



INLAND MYSAP

Value Chain Report – Pinlaung



Value Chain Report - Pinlaung Township

The Myanmar Sustainable Aquaculture Programme (MYSAP) which is funded by the European Union (EU) and the German Federal Ministry of Economic Development and Cooperation (BMZ) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has the following objective:

Support the sustainable intensification of the aquaculture sector, thereby realizing its potential for food security, nutrition and sustainable livelihoods

MYSAP is promoting small-scale aquaculture and improved human nutrition in five townships in the Shan State and the Sagaing and Mandalay Regions of Myanmar in its component INLAND MYSAP. WorldFish Myanmar is implementing INLAND MYSAP under a GIZ grant agreement. The INLAND MYSAP townships are:

- i) Kale (ကလေး - MMR005027) Township, Sagaing Region
- ii) Shwebo (ရွှေဘို - MMR005004) Township, Sagaing Region
- iii) Kengtung (ကျိုင်းတုံ - MMR016001) Township, Eastern Shan State
- iv) Pinlaung (ပင်လောင်း - MMR014009) Township, Southern Shan State
- v) Amarapura (အမရပူရ - MMR010006) Township, Mandalay Region

Mekong Economics Limited, a commercial company was contracted under a service agreement with WorldFish Myanmar to conduct the INLAND MYSAP baseline survey after a tendering process.

The findings of the INLAND MYSAP baseline survey were presented by Mekong Economics Limited at a workshop held in Nay Pyi Taw on 26 June 2018 which was attended by 70 key stakeholder participants including government, NGOs, farmers and donors.

Feedback from key stakeholders has been incorporated into this final version of the INLAND MYSAP baseline survey report for release into the public domain.

The findings of the INLAND MYSAP baseline survey report will be used by the Government of Myanmar, the EU and BMZ, MYSAP and collaborating implementing partners to assess progress towards both programme level and project level objectives and results and programme and project level impact.

For further information on MYSAP please contact the Head of Project Mr Peter Buri (peter.buri@giz.de) and for further information on INLAND MYSAP and/or the baseline survey report please contact: inlandmysap@cgiar.org.

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1. Introduction

In this section, we briefly introduce the intervention and its objectives, and the value chain research that was conducted as part of a baseline study of the INLAND MYSAP project.

Project Description

WorldFish Myanmar in collaboration with the Department of Fisheries (DoF) R&D Division, under the Ministry of Agriculture, Livestock and Irrigation (MoALI), will implement the project 'Improving the production, nutrition and market values of small-scale aquaculture in Myanmar's Shan State, and Sagaing Region' (INLAND MYSAP). INLAND MYSAP will run from 06 April 2017 to 05 May 2020.

The development goal of INLAND MYSAP is to increase the availability and access of fresh water aquaculture products sustainably produced by small-scale aquaculture producers, and to provide nutritious, affordable food and incomes for the poor and vulnerable in Shan State and Sagaing Region. Amarapura Township in Mandalay Region was recently added to the project area.

Value Chain Study

As part of the baseline research conducted for this project, a value chain study was commissioned to understand the constraints facing selected aquaculture value chains and the opportunities for value-chain upgrading and increasing fish consumption. Mekong Economics (MKE), a leading socioeconomic development consultancy in the Mekong region, was contracted following a limited tender process to implement the baseline research, including the value chain study.

The following themes are touched upon, to varying degrees, in the value chain study: (1) production; (2) markets; (3) nutrition; (4) climate resilience; (5) gender equality; and (6) governance. Opportunities for the following are highlighted: (1) livelihoods improvement; (2) product development; (3) processing; and (4) service provision. These will serve to inform the specific contents of the intervention and to steer the project's overall direction.

2. Methodology

The methodology adopted for the value chain research combines quantitative and qualitative tools to answer specific research questions. Concurrently with the value chain study, a survey of households was conducted to obtain baseline values of indicators. Some of the value chain research was able to "piggyback" on the household survey, but mostly relied on separate data collection tools. These consist of: (1) a market survey; (2) key informant interviews; and (3) focus group discussions.

Research Questions

The research questions of this study comprise a single lead question in addition to five sub-questions. They were as follows.

Lead Question: Can aquaculture help to replace fish previously supplied from the wild and if so what is the best way of doing this to improve low-income people's fish consumption?

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Sub-question 1: Are we experiencing an increase in the proportional supply of farmed fish? If so, what are the resulting changes in local fish trade and consumption practices?

Sub-question 2: If there has been an increase in fish from aquaculture in the area, has the price of fish at local markets remained stable, lowered or increased?

Sub-question 3: Are local fish farmers and collectors facing important logistical challenges to supply their products to the market? What are they and how do they address these?

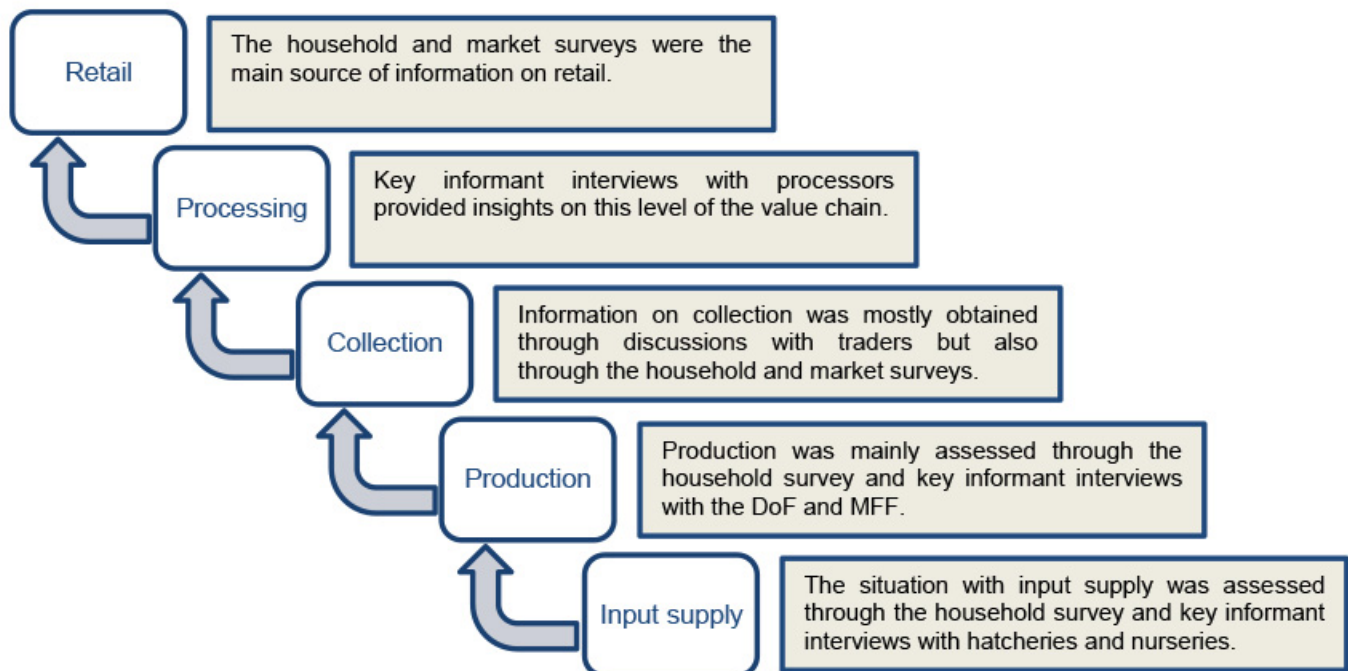
Sub-question 4: How is local fish farming positioned compared to the wild-caught and Yangon-farmed fish supply? What are the main interrelations between these three supply chains?

Sub-question 5: What is the prevalence of fish processing practices and related consumption? Are there interesting prospects for the project to support these?

Research Strategy

The research strategy was to employ mixed (quantitative and qualitative) methods to obtain information along the value chain. The various tools deployed were: (1) a household survey; (2) a market survey; and (3) qualitative interviews with the DoF, the Myanmar Fisheries Federation (MFF), hatcheries, nurseries, processors and traders. For the purpose of this value chain study, a 'trader' was defined as someone who purchases fish from a fish farmer or another trader. While a 'vendor' was defined as someone who sells fish to consumers. Note that traders can also be vendors.

Value chains were evaluated at the following five levels:



The value chain analysis drew a distinction between the following three types of fish species: (1) carp species – namely Indian major carps, being rohu, catla, and mrigal, and Chinese carps, being common carp, silver carp, big head carp and grass carp; (2) tilapia; and (3) small indigenous species (SIS). The following three supply chains were considered, although the focus was on the first of these: (1) locally farmed fish; (2) Yangon-farmed fish; and (3) wild-caught fish. The value chain study was conducted in five townships, with separate reports for each: (1) Kalay (Sagaing Region); (2) Amarapura (Mandalay Region); (3) Kyaing Tong (Shan State); (4) Pinlaung (Shan State); and (5) Shwebo (Sagaing Region).

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Where possible, a triangulation approach was used with multiple sources of information to corroborate data.

Quantitative Tools

The quantitative tools consisted of a baseline household survey and a market survey in the five townships.

Household Survey

The household survey employed a quantitative questionnaire to collect data from 847 households, of which 155 were sampled from Pinlaung Township. These were split roughly equally between three sets of locations: (1) four wards of the township capital; (2) four production hubs (wards/villages with above-average aquaculture involvement); and (3) four rural villages (those in village tracts).

Market Survey

A market survey was conducted with fish vendors in each township. The sample consisted of randomly-selected vendors in each market, with one major market and two or three minor markets surveyed in each township.

Qualitative Tools

As can be seen in Table 1, the qualitative tools used for the Pinlaung value chain study consisted solely of key informant interviews (KIIs). A KII is a conversation with a relevant individual conducted by trained staff that usually collects specific information about one person. Semi-structured questionnaires were developed for all qualitative interviews. These are included in the Annexes.

Table 1

Interview format	Stakeholder(s)	Interview date	Interview location
KII	DoF	02/05/2018	Taunggyi
KII	MFF	03/05/2018	Nyaungshwe
KII	Trader (male)	05/05/2018	Nan Toke
KII	Trader (male)	05/05/2018	Nan Toke
KII	Trader (male)	09/05/2018	Phel Kone
KII	Processor (male)	08/05/2018	Ti Kyit
KII	Processor (female)	07/05/2018	Pinlaung

3. Value Chain Map

See Annex A for a value chain map of the fish sector in Pinlaung Township.

4. Market Information

Market information was collected from the following three market locations: Myoma (major market), Saund Pyaung (minor market) and Ti Kyit (minor market). The following map marks these locations. Randomly selected vendors accounted for roughly 60%, 50% and 50% of traded volumes at Myoma, Saund Pyaung and Ti Kyit Markets, respectively, on the day of visit. 91.7% of vendors randomly selected for interview were female, suggesting that Pinlaung vendors were mostly female.



Fish Sales

Figure 1 compares sales volumes for wild-caught fish and different types of farmed fish across the three markets surveyed. The township total was calculated by summing volumes at the three markets.

Wild-caught fish were primarily sourced from a local lake, Phel Kone, while all sources (including the household survey) confirmed that there were no fish farms in Pinlaung Township. All farmed carp (rohu, mrigal and common carp) observed in the markets originated from Yangon or, to a lesser extent, Mandalay. Among carp, only *Cyprinus intha* was locally caught.¹ There were two kinds of tilapia found in markets in Pinlaung – caught from Phel Kone Lake and Yangon-farmed.

The main wild-caught species observed in Pinlaung markets were: (1) lesser spiny eel; (2) tilapia; (3) *Cyprinus intha*; (4) striped snakehead; (5) spotted barb; (6) walking catfish; (7) bronze featherback; (8) tank goby; and (9) *Gymnostomus horai*. Of these, spotted barb and *Gymnostomus horai* are the only small indigenous species. Spotted barb were either caught locally or sourced from Yangon. One trader-vendor was found selling large quantities (200 viss per day) of Yangon-sourced spotted barb under the trade name “Taiwan barb”, which he sold mainly to other traders and vendors. *Gymnostomus horai* was not observed in the market survey; it was encountered only in interviews with processors.

¹ Although some *Cyprinus intha* was claimed to have been brought in from Yangon, these were likely to have been common carp. As such, the actual sales volume of *Cyprinus intha* may have been lower than what is presented in Figure 1, while the sales volume of common carp may have been higher.

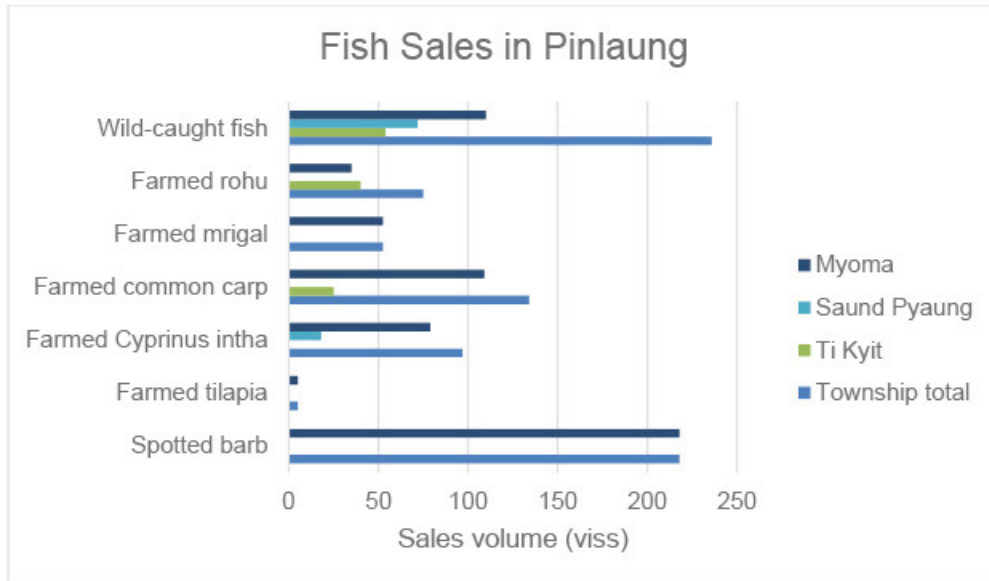


Figure 1

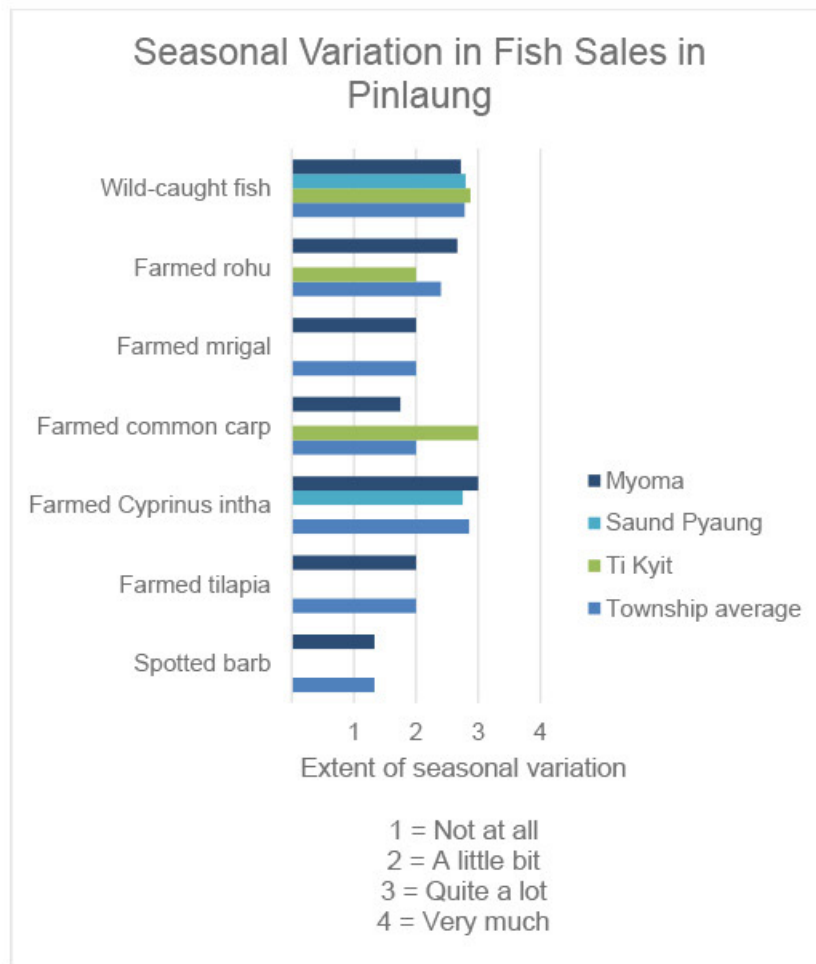


Figure 2

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Seasonal Variation

Figure 2 depicts the extent of seasonal variation in sales of different kinds of fish in Pinlaung using a four-point Likert-type scale (very much, quite a lot, a little bit, not at all). The township average is a simple average of observations from all three markets.

The dry season sees a decrease in the supply of locally caught fish in Pinlaung (by about half), with fishers switching to plantation work for replacement income during the winter months. Wild-caught tilapia was exceptional in that it was available year-round. The market share of Yangon-sourced fish increases in the dry season. The peak season for fish sales was during festival periods.

Fish Prices

Figure 3 displays the price of different kinds of fish in each of the three markets surveyed. The price for each market is the simple average across vendors, whereas the township average is the average of observations from all three markets.

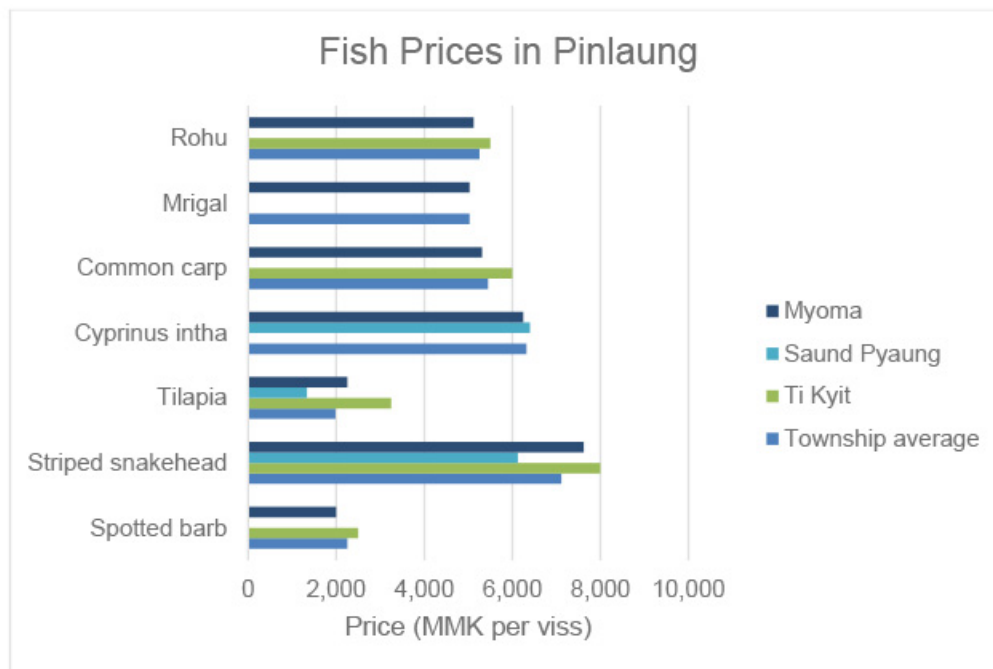


Figure 3

It was noted by one vendor that Mandalay-farmed fish are about MMK 100-200 more expensive per viss on average than Yangon-farmed fish. Note that the prices of species in Figure 3 are simple averages that ignore such distinctions.

Seasonal Variation

Figure 4 depicts the extent of seasonal fish price variation in Pinlaung using the same four-point Likert-type scale as Figure 2.

In general, reduced availability in the dry season leads to increased prices for locally caught species such as *Cyprinus intha*, bronze featherback and striped snakehead. In the case of bronze featherback and striped snakehead, the price difference could be as much as MMK 1,500 and MMK 1,000 per viss, respectively, while for other locally caught fishes the price difference was around MMK 300-800 per viss.

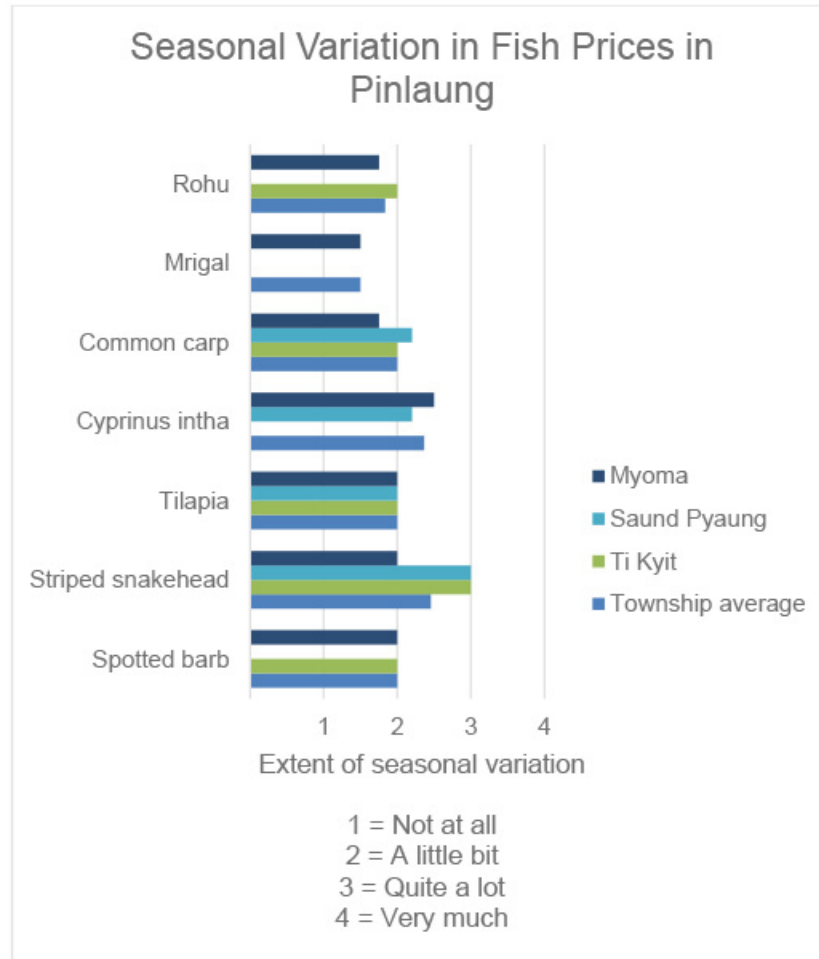


Figure 4

5. Answers to Research Questions

In this section, we seek to answer the research questions underpinning this study.

Lead Question: Replacing Wild-Caught Fish and Improving Fish Consumption

Some traders noted that local authorities have banned electric fishing, which has led to an increase in the supply of locally caught fish in recent years. The increase in wild-caught fish was corroborated by vendors. However, a sizeable increase in the number of vendors means that for the vast majority of vendors in Pinlaung markets sales of wild-caught fish have been decreasing over the past three years. No vendor indicated that sales of wild-caught fish have been increasing. This suggests that local fish farming, combined with activities to promote fish consumption, could lead to increased sales and thus profits for individual vendors, contributing to growth of the retail level of the value chain.

It was reported by some that decreasing incomes and rising fish prices have reduced the ability of many households to afford fish. The household data shows that fish trade and consumption has been unaffected for a majority of people, but a sizeable minority have experienced a decrease in their consumption of common aquaculture and wild-caught species (see Figures 5 and 6). Local fish farming could contribute to the supply of affordable fish as well as potentially improve incomes (if households take up fish farming) in the township, which could help reverse any emerging decline in fish consumption.

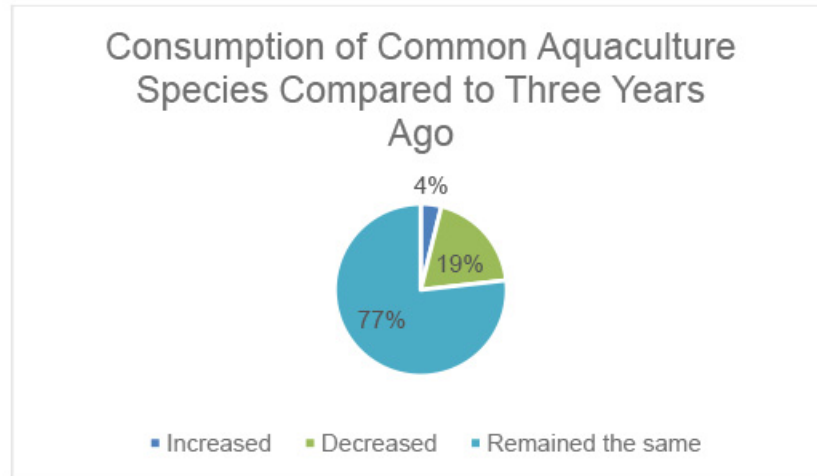


Figure 5

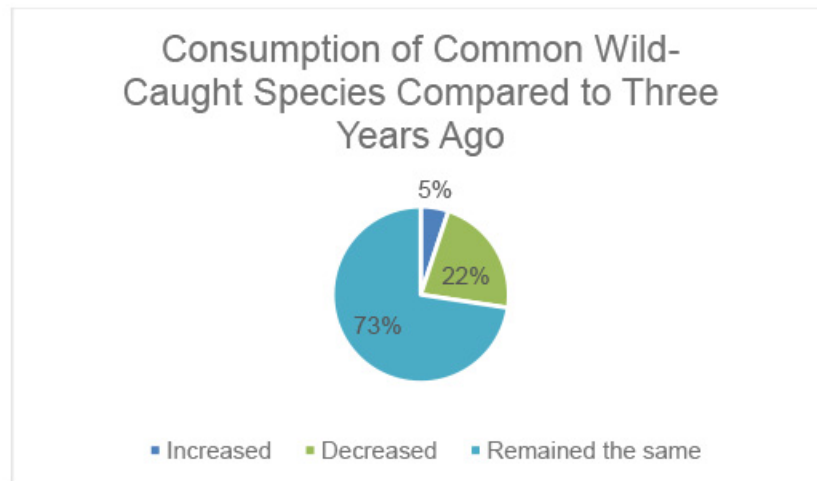


Figure 6

In addition, local fish farming could mitigate potential seasonal variation in fish consumption. To some extent, fish from Yangon or Mandalay currently act as a replacement for wild-caught fish in the dry season, but it was suggested by traders and vendors that some consumers exhibit a distinct preference for fresh fish that is seasonally caught over frozen fish that is transported from elsewhere. It is thus possible that household fish consumption decreases when wild-caught fish are unavailable for households who have particularly strong preferences for fresh fish. This suggests that locally farmed fish, being fresher than farmed fish brought in from elsewhere, may be able to reduce any such seasonal declines in fish consumption.

Sub-question 1: Changes in Supply of Farmed Fish

Multiple sources reported that there was no local supply of farmed fish in Pinlaung. According to traders, the supply of Yangon and Mandalay-farmed fish has decreased in the past few years. On the other hand, wild-caught fish were reported to now be more available. Apart from the fact that electric fishing has been banned, restocking of Phel Kone Lake by fishers and traders collectively was reported to have also contributed to the increase in wild-caught fish. Thus, we can conclude that the proportional supply of farmed fish is likely to have decreased in the area over the past three or so years.

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Sub-question 2: Changes in Market Price of Fish

The price of fish, whether farmed elsewhere or locally caught, has increased by about MMK 200-300 compared with previous years, according to vendors. This was supported by the market data, in which 100% of vendors indicated that prices have increased across the board for fish, regardless of species or origin.

Sub-question 3: Logistical Supply Challenges

Interviews with vendors did not uncover specific logistical challenges faced by them.

However, it was reported that Phel Kone traders face shortages of ice, particularly in the summer when demand for ice is high. There was only one ice factory in the local area and this was part of the problem, but ice shortages were also caused by electricity cuts. Purchasing ice from Mandalay was an option, but the price was almost double that of locally produced ice because of the transportation cost. In these situations, traders were forced to sell their fish at very low prices to minimise their losses.

Town entrance fees and utilisation fees for roads and bridges were sufficiently high to have deterred one trader from using their own vehicle for transporting fish. Instead, he started transporting fish using an express bus service. A lack of regular buses to other townships meant that he was sometimes forced to store his fish for several days before they were transported to the point of sale. The reduced freshness meant that they were sold at a lower price, which resulted in lower profits.

Sub-question 4: Comparisons Between Supply Chains

Locally farmed fish were absent in Pinlaung, while the relationship between Yangon-farmed and locally caught fish was that Yangon-farmed fish largely served as a replacement for wild-caught fish when they were seasonally unavailable. According to one trader from Phel Kone, the share of locally caught fish in Pinlaung markets ranged from 70% during the wet season to minimal in the dry season. Yangon and Mandalay-sourced fish make up the remaining market share. The split between Yangon and Mandalay-farmed fish at any given point in time was about 80% to 20%.

It was reported in qualitative interviews that some consumers were developing a preference for Yangon fish because Yangon fish tends to be cheaper and has a regular supply throughout the year. Among others, there was still a preference for wild-caught fish due to freshness, as already noted. The qualitative findings were supported by the household survey, which found that Pinlaung has the greatest proportion of households exhibiting an explicit preference for Yangon-farmed fish (31%) among studied townships. According to interviews, however, local village markets were dominated by wild-caught fish, reflecting the lack of locally cultured fish.

Sub-question 5: Prevalence of Fish Processing

The household data showed that Pinlaung has the least consumption of processed fish out of the five studied townships, at only 1.06 meals containing processed fish per week. Nevertheless, the market survey observed that vendors in urban areas such as Pinlaung, Ti Kyt and Naungtayar often sell fish purchased from Phel Kone traders and fishers in barbecued or dried form (see Figure 7). These urban areas have majority Pa'O and Bamar ethnic groups, who consume dried fish quite regularly.

The fish used for processing were mainly bronze featherback, striped snakehead and walking catfish, which were barbecued, and tilapia which was typically salted and then sundried. Dried snakehead, small indigenous species (*Gymnostomus horai* – see Figure 8) and shrimp were also observed in Pinlaung. One vendor in Pinlaung Myoma Market descaled and minced leftover snakehead and featherback.

The fish that was processed was often what was left over after market hours, particularly in markets located between Pinlaung and Phel Kone. Villages located near Phel Kone Lake, on the other hand, do not consume much dried fish. In all likelihood, the food habits of these villages have been shaped by the fact that they have easy access to fresh wild-caught fish, at least during the wet season.



Figure 7: Barbequed Bronze Featherback at Ti Kyit Market



Figure 8: Dried *Gymnostomus Horai* at Myoma Market

6. Additional Findings

In this section, we report additional findings from the field mission to Pinlaung. We include estimates of price mark-ups along the value chain.

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Price Mark-ups

As shown in Table 2, the average mark-up among traders for rohu was MMK 750 per viss, while common carp and tilapia had average mark-ups of MMK 400 and MMK 440 per viss, respectively. Transport costs among traders ranged from MMK 4,500 to MMK 35,000 per day, while ice costs varied by MMK 2,000, from MMK 2,000 to MMK 4,000 per day. Additional costs were due to purchases of plastic baskets, plastic sheets and weighing scales. One trader reported a large fixed cost – purchasing a boat for MMK 1,000,000.

Table 2

Fish species	Average markup (MMK per viss)	Transport cost (MMK per day)	Ice cost (MMK per day)
Rohu	750	4,500-35,000	2,000-4,000
Common Carp	400		
Tilapia	440		

It was found that vendors in Pinlaung had relatively large mark-ups on rohu and common carp. As Table 3 shows, vendor transport costs ranged from MMK 3,000 to MMK 20,000 per day, while ice costs ranged from MMK 1,000 to MMK 10,000 per day.

Table 3

Fish species	Average markup (MMK per viss)	Transport cost (MMK per day)	Ice cost (MMK per day)
Rohu	1,842	300-20,000	1,000-10,000
Mrigal	550		
Common Carp	1,625		
Tilapia	781		

Comparing average mark-ups between markets, it is apparent that vendors in the minor markets of Saund Pyaung and Ti Kyit placed higher mark-ups on rohu and common carp than their Pinlaung counterparts. Tilapia, however, was found to have an average mark-up that was MMK 114 higher in Pinlaung Market compared with Saund Pyaung and Ti Kyit.

Municipal fees were constant throughout the township, at MMK 500 per day. Selling place rental fees at the three markets surveyed varied somewhat. In the two minor markets of Saund Pyaung and Ti Kyit, the selling place rental fee was MMK 1,000 per day and MMK 10,000 per month, respectively. The fee at Pinlaung Market was MMK 5,000 per month.

Pinlaung processors were unwilling to share information on margins.

Hatcheries and Nurseries

According to multiple sources, there were no hatcheries or nurseries in Pinlaung Township.

Other Observations

- Most vendors said they bore the cost of transporting their own fish.
- At Pinlaung markets, dead fish were usually displayed on plastic sheets, while live fish (typically bronze featherback and striped snakehead) were kept in buckets filled with water. Ice was typically used for keeping fish that was left unsold at the end of market hours. 11 out of 12 vendors interviewed reported using ice.
- None of the vendors, traders or processors interviewed reported using chemical preservatives on fish.
- The DoF in Taunggyi were unable to comment on the presence of shops selling livestock or fish feeds in Pinlaung Township. The lack of fish farmers in the township likely rules out the existence of shops selling specialised fish farming products.

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- It was reported that there were no female middle traders in Pinlaung Township.
- No concerns were voiced about gender-specific challenges faced by traders or processors.
- No concerns were voiced about the climate resilience of fish in Pinlaung.

7. Recommendations

In this section, we present recommendations coming out of the value chain study in Pinlaung. These are aimed at different levels of the fish value chain in Pinlaung.

Input Supply

Recommendation: Restocking of Phel Kone Lake

Restocking of Phel Kone Lake with fish species (e.g. rohu, mrigal) that are normally transported from Yangon. This can help combat increases in fish prices and potentially bring about an increase in fish consumption in the township.

Production

Recommendation: Promote Backyard Fish Farms

Currently, fish farms smaller than 25 by 50 feet do not need to obtain permission or require a licence to operate and thus are not constrained by the land use policy in Myanmar. Small backyard fish farms could thus be promoted by the project. These fish farmers should receive training from INLAND MYSAP as well as support with access to inputs (seed, feed, etc.).

Recommendation: Provide Regular Water Supply

According to the DoF in Taunggyi, Pinlaung faces water shortages in the dry season, which makes it a difficult location for fish farming by those not in close proximity to natural water sources, such as Phel Kone Lake.

Collection

Recommendation: Construction of Ice Mills with Generators

As per the recommendation of one Phel Kone trader, ice mills should be constructed for shared use. These should be equipped with generators to protect against losses from power cuts.

Processing

Recommendation: Support Processors in Advertising and Distributing Their Products

Advertising support could be provided to processors to promote consumption of processed fish products in the township. Another form of support could involve funding processors in Pinlaung to travel around the township by motorbike and sell their processed fish in villages, particularly in those where consumption of processed fish is low (e.g. those located near Phel Kone Lake).

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Recommendation: Encourage Production of Fish Snacks

The production of processed snacks made with locally farmed fish could boost both fish consumption in the township as well as create demand for local fish farmers to expand their business. Local processors would need to be trained in the methods of production, and the products should be advertised as well.

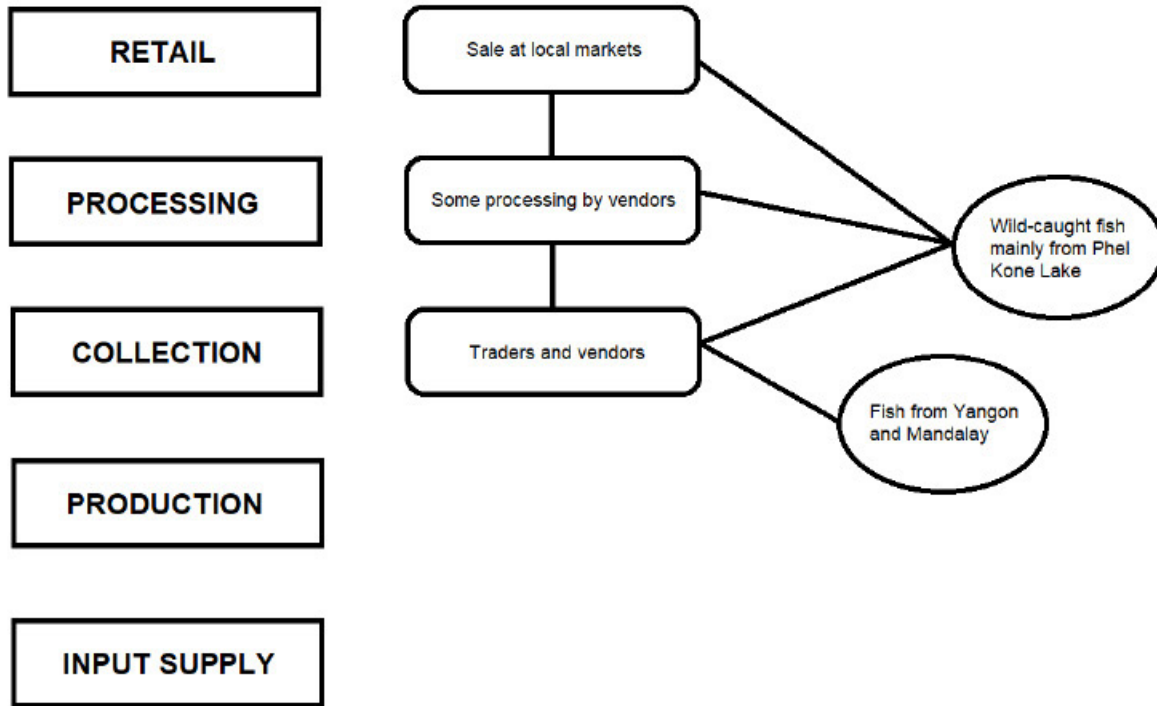
8. Conclusions

It was found that Pinlaung Township has no fish farmers at present. Markets are dominated by wild-caught fish, much of which is caught from Phel Kone Lake. The only small indigenous species observed in markets were spotted barb and *Gymnostomus horai*. All farmed carp (rohu, mrigal and common carp) originated from Yangon or, to a lesser extent, Mandalay. Among carp, only *Cyprinus intha* was locally caught. Tilapia was either caught from Phel Kone Lake or Yangon-farmed.

It was reported by some that decreasing incomes and rising fish prices may be reducing the ability of many households to afford fish. To the extent that this is happening, local fish farming could combat this trend by contributing to the supply of affordable fish as well as potentially improving incomes (if households take up fish farming) in the township. Other challenges include a lack of water during the dry season and low consumption of processed fish products.

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Annex A: Fish Value Chain Map for Pinlaung



Annex B: Photos from Field Mission



Figure 9: Customers Purchasing Fish from Myoma Market



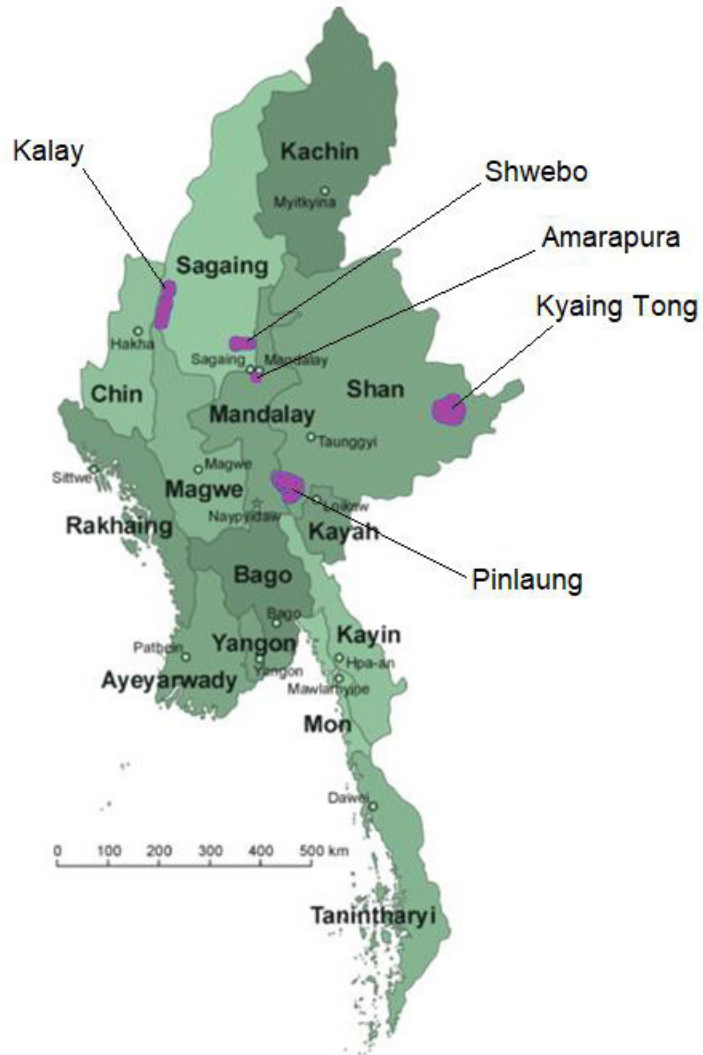
Figure 10: Fish Vendors at Saund Pyaung Market



Figure 11: Vendor Selling Barbequed Fish at Ti Kyit Market

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Annex C: Map of Project Areas



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Annex D: Value Chain Questionnaires

MARKET QUESTIONNAIRE

Section A: Basic Information

Date of interview: __/__/__

Name of interviewer: _____

Name of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

Respondent identification number: __-__

Location of market: _____

Township of market (select one): Kalay / Amarapura / Kyaing Tong / Pin Laung / Shwebo

Frequency of market (select one): daily / weekly / every two weeks / monthly / other (specify: _____)

Section B: Sales

Product	1. On a typical day in the last month, how much [product] did you sell?	2. What was the unit used for the previous question?	3. Has this amount increased, decreased or remained the same compared to three years ago?	4. To what extent does this amount vary depending on the season?
Wild-caught fish		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Aquaculture products CHECK AMOUNT AGAINST SUM OF AMOUNTS BELOW		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed rohu		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed catla		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

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Product	1. On a typical day in the last month, how much [product] did you sell?	2. What was the unit used for the previous question?	3. Has this amount increased, decreased or remained the same compared to three years ago?	4. To what extent does this amount vary depending on the season?
Farmed mrigal		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed common carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed silver carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed big head carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

Product	1. On a typical day in the last month, how much [product] did you sell?	2. What was the unit used for the previous question?	3. Has this amount increased, decreased or remained the same compared to three years ago?	4. To what extent does this amount vary depending on the season?
Farmed grass carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed tilapia		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Farmed small indigenous species		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

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5. Has the amount of farmed fish that you sell increased, decreased or remained the same compared with wild-caught fish in the past three years? Select one.

- a) Increased
- b) Decreased
- c) Remained the same

6. What do you do with the fish that you are unable to sell at the end of the day? Select all that apply.

- a) Try to sell it another day
- b) Consume it
- c) Throw it away
- d) Other (specify: _____)

Section C: Price

Product	7. On a typical day in the last month, what was the average price, in MMK, at which you sold your [product] (per preferred unit)?	8. What was your "preferred unit" in the previous question?	9. Has this amount increased, decreased or remained the same compared to three years ago?	10. To what extent does this amount vary depending on the season?
Rohu		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Catla		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Mrigal		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

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Product	7. On a typical day in the last month, what was the average price, in MMK, at which you sold your [product] (per preferred unit)?	8. What was your "preferred unit" in the previous question?	9. Has this amount increased, decreased or remained the same compared to three years ago?	10. To what extent does this amount vary depending on the season?
Common carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Silver carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Big head carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Grass carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

Product	7. On a typical day in the last month, what was the average price, in MMK, at which you sold your [product] (per preferred unit)?	8. What was your "preferred unit" in the previous question?	9. Has this amount increased, decreased or remained the same compared to three years ago?	10. To what extent does this amount vary depending on the season?
Tilapia		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Snakeheads		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Small indigenous species		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

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Section D: Supply

11. In the past month, from where did you obtain your fish? Select all that apply.

- a) Self-farmed
- b) Self-caught
- c) Trader
- d) Fish farmer
- e) Fisher
- f) Other (specify: _____)

12. Has the supply of farmed fish in your area increased, decreased or remained the same compared with wild-caught fish in the past three years? Select one.

- a) Increased
- b) Decreased
- c) Remained the same

Section E: Costs

Product	13. If you purchase fish to sell, what was the average price, in MMK, that you paid on a typical day in the last month for [product] (per preferred unit) that you intended to sell?	14. What was your "preferred unit" in the previous question?	15. Has this amount increased, decreased or remained the same compared to three years ago?	16. To what extent does this amount vary depending on the season?
Rohu		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Catla		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Mrigal		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

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Product	13. If you purchase fish to sell, what was the average price, in MMK, that you paid on a typical day in the last month for [product] (per preferred unit) that you intended to sell?	14. What was your "preferred unit" in the previous question?	15. Has this amount increased, decreased or remained the same compared to three years ago?	16. To what extent does this amount vary depending on the season?
Common carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Silver carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Big head carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Product	13. If you purchase fish to sell, what was the average price, in MMK, that you paid on a typical day in the last month for [product] (per preferred unit) that you intended to sell?	14. What was your "preferred unit" in the previous question?	15. Has this amount increased, decreased or remained the same compared to three years ago?	16. To what extent does this amount vary depending on the season?
Grass carp		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Tilapia		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all
Small indigenous species		a) Kg b) Viss c) Single piece d) Bunch e) Can f) Other (specify: _____)		a) Very much b) Quite a lot c) A little bit d) Not at all

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17. Do you transport your fish to the market? Select one.

- a) Yes
- b) No

18. If you answered 'Yes' to the previous question, how much do you spend, in MMK, on transporting your fish to the market (per preferred timeframe)?

Answer: _____

19. What was your "preferred timeframe" in the previous question? Select one.

- a) Day
- b) Week
- c) Month
- d) Other (specify: _____)

20. How much ice (in preferred units) do you use to keep your fish cold at the market (per preferred timeframe)?

Answer: _____

21. What was your "preferred unit" in the previous question?

Answer: _____

22. What was your "preferred timeframe" in **20**? Select one.

- a) Day
- b) Week
- c) Month

23. How much do you spend, in MMK, on ice supplies to keep your fish cold at the market (per preferred timeframe)?

Answer: _____

24. What was your "preferred timeframe" in the previous question? Select one.

- a) Day
- b) Week
- c) Month
- d) Other (specify: _____)

25. How much do you spend, in MMK, on chemical preservatives to use on the fish that you sell (per preferred timeframe)?

Answer: _____

26. What was your "preferred timeframe" in the previous question? Select one.

- a) Day
- b) Week
- c) Month
- d) Other (specify: _____)

27. How much do you spend, in MMK, on labour in order to sell fish (per preferred timeframe)?

Answer: _____

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28. What was your "preferred timeframe" in the previous question? Select one.

- a) Day
- b) Week
- c) Month
- d) Other (specify: _____)

29. Can you estimate, in MMK, any other short or long-term costs (e.g. market fees) that you incur in order to sell your fish at the market (per preferred timeframe)?

Answer: _____

30. What was your "preferred timeframe" in the previous question? Select one.

- a) Day
- b) Week
- c) Month
- d) Year
- e) Other (specify: _____)

QUESTIONNAIRE FOR KII WITH PROCESSOR (MALE)

Date of interview: __/__/__

Name of interviewer: _____

Name of respondent: _____

Position of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

1. How prevalent is processing of fish in the area?
2.
 - i) What kind of processing do you do (e.g. fish balls, dried fish)?
 - ii) What species of fish does this use?
 - iii) What is most common in the area?
3.
 - i) From where do you source your fish for processing (e.g. self-caught, purchased from fish farmer)?
 - ii) What is usually the case in the area?
4.
 - i) To whom do you sell your processed fish products – to traders, vendors or consumers?
 - ii) What is usually the case in the area?
5.
 - i) How prevalent is consumption of processed fish products compared with unprocessed (fresh) fish in the area?
 - ii) Has it increased, decreased or stayed the same compared with three years ago?
6.
 - i) How profitable are processed fish products compared with unprocessed (fresh) fish?
 - ii) Can you give us a sense of your typical profit margin on different types of processed fish products?
7. How much do you spend on chemicals to preserve fish during processing?
8.
 - i) How can MYSAP Inland support processors in your area in increasing the sale of processed fish products?
 - ii) How about in terms of increasing the consumption of processed fish products?
9. Are there particular challenges faced by male processors that female processors do not face?

QUESTIONNAIRE FOR KII WITH PROCESSOR (FEMALE)

Date of interview: __/__/__

Name of interviewer: _____

Name of respondent: _____

Position of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

1. How prevalent is processing of fish in the area?

2.

iv) What kind of processing do you do (e.g. fish balls, dried fish)?

v) What species of fish does this use?

vi) What is most common in the area?

3.

iii) From where do you source your fish for processing (e.g. self-caught, purchased from fish farmer)?

iv) What is usually the case in the area?

4.

iii) To whom do you sell your processed fish products – to traders, vendors or consumers?

iv) What is usually the case in the area?

5.

iii) How prevalent is consumption of processed fish products compared with unprocessed (fresh) fish in the area?

iv) Has it increased, decreased or stayed the same compared with three years ago?

6.

iii) How profitable are processed fish products compared with unprocessed (fresh) fish?

iv) Can you give us a sense of your typical profit margin on different types of processed fish products?

7. How much do you spend on chemicals to preserve fish during processing?

8.

iii) How can MYSAP Inland support processors in your area in increasing the sale of processed fish products?

iv) How about in terms of increasing the consumption of processed fish products?

9. Are there particular challenges faced by female processors that male processors do not face?

QUESTIONNAIRE FOR KII WITH TRADER (MALE)

Date of interview: __/__/____

Name of interviewer: _____

If not already identified, ask to identify [minor market 1] and [minor market 2].

1.
 - i) Are traders common in your area, or do most fish farmers and fishers sell their fish at the markets themselves?
 - ii) How common is it in your area for traders to also be vendors?

2.
 - i) How common is farmed fish compared with wild-caught fish in your area?
 - ii) Can you give us an estimate of the total number of aquaculture producers in the township?

3.
 - i) Are there any wholesalers in your area that trade in Yangon-farmed fish and fish products? What species of fish and kinds of fish products (e.g. fish balls) are these?
 - ii) How common are these compared with locally farmed versions of the same?

4.
 - i) Has there been an increase in the supply of fish in your area in the past three years?
 - ii) Has there been an increase in the supply of farmed fish compared with wild-caught fish?
 - iii) How have these trends influenced trade and consumption patterns in your area?

5.
 - i) To what extent does the supply of farmed fish in your area vary depending on the season?
 - ii) To what extent does the supply of wild-caught fish in your area vary depending on the season?

6.
 - i) What is the general price at which you buy (1) rohu, (2) mrigal, (3) catla, (4) common carp, (5) big head carp, (6) silver carp, (7) grass carp, (8) tilapia and (9) small indigenous species from fish farmers/fishers?
 - ii) Have these prices increased, decreased or remained stable over the past three years?
 - iii) Do these prices vary depending on the season?

7.
 - i) What is the general price at which you sell (1) rohu, (2) mrigal, (3) catla, (4) common carp, (5) big head carp, (6) silver carp, (7) grass carp, (8) tilapia and (9) small indigenous species to vendors (if you sell to vendors)?
 - ii) Have these prices increased, decreased or remained stable over the past three years?
 - iii) Do these prices vary depending on the season?

8.
 - i) How prevalent is the supply of processed fish products in your area? What kind of products (e.g. fish balls, dried fish) are these?
 - ii) Can you give us a sense of the typical profit margin on different types of processed fish products?

9.
 - i) How much fish do you transport on a "good" day? How much on a "bad" day?

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- ii) How much does this cost? Does the cost vary depending on the season?
- iii) What are the individual costs involved in transporting aquatic products?

10.

- i) Do you use ice to cool your fish? If so, how much do you use on a typical day?
- ii) How much does this cost?

11. How much do you spend on chemical preservatives to use on fish?

12. Can you give us an indication of your total labour cost per month?

13. Can you estimate the main investment costs in establishing yourself as a fish trader? What are they?

14.

- i) Do traders in your area face important logistical challenges?
- ii) What are they and how do you address these?
- iii) Are there particular challenges faced by male traders that female traders do not face?

QUESTIONNAIRE FOR KII WITH TRADER (FEMALE)

Date of interview: __/__/____

Name of interviewer: _____

If not already identified, ask to identify [minor market 1] and [minor market 2].

1.
 - iii) Are traders common in your area, or do most fish farmers and fishers sell their fish at the markets themselves?
 - iv) How common is it in your area for traders to also be vendors?

2.
 - iii) How common is farmed fish compared with wild-caught fish in your area?
 - iv) Can you give us an estimate of the total number of aquaculture producers in the township?

3.
 - iii) Are there any wholesalers in your area that trade in Yangon-farmed fish and fish products? What species of fish and kinds of fish products (e.g. fish balls) are these?
 - iv) How common are these compared with locally farmed versions of the same?

4.
 - iv) Has there been an increase in the supply of fish in your area in the past three years?
 - v) Has there been an increase in the supply of farmed fish compared with wild-caught fish?
 - vi) How have these trends influenced trade and consumption patterns in your area?

5.
 - iii) To what extent does the supply of farmed fish in your area vary depending on the season?
 - iv) To what extent does the supply of wild-caught fish in your area vary depending on the season?

6.
 - iv) What is the general price at which you buy (1) rohu, (2) mrigal, (3) catla, (4) common carp, (5) big head carp, (6) silver carp, (7) grass carp, (8) tilapia and (9) small indigenous species from fish farmers/fishers?
 - v) Have these prices increased, decreased or remained stable over the past three years?
 - vi) Do these prices vary depending on the season?

7.
 - iv) What is the general price at which you sell (1) rohu, (2) mrigal, (3) catla, (4) common carp, (5) big head carp, (6) silver carp, (7) grass carp, (8) tilapia and (9) small indigenous species to vendors (if you sell to vendors)?
 - v) Have these prices increased, decreased or remained stable over the past three years?
 - vi) Do these prices vary depending on the season?

8.
 - iii) How prevalent is the supply of processed fish products in your area? What kind of products (e.g. fish balls, dried fish) are these?
 - iv) Can you give us a sense of the typical profit margin on different types of processed fish products?

9.
 - iv) How much fish do you transport on a "good" day? How much on a "bad" day?

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- v) How much does this cost? Does the cost vary depending on the season?
 - vi) What are the individual costs involved in transporting aquatic products?
- 10.
- iii) Do you use ice to cool your fish? If so, how much do you use on a typical day?
 - iv) How much does this cost?
11. How much do you spend on chemical preservatives to use on fish?
12. Can you give us an indication of your total labour cost per month?
13. Can you estimate the main investment costs in establishing yourself as a fish trader? What are they?
- 14.
- iv) Do traders in your area face important logistical challenges?
 - v) What are they and how do you address these?
 - vi) Are there particular challenges faced by female traders that male traders do not face?

QUESTIONNAIRE FOR KII WITH HATCHERY

Date of interview: __/__/____

Name of interviewer: _____

Name of respondent: _____

Position of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

Ask to share data on main costs of breeding/seed production (including different kinds of costs, e.g. feed, water, energy) as well as data on sales price and volume. Ask for separate price and volume data for carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and small indigenous species.

1.
 - i) What are the top three fish species that you breed? (Number 1, 2, 3.)
 - ii) Do you breed/sell seed of carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and/or any small indigenous (local) fish species?
 - iii) What kind of fish seed do you sell (swim-up fry, fry, fingerlings)?
2.
 - i) To how many people did you sell fish seed in this township in the last year?
 - ii) Do you supply farmers outside the township? If yes, where?
3.
 - i) Approximately how many fry did you sell in the last year?
 - ii) What are your top three species in terms of fry sales? (Number 1, 2, 3.)
4.
 - i) Approximately how many fingerlings did you sell in the last year?
 - ii) What are your top three species in terms of fingerling sales? (Number 1, 2, 3.)
5.
 - i) Are there many other hatcheries in the township supplying fish seed?
 - ii) What percentage of the township demand for seed do you think is supplied from hatcheries within the township? What percentage do you think is supplied from outside?
6.
 - i) In the last three years, have you noticed any increase in the demand for fish seed by farmers for stocking?
 - ii) Are there any species that are becoming more popular in your township?
7.
 - i) How often do you replace your broodstock (parent fish)? Differentiate between species.
 - ii) Where do you get replacement broodstock from (e.g. another farm, DoF)? Differentiate between species.
 - iii) What is the country of origin of your broodstock? Differentiate between species.
8. What is your main source of technical advice?

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9.
 - i) Have you heard of anyone producing/selling genetically improved fish seed of any kind? How about specifically carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and/or small indigenous species?
 - ii) If yes, is demand strong?
10. What do you think are the main constraints for hatcheries, nurseries and grow-out farms in your township?

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QUESTIONNAIRE FOR KII WITH NURSERY

Date of interview: __/__/__

Name of interviewer: _____

Name of respondent: _____

Position of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

Ask to share data on main costs of nursing (including different kinds of costs, e.g. seed and feed, water, energy) as well as data on sales price and volume. Ask for separate price and volume data for carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and small indigenous species.

1.
 - iv) What are the top three fish species that you nurse? (Number 1, 2, 3.)
 - v) Do you nurse/sell seed of carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and/or any small indigenous (local) fish species?
 - vi) What kind of fish seed do you sell (swim-up fry, fry, fingerlings)?

2.
 - iii) To how many people did you sell fish seed in this township in the last year?
 - iv) Do you supply farmers outside the township? If yes, where?

3.
 - iii) Approximately how many fry did you sell in the last year?
 - iv) What are your top three species in terms of fry sales? (Number 1, 2, 3.)

4.
 - iii) Approximately how many fingerlings did you sell in the last year?
 - iv) What are your top three species in terms of fingerling sales? (Number 1, 2, 3.)

5.
 - iii) Are there many other nurseries in the township supplying fish seed?
 - iv) What percentage of the township demand for seed do you think is supplied from nurseries within the township? What percentage do you think is supplied from outside?

6.
 - iii) In the last three years, have you noticed any increase in the demand for fish seed by farmers for stocking?
 - iv) Are there any species that are becoming more popular in your township?

7.
 - i) Which hatchery/ies do you buy the fish seed that you nurse from? Differentiate between species.
 - ii) Is any of the seed from outside the township or even from another country?

8. What is your main source of technical advice?

- 9.

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- iii) Have you heard of anyone producing/selling genetically improved fish seed of any kind? How about specifically carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and/or small indigenous species?
- iv) If yes, is demand strong?

10. What do you think are the main constraints for nurseries and grow-out farms in your township?

QUESTIONNAIRE FOR KII WITH DOF

Date of interview: __/__/____

Name of interviewer: _____

Name of respondent: _____

Position of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

If not already identified, ask to identify [minor market 1] and [minor market 2].

Ask for a list of any private hatcheries and nurseries and DoF hatcheries and nurseries in the area, together with their contact details.

Ask to share any data on production, sales volume and price of fish in the area. If possible, data should differentiate between carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and small indigenous species and between farmed (locally farmed, Yangon-farmed) and wild-caught fish.

1. Can you give us an estimate of the total number of aquaculture producers in the township?

2.
 - i) Do you think the amount of wild fish being caught in the township is going up or down?
 - ii) Do you think the total amount of farmed fish and the proportion of farmed fish in the market is increasing in the township?
 - iii) How have these trends influenced trade and consumption patterns in your area?

3. If there has been an increase in fish from aquaculture in the area, has the price of fish at local markets remained stable, lowered or increased?

4.
 - i) Are local fish farmers and traders facing important logistical challenges to supply their products to the market?
 - ii) What are they and how do they address these?

5.
 - i) How is local fish farming positioned compared to the wild-caught and Yangon-farmed fish supply in your area?
 - ii) What are the main interrelations between these three supply chains?

6.
 - i) What are the main types of fish processing conducted in this township and how do they impact on fish consumption patterns in your area?
 - ii) Are there potential processing activities that MYSAP Inland could support?

7.
 - i) Are there any shops in the area that sell livestock and fish feed and fish-farming products like medicine, fertiliser, etc.? What products do they sell?
 - ii) Are there any specialist shops in the area that sell imported fish-farming products from India, China and/or Thailand? What products do they sell?

- 8.

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- i) What would you say are the main constraints to expanding fish production/sales in the area (e.g. low technology, high price)?
 - ii) What would you say are the main opportunities for expanding fish production/sales in the area (e.g. upcoming policies, extension services)?
9. To what extent do local markets in the township function as redistribution points for regional fish trade and what is their geographical reach?
- 10.
- i) Do you think if people were more aware of the nutritional benefits of eating fish that they would eat more fish?
 - ii) Do you think if people were more aware of the nutritional benefits of eating small indigenous species that they would eat more of these?
- 11.
- i) Are there particular concerns regarding the climate resilience of fish in the area?
 - ii) Do you have suggestions for how MYSAP Inland can contribute to sustainable fish production and consumption in the area?
12. Are there particular challenges faced by female fish farmers/fishers, traders, processors and/or vendors in the area that their male counterparts do not face?
13. Are there particular governance challenges (e.g. land use rights) that hamper aquaculture production and/or fish consumption by low-income people in the area?

QUESTIONNAIRE FOR KII WITH MFF

Date of interview: __/__/__

Name of interviewer: _____

Name of respondent: _____

Position of respondent: _____

Gender of respondent: _____

Phone number of respondent: _____

If not already identified, ask to identify [minor market 1] and [minor market 2].

Ask for a list of any MFF hatcheries and nurseries, other private hatcheries and nurseries and DoF hatcheries and nurseries in the area, together with their contact details.

Ask to share any data on production, sales volume and price of fish in the area. If possible, data should differentiate between carp (rohu, mrigal, catla, common carp, big head carp, silver carp, grass carp), tilapia and small indigenous species and between farmed (locally farmed, Yangon-farmed) and wild-caught fish.

1. Can you give us an estimate of the total number of aquaculture producers in the township?

2.
 - iv) Do you think the amount of wild fish being caught in the township is going up or down?
 - v) Do you think the total amount of farmed fish and the proportion of farmed fish in the market is increasing in the township?
 - vi) How have these trends influenced trade and consumption patterns in your area?

3. If there has been an increase in fish from aquaculture in the area, has the price of fish at local markets remained stable, lowered or increased?

4.
 - iii) Are local fish farmers and traders facing important logistical challenges to supply their products to the market?
 - iv) What are they and how do they address these?

5.
 - iii) How is local fish farming positioned compared to the wild-caught and Yangon-farmed fish supply in your area?
 - iv) What are the main interrelations between these three supply chains?

6.
 - iii) What are the main types of fish processing conducted in this township and how do they impact on fish consumption patterns in your area?
 - iv) Are there potential processing activities that MYSAP Inland could support?

7.
 - iii) Are there any shops in the area that sell livestock and fish feed and fish-farming products like medicine, fertiliser, etc.? What products do they sell?
 - iv) Are there any specialist shops in the area that sell imported fish-farming products from India, China and/or Thailand? What products do they sell?

- 8.

Value Chain Report - Pinlaung Township

- i) What would you say are the main constraints to expanding fish production/sales in the area (e.g. low technology, high price)?
 - ii) What would you say are the main opportunities for expanding fish production/sales in the area (e.g. better technologies, improved access to finance)?
9. To what extent do local markets in the township function as redistribution points for regional fish trade and what is their geographical reach?
- 10.
- iii) Do you think if people were more aware of the nutritional benefits of eating fish that they would eat more fish?
 - iv) Do you think if people were more aware of the nutritional benefits of eating small indigenous species that they would eat more of these?
- 11.
- iii) Are there particular concerns regarding the climate resilience of fish in the area?
 - iv) Do you have suggestions for how MYSAP Inland can contribute to sustainable fish production and consumption in the area?
12. Are there particular challenges faced by female fish farmers/fishers, traders, processors and/or vendors in the area that their male counterparts do not face?
13. Are there particular governance challenges (e.g. land use rights) that hamper aquaculture production and/or fish consumption by low-income people in the area?