

Report to NAG  
For  
**Strategic Partnership between LIFT and NAG for  
Improved Co-management of Ayeyarwaddy  
Wetland Resources**

by

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On 18<sup>th</sup> and 19<sup>th</sup> June, the International Fisheries and Co\_Management (IFCM) consultant visited the Ayeyarwadi Delta accompanied by Mr Zayar Linn, manager for the LIFT Ayeyarwadi project, Ms Win Twar Lwin, Research Officer, NAG, and Mr Venkatesh Salagrama, Fishery Value Chains Consultant.

The purpose of the visit was to:

1. Access fisheries livelihood and co-management issues;
2. Determine potential selection criteria for future project sites;
3. Determine potential research issues; and
4. Suggest future field work possibilities.

The team met with:

- i. Members of the Kayay Fishers Association at Mubin
- ii. Members of the Pan Tile Shin Fishers Association at Myin Ka Kone
- iii. NAG Project implementation staff at the project office in Pyapon
- iv. Township fish collector in Pyapon

In addition the IFCM had previously attended the CLCMGoM project Interstate Fisheries Association meeting in Bago, Bago Region and obtained a briefing from the Ayeyarwaddy Fisheries Partnership on the overall work and objectives of the AFP.

This report summarises the observations of the International Fisheries and Livelihood Consultant, while the observations of the Value Chain Consultant are contained in Annex 1.

**Ayeyarwaddy Fisheries Partnership (AFP) Objectives & Background:** The AFP represent small scale fishers (SSF) from six districts in the region. Their main activities have been organizing, capacity building, involvement in the redrafting of the Fisheries Law in Ayeyarwaddy, and negotiating with DoF and Inn owners to increase access of small scale fishers (SSF) to fisheries resources.

Fishing in the Delta varies by location:

1. The northern region is mainly in Inns and larger lakes;
2. The mid region is smaller scale fishing mainly in creeks, streams & Inns;
3. The southern area near the coast is primarily fishing in tidal, streams, rivers and the sea.

Issues:

- Fisher-Farmer conflict
- SSF access to Inns

#### i. Kayay Fishers Association at Mubin ;

We met with 17 male and two female association members. The association was formed in 2011. They represent 15 villages and have 714 members out of 900 SSF in the area. Their main activity appears to have been negotiating with DoF and the Inn owners for fishing access. They claim they have access to 15-20% of the Inns area that they pay for based on the proportion of the Inn price. They have allocated these to 11 villages. They do not however, have a map of the Inns or the allocated area.

**Fishing Season:** All fishers appear to be seasonally, fishing March to September (July-October in the Inns), and then working as agricultural labourers, although two worked in aquaculture.

**Fishing Gear:** They use small non-motorised boats. Fishing gear is small gill nets of 2.5, 2 and 1" mesh size, small locally made bamboo traps (Hmyne), and short longlines with hooks bated with small prawn. (See Fig 1 pictures of boats and gear). They normally set the gear twice a day—at 10PM then check the gear in the morning and reset the gear and recheck in the evening. (See VC section for implications on quality).

**Fish Collectors:** The local fish collectors are not part of the association. In addition they are from outside the communities (probably as this is a seasonal fishery). Most fish are marketed in Yangon, and some in Mubin, some fish are dried and lower value go to home use & home manufactured fish paste.

**Fish Species:** Catfish are the major catch but fishers identified about 12 species (Table 1).

**Table 1: Preliminary List of fish species caught by SSF in MuBin Township**

Scientific	English Name	Myanmar	Language
<i>Clarius batrachus</i>	Walking catfish	Nga Khu	ငါးခု
<i>Channa striata</i>	Striped snakehead	Nga Yant	ငါးရံ့
<i>Heteropneustes fossilis</i>	Scorpion catfish	Nga Gyee	ငါးကျည်း
<i>Osteobrama sp</i>	Carplet--barb	Nga Pha Ma	ငါးဖါးမ
<i>Mystus cavasius</i>	Gangetic catfish	Nga Zin Yaing	ငါးရင်းရိုင်း
	Rohu		
<i>Anabas testudineus</i>	Climbing perch	Nga Ppay Ma	ငါးပြေမ
<i>Trichopodus pectoralis</i>	Snakeskin gourami	Bee Lar (often called Til Apia)	ဘီးလား။ ဂျပ်ငါး။ တီလားပီးယား။။
<i>Notopterus notopterus</i>	Bronze Featherback	Nga Phae	ငါးဖယ်
<i>Barbonymus sp , Puntius sp—will be mixed species)</i>	Barbs	Nga Khone Ma	ငါးခုံးမလေး
<i>Wallago attu</i>	wallago	Nga Batt	ငါးဘတ်
	Eels		

**Catches:** they indicated an average catch of three Viss and up to 15 Viss in September-October for the two trips.

**Marketing:** Normally about 50% of the catch is sold fresh to local fish collector, 20% (depend on price) mainly snakeheads are dried. At the village (described below) 65% sold to nearby collector, lower quality fish goes for home consumption (5%), fish sauce (10%), and fish paste (20%).

### **Village Visit (name?)**

We visited a fishing village (see pictures) of 85 fishing families. It is located on a canal next to road (that also acts as dyke). The houses are bamboo on stilts above the canal water, and no rice or garden land around. The villagers kept ducks, chickens and pigs. As indicated earlier they were seasonal fishers and agricultural labours during the rice season, but “near landless”. I would categorize this as a village poor in resources yet resourceful.

They appear to have recently moved here from a nearby village after the road/dyke was constructed and cut them off from access to the fishing grounds. The Inn they have access to is about a mile away, although there is a nearby Inn opposite the village (where they claim not to fish), they also fish in the creek.

We saw the three types of fishing gear mentioned above and all boats seemed to fish all gears. VS identified a serious issue of fish spoilage related to fishing methods (i.e. length if tie the fish are in the nets & traps before they are harvested (e.g. overnight). In addition there seems to be a rush once fish are harvested to get the fish to the collector.

We also had a quick visit to the fish collector who also bough aquaculture fish. She used ice and the ice boxes that are mentioned in the value chain report. She does not live in the village but has a seasonal buying station adjacent to the village.

### **Fishing Village on edge of the Creek**



### Small Scale Fishing Boats with local gear



Locally made Fishing Trap



Example of some fish captured



## ii. Pan Tile Shin Fishers Association, Myin Ka Kone Village

We travelled by boat to meet with 15 males and 2 women from the above FA.

The FA was founded in 2009 representing 48 villages from 15 Tracts. There are 1218 fishers with about 500 registered with the FA. (70% are fishers and 30 farmers).

In this village they fish in the river and the sea. They fish in the sea from September to November then during dry season as the sea is saltier they fish in the river often using smaller boats. Trammel nets that are assembled in the village (i.e. the outer netting is woven by village women) are the major gear. The fishery targets River Hilsa (Nga Tha Lauk). Catches are low often 1 Viss/day (2-5 fish), but they average 20,000 MMK/day. Other species caught are croaker (Nga Poke Thin), Wallago (Nga Bat), sheath fish (Nga Dan) & Mango Fish (Nga Ponnar) that they use a smaller mesh net to catch. Boats are owned by the fishers and normally fish with 2-3 people the owned. The fishery is open access and there are no rice fields around and there are no Inns. Surprisingly they claim there has been no reduction in the fishery in the past 10 years.

There appears to be no conflict between fisheries and they use a first come first there system for setting nets. Half the fishers borrow money from the village fish collector.

## iii. Pyapon NAG Office

We met with NAG staff including a number of new interns. We presented information on the GoM fishery including the indigenous aquaculture. There appears not to be any indigenous aquaculture practiced in the Pyapon project area, although a few households are stocking fish (needs to be rechecked). However, the FA are introducing a rice fish system suggested by world fish (diagram shown to KTM).

## iv. Township fish collector in Pyapon

The lady fish collector buys only fresh water fish including some Hilsa. She appears to buy from a large area with fish being brought to her. There was a wide variety of fresh water fish including a number of live eels (some *Anguila*). Fishers brought in various size lots from one large fresh water prawn, a handle full of small prawns (*Macrobrachium* sp), to larger sized lots of eels and other fresh water species. All were paid immediately and it was interesting to see the happy faces as they walked away with their money. This visit reinforced the strong social role that the fish collectors play in the fishery value chain.

## Future Work & Research Suggestions

1. Site selection has not yet been done and will be carried out in August 2017. Unfortunately I have not seen the project document so some of these suggestions maybe already be included. Factors to take into consideration:
  - a. Develop clear selection criteria and use this to prioritise villages and townships. (I can give you comments if you send them to me).
  - b. Include a mix of villages that have different issues but also a critical mass of villages that have common issues to allow for cross village learning.
  - c. Include villages where you can make a difference (based on our limited field visit as an example I would rate the village in MauBin as very high priority for inclusion in the project while I would rate Myin Ka Kone with very low priority).

- d. Ensure that GPS locations are recorder for selected villages (this is important to later map the villages but also to use google earth to map relevant features).
2. It will be important to systematically collect relevant baseline data on fishing (e.g. gear, fishing areas, species caught, marketing, value chain) other livelihoods, household income, etc. Based on the CLCMGoM experience you could use a similar approach to the indigenous fisheries survey where some documentation has already been prepared and translated to Myanmar. Critical to this will be training of field staff prior to any survey.
3. Mapping of villages, fishing grounds and relevant Inns in cooperation with village officials, fishers. DoF, NAGs GIS staff, Inn owners, fish collectors, etc.
4. Define project interventions and develop indicators and means of verification for the expected results.
5. Other research needs will become apparent once the villages have been selected.
6. Implement and develop Value Chain Interventions as suggested in the Value Chain Report.

## *Fisheries Value Chain Development in the Ayeyarwady*

**Project Progress Review Report, based on a mission from 11-21 June 2017 by Venkatesh Salagrama, Fishery Value Chains Consultant – NAG-CLCGoMP**

### *A. Observations from field visits*

1. The very brief one-and-a half day visit to Ayeyarwady was intended mainly to assess the opportunities for some meaningful value chain interventions in the delta. Consequently, the interactions with the communities were focused almost exclusively on the value chain related activities, and other aspects like the management and institutional issues could not be explored in any detail.
2. The one difference between the Ayeyarwady delta and the GoM area may well be one of scale, in that the VC issues of importance are broadly similar to both areas. With better access to the sea, and the fishing operations slightly bigger than in GoM, the Ayeyarwady delta fishers might be capturing more fish, more consistently and with less influence of seasonality, but – as far as could be ascertained in the brief interactions with the fishers – even here, the difference appeared to be marginal.
3. The most difficult issue here, as in the GoM, lay in being able to establish (i) the average size of fish catches and (ii) the fish losses along the value chain, if any. The difficulty arises – in the absence of robust quantitative information on either – because the fishers find it difficult to provide even roughly average figures in case of the average landings and even more difficult to accept that there could be any losses in the FVCs.
4. Anecdotal evidence, together with more reliable information from a fish trader in Pyapon, seem to indicate that the average catches per boat in Ayeyarwady are surprisingly small – in fact, at an average of 1 to 2 viss per fishing trip, they are no better than in the GoM. Fish like Hilsa reportedly fetch very good prices, but even then, the catch per effort – especially at sea – appears to be quite small and needs further validation.
5. With pitifully small catches, and reportedly nil losses along the value chain, one immediate conclusion that one could draw is that there is little by way of VC interventions that could be undertaken in the Ayeyarwady delta.
6. However, despite paucity of reliable data and the hit-and-run nature of the field visit, one could hazard a few guesses. For instance,
  - given the distances to the fishing grounds and to the markets, and the time taken to travel these distances on boat, one might argue for the existence of fish losses, though – as in the case of GoM – these would be more implicit than explicit.
  - second, though ice seemed to be very much used, the quality of iceboxes used on board and at some fish collectors' places – made out of Styrofoam – would suggest scope for improving these to more robust and efficient designs. The fishers confirmed to be buying more ice than necessary and also that the ice bought for one fishing trip must be used up or it just melts away. Whenever the fishers fail to catch anything (which apparently is a regular occurrence), they also lose their investment on ice.
  - third, as in the GoM, the way that ice was used seemed to leave much to be desired: the four scenarios discussed in the GoM context (no ice, inadequate ice,

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inappropriate use of ice and excessive usage of ice) seem to hold just as valid in case of Ayeyarwady delta.

- Fourth, all fishers report that they procured ice piecemeal (e.g., a third of a block) and individually by the boat, which would indicate unnecessary wastage of ice (while splitting the block and later crushing manually on board) and expense (collective procurement might reduce cost of ice itself – a block costs cheaper than when sold in smaller lots – and also the transportation costs that each boat is now incurring).
7. Stronger – if still anecdotal – evidence of possible spoilage in the fishing operations came from Mubin area: here, on average about 65% of the fish caught from the seasonal fishing operations in the *inns* were reportedly sold in fresh condition, the rest – some 30% after a small quantity of fish for domestic consumption was deducted – seemed destined for fish-pastes and sauces, because *they would not be in a good condition to be sold as fresh fish*.
  8. A 30% spoilage of fish from *inn*-capture appears to be too high to be true, but even if only half that much is being lost, it is still unacceptably high. However, the problem in this instance appears to be related not to the fishers' not using ice, but to the fishing operation itself: the fishing nets are reportedly set in the evening and allowed to soak until the early hours of the next morning, and when the catches are hauled in, the fishers reportedly encounter spoiled and/or damaged fish in sizeable numbers. What this might imply is that a large proportion of the catch might be entering the net in the early part of the night, which might be long dead by the time of being hauled in the morning, matters not being much helped by the bruises incurred or predation through the night. All this is conjectural at the moment, and needs further studies and validation: if true, the solution to the problem might lie not so much in promoting value chain actions as in improving the fishing practices, to involve short fishing hauls and other measures.
  9. All in all, there does seem to exist a case for a value-chain programme in the Ayeyarwady delta, but it has to be stressed that the case must be stronger to justify interventions in the near future. One strong justification for focusing on the Ayeyarwady delta is that it accounts for a sizeable proportion of fish catches in the country and is also home to a sizeable number of small-scale fishers, many of whom fall into the vulnerable and marginalized categories. The problem could be not that the losses are not significant here (given the terrain, the fisheries, the socio-economic conditions of the SSF communities, the quality of infrastructure and transport facilities in the area, and the current post-harvest practices, it is improbable that there are no losses!), but that we don't know enough.
  10. *One essential first step towards this for the project could involve two priority activities: (i) develop a broad overview of the PHF and FVC context in Ayeyarwady context as in the case of GoM and (ii) undertake more specific case studies in different value chains in the Ayeyarwady delta, including some load-tracking experiments involving data collection from the point of capture through to the final consumers in Yangon markets, in order to better understand the dynamics including the people, places, processes (including losses if any), and price mark-ups along the value chain.*
  11. As for the actual VC activities in the Ayeyarwady delta areas, the following recommendations, made in connection with the GoM area, should be appropriate in most respects for the Ayeyarwady villages as well.

## Annex 1 Value Chain

### 1. Recommendations

*Recommendation 1: Initiate some urgent VC activities at the community level!*

The project needs to catch up with lost time and very urgently too. An immediate option might be to undertake community level awareness programmes on the proposed VC activities and how they might help the different value chain actors. While providing some visibility for the project at the community level, this will also help to get the community buy-in for the VC project and more practically, identify some key VC actors who might take the lead in testing and promoting the VC initiatives eventually.

The project could also develop some awareness raising materials on quality control, good practices in fish handling, preservation and processing in the form of posters and booklets to circulate widely in the target communities. Once again, this provides the necessary visibility to the project while also taking the message of better value-chain actions leading to better and more sustainable incomes to the communities in an effective manner.

*Recommendation 2: Start a vigorous capacity development programme*

The capacity development initiative must start with providing an intensive short-term training to the project staff on the various components of value-chain actions (starting for the time being with the technical issues). Alongside the project staff, members of partner organisations like the DOF might also be involved in the programme. The training for the project staff will aim to enable them to act as trainers at the community level.

For the training courses, it is necessary to enter into an institutional arrangement with the relevant training bodies in the government (FTC) and – in collaboration with the FVC Consultant – design a training curriculum that fits the requirements; translate the material into Myanmarese; and develop the same material into simplified awareness material for use at the community level.

Once the project staff have been trained, undertake awareness programmes at the community level on various aspects of FVC: good management practices in fish handling, preservation, processing, transport and storage. For specific value chain actors, the project may provide more intensive training on use of ice and iceboxes, better fish processing methods and value-added products.

*Recommendation 3: Exposure visit for key project staff to India to better understand and internalise FVC programmes*

It is recommended – subject to availability of resources, obviously – that some project staff be sent to Andhra Pradesh, on the east coast of India, for an orientation programme on the various aspects of value chain activities, in conjunction with the FVC Consultant who will liaise with the local research and training institutions and NGOs in the local area to ensure effective support for the orientation programme. The advantage with Andhra Pradesh lies in the fact that the fisheries are largely similar to those prevailing in the GOM area, and the social and economic context of the people in the two places also share several similarities.

*Recommendation 4: Augment the existing project team with full-time staff and with dedicated fisheries and M&E professionals*

It is strongly recommended that NAG recruit a dedicated fisheries officer for CLCGOMP value-chains project, who will help the project manager to coordinate and ensure the timely implementation of activities. The presence of a fisheries expert on the project would provide the confidence needed to the project staff to undertake and implement fisheries programmes more effectively.

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The project also needs to set up a strong monitoring and evaluation (M&E) system in order to ensure that the expected outputs from the project could be achieved effectively and on time. Given that the project has only a few more months before the current phase ends, the new M&E person must be able to develop appropriate indicators that can capture the project achievements in a realistic manner, while also standing up to the project's original commitments.

*Recommendation 5: Undertake an assessment of the patterns of usage of HDPE iceboxes with a view to recommending actions to reduce damage and increase shelf life*

Undertake an assessment of the current procurement, usage and damage patterns of the HDPE boxes in order to understand and provide guidance on reducing the damage and enhance their shelf life. The factors contributing to the damages could be (i) bad handling and usage practices and (ii) poor construction materials/processes. In the first instance, the project could undertake a series of awareness raising programmes on better handling and usage of the iceboxes and in the latter, the project's focus could be on improving the construction standards for iceboxes. The awareness programmes could take the form of field-based demonstrations of good practices on board and on shore. The quality standards for better constructed iceboxes could be used, on one hand, to help the DOF and other relevant government bodies to put in place appropriate construction standards, while they could also be used to work with the box-makers themselves to improve the quality standards to the required level.

The assessments and the follow up actions under this recommendation might require a technical consultant to undertake visits to the fish landing sites, fish collectors' sheds, and township traders' warehouses to assess the reasons for damage *in situ* and make appropriate recommendations.

*Recommendation 6: Initiate some immediate VC initiatives on pilot scale*

Undertake community-level programmes on better handling and use of ice and iceboxes – to reduce losses and optimise usage at the community level; promote measures to reduce damage and increase shelf-life of the iceboxes; and monitor the change in practices and evaluate the benefits from better handling and usage of ice and iceboxes.

Alongside, the project could facilitate some group-based initiatives to procure and store fish collectively in the community, to reduce the transport costs as well as the unnecessary wastage of ice incurred while chopping the whole blocks into smaller chunks. The provision of a permanent (or semi-permanent) ice-storage mechanism at the community level – perhaps at the fish collectors' shed? – could also help stock large quantities of ice for extended periods of time without worrying about ice wastage in times of poor catches. The same ice-cum-fish containers, with removable partitions, can also help the fish to be retained for a few days before the requisite quantities are obtained to justify their transport to an urban market.

Provide training at the community level, along with support for simple tools-of-trade for reducing wet season losses of fish and insect infestation in traditionally processed fish products in Bago area. Provide training on good management practices for better quality dried fish and other fishery products like fish pastes and sauces. Assess the technical and economic viability of the improved practices (in terms of reduced losses and increased incomes respectively) through case studies and interactions with the processors.

For the community level training and support for processed fish activity, the FVC Consultant will provide the necessary training material, which will need to be translated and locally available materials used for demonstration by the NAG project staff.

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Explore possibilities for producing new value-added products – ready-to-cook and ready-to-eat – based on a range of options, test-market these for their acceptability and where appropriate, undertake scaling up to commercial models. The project could undertake a series of training programmes on making a variety of products, which may be standardised and/or revised based on the consumer responses. The project could help the trained women’s groups in marketing the product through super-markets in urban areas like Yangon, Bago and Mawlamyine, as well as by helping them set up (or arrange with) street-side stalls for sale in places of tourist interest.

*Recommendation 7: Quantitative and qualitative information collection on FVCs and updating of FVC Overview study*

Revise and update the Fishery Value Chain study, first developed in 2015, using information since obtained from the field activities and the exposure to more knowledge about the people, systems, processes and places. This revision can be undertaken by the research officer in consultation with the Programme Officer and under the guidance of the FVC Consultant.

Undertake specific case studies on different value chains (covering fresh fish/urban; fresh fish/local; dried fish; fish pastes etc., from different GoM locations) involving methods such as load tracking to understand the movement of fish along the value chain, and the transformations (people, place, image and price) that it undergoes along the way.