Traders					
Distributors					
Ancillary workers					

6. Value realization at each step of the value chain

Producers	Local traders	Processors	Wholesalers	Retailers	Consumers
100	120	140	160	180	200

7. Women and their role in the supply chains:

    a) as main actors (fishers, processors, traders),

    b) ancillary actors (processors' assistants, fish transporters) and

    c) supplementary actors (suppliers of materials, tools and implements)

8. Fisheries infrastructure: fish landing and selling sites on the beach, berthing and storage facilities for boats, nets and engines; fish preservation, processing and storage facilities; ice plants, fresh water, electricity, road and transport facilities, banks, markets, input supply depots, fuel stations etc.

9. Social infrastructure - housing, community halls, provision for drinking water, healthcare facilities, schools, sanitation facilities, cyclone shelters etc.

10. Policy-institutional context at the community level - both formal & informal sectors;

    a) Community institutions: customary governance systems, cooperatives, self-help groups, any other associations

    b) The role of community institutions in fisheries and fish value chains: conflict resolution, regulation of fishing and marketing activties, provision of services for different value chains, lean season/disaster relief and rehabilitation assistance

    c) Government bodies and their role - subsidies, taxes, rights and regulations: in fisheries and fish value chains, livelihood support (including capacity building and livelihood diversification), conservation and management, social development and promoting new development activities (ports, industrial development, deep sea fishing)

    d) NGOs and international agencies and thir role

11. Trend analysis relating to the fishing economy as a whole, for specific value chains and for specific categories of value chain actors.

Focus Group Discussion 1: Fish producers

1. Type of boats and numbers, size, make, means of propulsion

2. Fishing crew: no of people working on the boat; payment system (wages/share) and advances; outsiders/migrants in fishing

3. Fishing gears used and sources of availability, repair and replacement

4. Target species for different gears, their economic importance in terms of unit value in MMK and overall income generated.

5. Facilities onboard: storage space for fish, iceboxes, drinking water, food etc

6. Seasonality of fishing operations: good/peak season, average fishing period and no/lean fishing period

7. Fishing depth, distance and duration, including the time taken for each haul, number of hauls etc

8. Use of ice for fish preservation: sources of supply, quantities used and seasonality of usage

9. Proportion of spoilage or loss of freshness leading to reduced value by the time of landing/sale:

    a) provide proportions of fish of best quality/average quality/poor quality at the time of landing

    b) reasons for the loss of quality

10. Fish landing: local or elsewhere or both (depending on the variety of fish caught)

11. Supply to different fish value chains:

    a) Fish varieties going into different value chains

    b) Sale arrangements for different value chains - auction, direct sale, pre-arranged sale based on advances etc.

12. Sale arrangements:

    a) Auction at the landing site: auctioning arrangements

    b) Contracts with traders: terms of contract

    c) Direct sale to the consumers/distributors in the village

    d) Direct sale to the consumers/distributors in the township

    e) Sale by wives/family members in the local and township markets etc.

13. Payment of money on sale: immediate/after sale by the intermediaries/at regular intervals etc.

14. Investments on fishing: capital costs for boat, engine, sails, iceboxes etc; recurring costs for each fishing

trip: nets, ice, working capital, cost of credit

15. Source of money for investments: private credit (interest rates/market tie-ups), formal sources of credit (banks or cooperatives), and government assistance programmes (boats, nets and engines etc)

16. Returns from fishing: Estimates of income per cycle during peak/average fishing period and over the year

17. Are there facilities for training and other capacity building support to improve production and marketing activities, for diversification, for effective management systems?

18. Any organisation of producers that exist in the village and their role

19. Subsidies, taxes and regulations that play a role in fishing operations

20. Livelihood activities during lean season

Focus Group Discussion 2: Traders, distributors and processors

1. Details of fish traded

    a) Species/varieties

    b) Quantities procured/cycle

    c) Cost of procurement of different varieties/unit value (weight or numbers)

    d) Means of procurement: open sale/auction, prior arrangements etc

    e) Seasonality

    f) Trends relating to (a) to (d) - (a) changes in varieties of fish traded (b) increase/decrease in fish availability - causes: competition, depletion of catches; (c) cost of fish increased/decreased and (d) seasonality of availability changed owing to climate change or change in fishing practices etc.

2. Investments

    a) Capital costs in business: equipment (iceboxes, salting vats, toolkit) and infrastructure (processing yards, sheds etc)

    b) Recurring costs: fish, ice, salt, labour wages, transport costs, market costs

    c) Source of investment: own finance, handloans or delayed payments to fishermen, moneylenders, fish traders, SHGs, banks, government programs...

    d) Terms of finance: rate of interest, credit-market links, period of repayment

3. Physical resources (communal and individual)

    a) Availability of infrastructure needed for fish trade and processing in the village: fish landing, processing and preservation areas, drying areas, transport facilities (roads and vehicles), iceplants, etc.

    b) Details of iceboxes and use of ice:

        i. Quality, size, cost and manufacturing facilities for iceboxes

        ii. Quantity, quality, price and seasonality of availability of ice

        iii. Quantities of ice used by each producer, processor and trader in the daily activities/cycle

        iv. Issues - problems and constraints - relating to use of ice

    c) Fish processing equipment and methods

        i. Processing equipment: quality and value of the material used, sources of supply

ii. Processing method: handling, preparing and drying fish - steps involved, time taken, quantities of salt and other material used, final product as a proportion of the fresh fish.

d) Fish storage and packaging methods: for fresh fish and for processed fish

e) Fish transport and communications systems

f) Marketing infrastructure: physical conditions, quality control and visibility issues, waste disposal systems...

g) Percentage of losses - physical and economic - in the fresh and processed fish owing to inadequate, inappropriate or inefficient fish handling, icing and processing methods or to seasonal hazards like rains and infestation.

h) Fish loss control methods in place

4. Market systems

a) Main customers for the fish: other traders, wholesalers or consumers?

b) Marketing methods: sale at the traders' doorstep, transport to distant markets, sale to traders, directly to the consumers in door-to-door sale, etc.

c) Terms of sale: open auction, direct sale, pre-arrangement,...?

d) Returns from sale of fish/cycle

e) Method of payment: direct, piecemeal, lumpsum at regular intervals...

f) Type of consumers: upperclass, middleclass and workingclass... If all three, relative proportions of each category - who buys the most fish?

g) Market costs: transport and ice; taxes and cess etc.

5. Social assets

a) Community- or activity-based organisations in the village offering support to the producers, procesors or traders

b) Group-based activities and opportunities for group based enterprise development: to reduce risk and/or labour (effort and cost), scale up operations, bypass the intermediaries, or diversify to new products and markets.

c) Assistance from the wider community and from the immediate neighbourhood in helping the producers, processors and traders undertake activities

i. Support for launching and landing boats; repairing nets; marketing fish etc

ii. Support for preparing fish for processing or for trade

iii. Handloans or other immediate support

iv. Share domestic responsibilities, including childcare etc.

v. Social pressure on trade intermediaries to stand up to their commitments and not be too exploitative

vi. Representing the fishers' needs collectively to the decision-makers...

d) Number of people involved in each activity - increasing or decreasing? Implications of the increase/decrease for those already in the system? Competition, inability to find labour help, increased wage payments...

e) Migrant labourers in fisheries - social context and contribution to local fisheries

f) Social bonds with consumers

6. Human resources:

a) Fishworkers' perception of how able they are:

i. To continue doing their activities unimpeded into the future

ii. To scale up or move higher along the value chain

iii. To diversify markets/products

iv. To diversify into non-fisheries activities or move into other areas

b) Number of people shifting away from their traditional occupations into new activities within fisheries, to new activities or to other countries... Reasons and capacity issues

c) Systems in place to enhance the fishers' ability to be able to undertake all the above - government, NGOs, etc.

7. Vulnerability context

a) Impacts of seasonality of fishing operations and trade on the actors and their responses to cope with the seasonal unemployment and deprivation?

b) Impacts of natural disasters and the community responses to cope with the loss of assets, services etc?

c) Impact of climate change and the responses of the value chain actors to adapt to, and mitigate, the impacts?

d) Impact of key trends: declining fish catches, increasing competition, need for higher investments, reduced physical space for fishing, fish landing, processing and marketing infrastructure, and changing macro-economic context - and responses?

8. Policy context

    i. Government support available to address the needs of the fishing communities vis-a-vis:

        1. Tenure arrangements and fisheries management

        2. Value chains and post-harvest

        3. Social development

        4. Gender equality

        5. Climate change and natural disasters

    ii. Regulations and other constraining factors (taxes etc) that may be reducing the fishers' ability to access full benefits from the fishery value chains

    iii. Areas where the government policies do not cover (credit, infrastructure, subsidy schemes for boats and nets etc) that leave the fishers' unable to take full advantage of the opportunities.

    iv. Areas where the government policies may be working against the interests of the fishers (licensing policies, industrial policies, oil exploration, migrant labour etc).

Focus Group Discussion: Women in Fishery Value Chains

1. Role of women in the fishery value chains -

    a) as primary actors involved in fishing, fish auctioning, processing and trade,

    b) as ancillary actors working as processors' assistants and fish transporters, and

    c) as supplementary actors involved in supplying materials, tools and implements required for fish preservation, processing and trade (ice, salt, baskets, knives and other tools)

2. No of women involved in each activity: are the numbers increasing, decreasing or constant?

3. Reasons for the increase/decrease of women's role in the specific activities

4. Gender-disaggregated systems of support - infrastructure and services - to women involved in the value chains: for buying fish, processing, investments, social organisation and capaciy building etc - do they exist? If so, how effective?

5. Sources of investment for women's businesses: own savings, private credit, bank credit, SHG/micro-finance programmes - relative strengths and weaknesses of each.

6. Are the declines in fish catches and related uncertainties having a special impact on the women in the fishery value chains?

7. Are the distant/urban market value chains and export value chains an opportunity or a constraint for the women's role in the sector?

8. Social development needs of the women - childcare, cooking, drinking water supplies, housing and sanitation facilities etc - are these adequately supported?

9. Importance of women's activities and incomes to the (i) fishery value chain (i.e., is their involvement considered indispensable for the value chains?) and (ii) household economy

10. What are the income sources for the women in the non-fishing/lean periods?

11. What is the proportion of the women's income to that of the men during (i) good fishing season and (ii) non-fishing/lean season?

12. Government programmes of support to women involved in fishery value chains

13. Do the women continue to see a role for them in the fishery value chains? How can this be strengthened?

Checklist for interactions with institutional stakeholders

1. Quantitative information (at the township level and at the national level): details of boats, no of people depending on the sector (as producers, processors, traders etc), quantity of fish landings by variety (including seasonal variations), price information, etc.

2. Existing and proposed programmes of support for value chain development - details: name, quantum of support and coverage, effectiveness in addressing the purported objectives etc.

    a) Livelihood support programmes in relation to VCD

    b) Social development programmes targeting VCD actors

    c) Social protection programmes for VCD actors

    d) Conservation and management initiatives in relation to VCD

3. Priority attached to fishery value chains in the policy/programme level and the preparedness of the institutional actors to address the needs.

4. Existing level of knowledge about the fishery value chains and the different actors (and their socio-economic context) involved in them, and the extent to which the current policy framework is tuned to address their specific needs.

5. Other policy initiatives that could have potential negative connotations for the SSF in value chains: foreign fleet fishing licenses, new development initiatives, conservation measures and restrictions on fishing; etc.

6. Potential for enhancing support for the SSF actors in the value chains to reduce losses and enhance efficiencies for better incomes

7. Likely future trends relating to: the directions that existing value chains may take; that new value chains could have; and that overall development processes could have on the current value chains and the actors therein.

8. Opportunities for support to community-based collective actions

9. Opportunities for developing partnerships in sustainable and equitable value chain development.

10. Institutional capacity building needs assessment to better contribute to value chain development

Annexure 4: Villages covered for the study

Sr.	Region/ State	Township	Village	Team
1	Bago State	Thanat Pin	Htaung Min	All Team
2	Mon State	Bilin	Zoke Ka Li	All Team
3	Bago State	Kawa	Ma Mauk Village	Team 1
4			Tadar Oo	
5	Mon State	Tha Htone	Aung Kan Thar	Team 2
6			Taw Gyi	
7		Kyeik Hto	Chaung Wa	Team 3
8			Thein Zayat	

NAG Field Research Team Members

Sr	Team	Members
1	Team 1	Ms. Khin Lay Mon
2		Mr. Min Zaw Oo
3		Mr. Khin Maung Htut
4		Ms. Htet Yin Win
1	Team 2	Ms. Hnin Sandar
2		Mr. Kyaw Tun Thu
3		Mr. Saw Soe Naing
1	Team 3	Mr. Kyaw Zayar Win Swe
2		Ms. Hay Mar Lin
3		Ms. Thet Thet Swe

Annexure 5: Study methodology

Analytical framework

The analytical framework employed for the fishery value chain analysis drew largely from the Sustainable Livelihoods Approach (SLA), which was suitably modified and - where necessary - simplified - to fit the requirements of the study.

Based on the framework for value chain analysis a set of checklists were prepared for interactions at the community level, and with the key actors in the fishery value chains (producers, processors and traders). Separate checklists were also developed for interactions with specific categories of informants (the government staff and the women) to discuss critical areas such as the policy and institutional context and the role of women in the fishery value chains.

Orientation to NAG project team

The study began with a two-day orientation programme for the NAG project team, to familiarise them with the general dimensions of fisheries and post-harvest issues, description of different kinds of value chains (local fresh fish supplies, dried/processed fish supplies, distant urban trade, export trade, animal-feed etc.) and the role of SSF actors in each value chain, including their gender and livelihood dimensions. This was followed by group discussions to identify the key value chains in the Myanmar context and the SSF actors in different value chains. The group then discussed the different aspects relating to the livelihoods of the fishing communities - the availability of different resources, the policy-institutional processes (including markets, formal and informal policies and institutions, and gender issues), and the impacts of seasonality and shocks on the life and livelihoods of the SSF actors. Finally, the orientation programme covered discussing the fieldwork methodology, the checklists and timeframes.

Field testing of the checklists

Prior to undertaking the actual field research, it was felt necessary to test the fieldwork methodology in a project village where all project staff could participate along with the consultant and familiarise themselves with the different components to be discussed with the SSF actors. Based on the fieldwork undertaken in one fishing village under Thanatpin Township, the checklists were discussed again in a group and - after the necessary revisions - used by the project staff for the information gathering in the following week.

Field research

Field research involved community level interactions with a broad range of community

members - including women - to identify the key fishery value chains and the social, gender and economic characteristics of each category of actors. Information on broad areas of common relevance to all SSF actors - fishing systems, target species, seasonality, infrastructure and other support systems, marketing patterns etc. - were gathered at the community level interactions.

Following upon community-level interactions, focus-group discussions (FGDs) were undertaken with specific categories of actors (producers, processors, traders etc.), keeping in view the gender, geographic/ethnic and economic dimensions that may exist within each category. These interactions - using checklists - provided an SLA-framework based overview on the access and availability issues relating to different value-chain related resources, the policy-institutional context, and the impacts of shocks and seasonality on the livelihood resources. Separate interactions with government officers, large-scale traders and women provided the policy and institutional context characterising the value chains in each area.

The FGDs were followed up - where necessary and (time-wise) feasible- with individual/household interactions to gain a more personal perspective on the different issues of relevance. Direct observations at the landing sites, the working areas of the traders and at the fish markets (in the local, township and urban areas - Yangon, Bago) were undertaken to ensure that the information from interactions could be physically validated to the extent possible.

The list of villages covered under each township as well as the project staff involved in the field research is provided in **Annexure 3**.

Consolidation of fieldwork information and analysis

Information gathered through the field research both by the project teams as well as by the consultant was discussed in two review meetings held during the study period, and the outputs from the field research in each village were consolidated at the second of these meetings.

Alongside the field research, a secondary data review was undertaken using both published and unpublished sources of information including studies, reports and statistics wherever such data were available. The paucity of documented information on the project areas - as discussed later on in this report - required referring to secondary data available on the neighbouring areas, such as the Ayeyarwady delta, on the assumption that the conditions in the project areas may mirror to a greater or lesser extent those in the neighbouring areas - however, wherever such information has been made use of, it is made clear in the text.

Meetings were also organised with the representatives of Myanmar Fisheries Association,

the Myanmar Fisheries Federation, as well as with the WorldFish-supported MyFish project team working with the Myanmar Department of Fisheries on research capacity development in the country. Even though these organisations are not currently active in the project areas, the meetings were intended to explore the potential opportunities for intervention relating to areas like collectivisation and investments.

Presentation of key findings and ways forward (add WorldFish)

The key findings and some potential intervention areas were summarised into a PowerPoint presentation made to the NAG project coordinator and the project team, including representatives from the HELVETAS project, at a final meeting at NAG's office in Yangon on 12 September. The discussions following the presentation included the potential for including the fishery value chain interventions into a broader programme of fisheries management that NAG has been implementing already. Also discussed was the need for more qualitative and quantitative information to be gathered from the project areas in the coming period to cover a longer timeframe in order to obtain a clearer understanding of the actors, systems and processes in fishery value chains.

Annexure 6: Table showing the key fish species, average catches/trip and price in the project townships

Township	Fishing Ground	Fish Species	Average Catch per cycle (Viss)	Price (MMK per viss)
Kawa (Bago Region)	Sit Taung River	Belangeri croaker	3 to 5	20000 to 40000
	Off-shore Fishing	Bomby duck	7	10000
		Gain cat fish	1	5000
		Grey mullet	10	2500
		Giant tiger shrimp	15	7000
		Giant seabass	1	8000
		Mango fish	1.5	9000
		Indian tassel fish	1	15000
		Blotched tiger toothed croaker	0.5	40000
		River cat fish	10	1500
		Smith Barb	3	1500
Thanatpin (Bago Region)	Flooded Area	Climbing perch	1	9000
	Sit Taung Canal	Barb	5	1500
		Common cat fish	1	8000
		Snake head	3	6000
		Fatherback	2	7000
		Scorpion cat fish	1	7000
		Colorful eel	2	5000
		Smith Barb	5	1500
		Sheat fish	3	3000
		Garfish	1	1500
		Prawn	2	12000

		Mrigla	5	2500
		Shrimp	10	2000
		River cat fish	7	1500
		Loach	7	3000
Bilin (Mon State)	Sit Taung River	Common cat fish	1	8000
	Sea	Snake head	2	6000
		Grey mullet	5	2500
		Giant seabass	1	8000
		Gaint sea pike barracuda	2	5000
		Belangeri croaker	5	20000
		River cat fish	7	1500
		Prawn	7	12000
		Freshwater shark	1	10000
		Smith Barb	10	1500
		Climbing perch	2	9000
		Mrigla	7	2500
Kyeik Hto (Mon State)	Sit Taung River	Belangeri croaker	7	20000
	Sea	Climbing perch	2	9000
		Snake head	2	6000
		Prawn	5	12000
		Blotched - snake head fish	10	1000
		Hilsa	7	40000
		Mrigla	10	2500
		Eel	10	8000
		Smith Barb	15	1500

		River cat fish	15	1500
		Grey mullet	15	2500
		Garfish (Wrestling Half-beak)	5	1500
Thaton (Mon State)	Sit Taung River	Hilsa	5	40000
	Sea	Belangeri croaker	10	20000
		Prawn	10	12000
		Shrimp	20	1500
		Snake head	3	6000
		Common cat fish	2	8000
		Scorpion cat fish	2	8000
		Climbing perch	3	9000
		Smith Barb	5	1500
		Mrigla	10	2500
		Giant seabass	3	8000
		Eel	20	8000
		River cat fish	25	1500
		Grey mullet	15	2500
		Blotched - snake head fish	10	1000