

**Comprehensive Analysis  
of the Existing  
Credit Delivery System  
in Myanmar &  
Proposed Solutions  
for the  
Small Holders Aquaculture**

Sponsored by

**WorldFish Myanmar**

Study by

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## Preface

This report summarises the findings of a comprehensive review of the existing credit delivery system for agriculture activities (especially fish farming) in Myanmar and with a focus on the six townships where WorldFish is running its program, in line with the Terms of Reference provided for the study. The study was conducted through a mix of both primary research (key informant interviews) with various stakeholders across the value chain and secondary research to assess the overall conditions relating to the availability of credit in the intervention areas.

The report provides useful inputs to understand the extent of credit provided to small-scale aquaculture farmers by various sources of credit. The gaps in the credit delivery mechanisms are identified and tailored made solutions have been designed in consultation with leading practitioners in Myanmar. These solutions which are also based on best international practice will assist WorldFish to undertake the pilot study.

## Research Methodology

The study team adopted the following methods for the study:

- Brief virtual meeting organized by WorldFish with the study team at the start of the study to clarify the medium adopted to capture responses from various actors/stakeholders.
- Desk review of existing credit delivery system across Myanmar and in-depth review of existing credit delivery system in the study areas (one township each across six State/Region) through both primary and secondary research.
- Telephonic Key Informant Interviews (KIIs) were conducted with several actors/stakeholders across each township. This includes SSA farmers, aquaculture promoters, input suppliers, wholesalers, retailers, transporter, community-based organizations (CBOs), VSLA leaders, and township officer from the Department of Fisheries (DoF).
- Detailed structured interviews were held using checklists of questions attached in **Annex 1**.
- Telephonic KIIs were held with various microfinance institutions (practitioners) to further improve the solutions devised.
- All the conclusions and findings in the report are based on information and discussion with the SSA farmers, several value chain actors, officials from government departments. Since this is a consultancy report, it is based on the observations, experience, and judgments of the consultant. It does not make any claims to statistical validity.



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## List of Abbreviations

<b>AgBDS</b>	Agriculture Business Development Services
<b>AGD</b>	Asia Green Development Bank
<b>Alliance</b>	Alliance for Microfinance in Myanmar
<b>AP</b>	Aquaculture Promoter
<b>ATM</b>	Automated Teller Machine
<b>AYA</b>	Ayeyarwady Bank
<b>BLTM</b>	Basix's Livelihood Triad Model
<b>BRAC</b>	BRAC Myanmar Microfinance
<b>BNK</b>	BNK Capital Myanmar
<b>BWF</b>	Beneficiary Welfare Fund
<b>CB</b>	Co-operative Bank
<b>CBM</b>	Central Bank of Myanmar
<b>CBO</b>	Community Based Organisations
<b>CERP</b>	Covid-19 Economic Relief Plan
<b>CHDB</b>	Construction & Housing State Development Bank
<b>CSO</b>	Civil Society Organization
<b>DoF</b>	Department of Fisheries
<b>EXIM</b>	Export-Import
<b>FCR</b>	Feed Conversion Ratio
<b>FGD</b>	Focus Group Discussion
<b>FRD</b>	Financial Regulatory Department
<b>FIFO</b>	Fish in Fish Out
<b>FIML</b>	Financial Institutions of Myanmar Law
<b>FPO</b>	Farmer Producer Organisation
<b>GAqP</b>	Good Aquaculture Practices
<b>GTB</b>	Global Treasure Bank
<b>HDI</b>	Human Development Initiative
<b>IDS</b>	Institutional Development Services
<b>IFC</b>	International Finance Corporation
<b>IP</b>	Implementing Partner
<b>IS</b>	Input Supplier
<b>JICA</b>	Japan International Cooperation Agency
<b>JNF</b>	Japan Nippon Foundation
<b>KBC</b>	Kachin Baptist Convention
<b>KBZ</b>	Kanbawza Bank
<b>KII</b>	Key Informant Interviews
<b>KMSS</b>	Karuna Mission Social Solidarity
<b>LFS</b>	Livelihood Financial Services
<b>LIFT</b>	Livelihoods and Food Securities Trust
<b>LOLC</b>	LOLC Myanmar Microfinance
<b>MAB</b>	Myanmar Apex Bank

<b>MADB</b>	Myanmar Agriculture Development Bank
<b>MFI</b>	Microfinance Institutions
<b>MFTB</b>	Myanmar Foreign Trade Bank
<b>MICB</b>	Myanmar Investment and Commercial Bank
<b>MIFIDA</b>	Microfinance Delta International
<b>MIS</b>	Management Information System
<b>MMK</b>	Myanmar Kyats
<b>MOALI</b>	Ministry of Agriculture, Livestock and Irrigation
<b>MOPFI</b>	Ministry of Planning, Finance and Industry
<b>MSY</b>	Mya Sein Yaung
<b>NBFI</b>	Non-Banking Financial Institutions
<b>NGO</b>	Non- Governmental Organization
<b>PGMF</b>	Pact Global Microfinance Fund
<b>SCMS</b>	Savings and Credit Management Services
<b>SHG</b>	Self-Help Groups
<b>SOB</b>	State-Owned Banks
<b>SME</b>	Small and Medium Enterprise
<b>SSA</b>	Small-Scale Aquaculture
<b>THB</b>	Thai Baht
<b>TQM</b>	Total Quality Management
<b>VFM</b>	Vision Fund Myanmar
<b>VSLA</b>	Village Savings and Loan Association

## Executive Summary

The formal lending system in Myanmar has grown and diversified in the recent decade with the help of liberalized regulations and foreign investments. Various entities providing formal credit include State-owned Banks, Private Banks, Foreign Banks, Cooperatives, Non-Banking Financial Institutions (NBFIs), Microfinance Institutions (MFIs), registered Pawnshops, and the government-sponsored Mya Sein Yaung (MSY) project.

The private sector banks, regulated by Central Bank of Myanmar (CBM) largely don't cater to the agriculture segment. At the end of December 2018, the agriculture sector comprised only 2.1% of the total loans outstanding mainly due to limited knowledge and insufficient margin. Few of the private sector banks have adopted an indirect lending route, by lending to MFIs, to cater to the agricultural borrowers. Among the State-Owned Banks (SOBs), regulated by Ministry of Planning, Finance and Industry (MOPFI), Myanmar Agriculture Development Bank (MADB) is the largest provider of agricultural loans to farmers in the country. The other SOB namely Myanmar Economic Bank (MEB), offers wholesale funding to the agriculture sector through MADB. The foreign banks, regulated by the CBM, operate either as a licensed entity or as a representative office (offer only services related to remittance, payment settlement, etc).

The Cooperatives, which are regulated by the Cooperative Department under Ministry of Agriculture, Livestock and Irrigation (MOALI), are widespread in the country and have helped to bridge the credit gap to a certain extent. The cooperative members are required to deposit 10% of the loan amount as upfront compulsory savings at the time of disbursement.

MFIs, which are regulated by Financial Regulatory Department (FRD) under MOPFI, are governed by **Microfinance Business Law introduced in 2011**. A total of 189 MFIs operated in the country at the end of September 2019. Many MFIs are gradually moving from group-based lending towards the individual loan model, broadly to tap the SME market, and because group borrowers feel hesitant to give guarantees for each other when the loan amount increases. MFIs usually provide working capital loans and loans for purchasing fixed assets in the agriculture sector. The major players working in the agriculture domain are BRAC, Early Dawn, LOLC, Maha Agriculture, MIFIDA, PGMF, and Proximity Designs.

NBFIs, which are regulated by CBM, offers loans of relatively higher ticket size compared with the loans offered by the MFIs and don't cater to small-scale aquaculture (SSA) farmers. Registered Pawnshops are regulated by the authority of the state/region or municipality and short-term credit often in the form of emergency loans with an average tenure of four months. The interest charged is usurious and varies drastically depending upon the value of the collateral.

Mya Sein Yaung (MSY) project, which started in 2014-15 under the supervision of MOALI, was designed to improve the livelihoods and infrastructure in poor villages. A village administration committee is

established in each village which has the responsibility of fund management. Interest income is shared equally between the village administration committee and the government.

The informal lending system in Myanmar comprises of money lenders, acquaintances, VSLAs, and unregistered pawn shops. Even though the interest rate charged is extremely high, it is still preferred by the borrowers in rural areas mainly due to the availability of necessary cash at the time of emergency along with flexible repayment options. Among the informal lending channel, loans from Village Savings and Loan Associations (VSLAs) were widely procured by small-scale aquaculture (SSA) farmers in various townships.

The availability of both formal credit providers and non-formal credit providers vary widely across each township. MADB is present in all the townships while Non-Banking Financial Institutions (NBFIs) and Foreign Banks are not found anywhere in the study townships.

The study also focused on the credit availability to SSA farmers in six townships i.e. **Khin-U, Madaya, Pekon, Salin, Tachileik (Tarlay town), and Waingmaw** in the states/regions selected by WorldFish for the intervention. For this, KIIs were conducted with 180 SSA farmers and several value chain actors. 11% SSA farmers interviewed were females with the highest proportion in Khin-U (17%) followed by Salin (13%). Only 6% farmers reported fish farming as their primary source of income whereas 90% farmers reported it to be their secondary source. 20% farmers in Waingmaw, 3% in Madaya, and 3% in Pekon did not report **fish farming even as their secondary source of income**.

#### ***Current Lending System in selected townships***

- Formal credit providers available in the townships range from SOBs, Private Banks, Cooperatives, MFIs, Registered Pawn Shops, and MSY project while informal credit providers include moneylenders, VSLAs, and unregistered pawnshops
- NBFIs and Foreign Banks do not operate in any of the study areas
- Private banks mainly offer credit to the real estate sector. All other formal credit providers offer loans for agriculture and livestock activities
- Loans under the MSY project are available in all townships other than Madaya
- VSLAs are operational in Salin, Waingmaw, Pekon and Tachileik
- Only VFM is the operational MFI in Waingmaw and Tarlay town
- In-kind credit facilities offered by input suppliers/wholesalers are limited to the farmers whom they trust. Such a facility is available only in Salin, Madaya, Khin-U, and Pekon. This has been reported by Aquaculture Promoters (APs), Implementing Partners (IPs), and other value chain actors i.e. retailers, wholesalers, processors, transporters, and CBOs/CSOs. In exigent circumstances, retailers and wholesalers can delay the payment to farmers by at most 10 days but no interest is paid on the amount due

#### ***Credit Options and hindrances/inhibitions in accessing them***

- Only 103 farmers availed loans in the last one year with the highest proportion in Khin-U (90%) followed by Salin (83%) and the lowest proportion in Tachileik (23%) followed by Waingmaw (30%)

- Government sources (Cooperatives/MSY project) have limited funds and are not able to meet credit requirements in these townships
- In Tachileik, IP reported farmers to have low confidence in both agriculture and fish farming and are concerned about regular repayments
- In Waingmaw, retailers perceive that there is resistance in farmers to offer guarantors/guarantees
- MADB is the most preferred source for the farmers (66%), mainly due to its accessibility, low-interest rate, as well as lump-sum bullet repayment system. However, it is not able to meet the credit requirements of farmers; out of 29 farmers with multiple loans, 79% have MADB as one of the sources
- In Waingmaw, VFM as an only MFI is not offering loan products with features matching the requirements of farmers as none of the interviewed farmers have availed loan from it
- In Tachileik, farmers have low awareness of MADB and rely more on the MSY project and VSLA. IPs reported SSA farmers to prefer VSLA because it provides flexible repayment options and in the case of an emergency, only the principal amount is collected
- Farmers have limited awareness of in-kind credit facilities, if any, available in their townships
- Only three farmers from Salin and one from Khin-U availed in-kind credit and at no extra cost
- Most farmers have taken loans for agriculture purposes across all townships other than Tachileik where fish farming and agriculture are practiced for subsistence purpose
- IP from Salin reported that since farmers are meeting their credit need of fish farming through loans availed for agriculture
- 77 (43%) farmers did not avail loans in the last one year due to various factors ranging from high-interest rates (25%), unfavorable repayment systems (26%) to non-requirement of loans (16%). Madaya (71%) farmers in Madaya and 67% in Khin-U cited unfavorable repayment system as the reason for not availing loans while 43% in Waingmaw cited high pricing as the reason for it
- Unavailability of Form 7 for not obtaining loans was found in Pekon (27%), Salin (20%), and Waingmaw (5%)
- Main reasons for not using in-kind credit facilities are high pricing and non-requirement of credit.
- 142 (79%) farmers responded in favor of joining a contract fish farming group with the highest proportion of farmers (100%) in Salin and Pekon. 68% wanted technical knowledge from such an arrangement.
- The main reason cited by farmers not wanting to join a contract fish farming group is that they do not want to work in groups

#### ***Ownership and repayment behavior***

- More than 80% loans across townships other than Khin-U are availed in the name of the husband. 41% loans in Khin-U are availed in the name of wife and 4% in the name of the daughter. In-kind credit by all four farmers was availed in the name of husband
- While only 3% reported availing loans for fish feed, 46% reported that they used it for buying fish feed. The highest proportion of farmers who reported using loans for buying feed were in Khin-U (78%) and the lowest in Pekon (11%)

- The average of total loan amount availed by 103 farmers in the last one year is MMK 8,94,631 with minimum MMK 628,571 in Tachileik and maximum MMK1,111,111 in Khin-U. This variation is mainly due to varying experience and technical know-how across townships
- 54% farmers have availed more than MMK 500,000 loan in the last one year while only 2% have availed loans less than MMK 100,000
- 47% farmers reported one-year tenure of the loan availed (mainly provided by MFIs) while 38% farmers took loans for 10 months (10-month loans mainly provided by MADB)
- 50% reported that the monthly interest paid by them is less than 1.0% due to sub-1.0% interest charged by MADB while 20% of the farmers reported availing loans at a monthly interest of more than 2.0%. In Tachileik, none of the farmers availed loan from MADB, and hence, none of the farmers availed sub-1.0% monthly interest loan
- 76% farmers reported their repayment frequency as the bullet and only 11% and 7% reported it to be bi-weekly and monthly, respectively. 95% reported that the repayment frequency was decided by lender and only in Salin, farmers who availed loan from VSLA reported it was decided by them.
- For in-kind credit facility, three from Salin reported that their repayment frequency was decided by the lender while one from Khin-U reported that it was jointly decided by him and the lender.
- 87% farmers were satisfied with the loan and their most liked feature of the loan was its reasonableness (52%) and easy accessibility (13%).
- Five farmers in Salin and one in Tachileik were also not satisfied with the loan mainly due to insufficient loan amount
- 85% farmers were comfortable with the repayment frequency of the loan
- 84% farmers reported that they themselves repay the loan while 14% reported that it is their spouse who repays the loan. The highest proportion of farmers where the spouse is repaying the loan were in Madaya (31%) followed by Khin-U (22%)
- Only 10% reported that they faced some difficulty in repaying loans on time which was mainly due to natural calamity (70%) followed by business failure (20%)

### ***Requirements of SSA farmers***

- The average expense incurred by 180 farmers for one season is MMK 352,729 with the highest expenses incurred in Khin-U (MMK 769,549) due to high fish farming potential followed by Madaya (MMK 390,000). The minimum average cost incurred is in Tachileik (MMK 175,432) due to lack of technical knowledge and reluctance to purchase fishlings or fish feeds
- 80% farmers across townships other than Tachileik reported fish feed as the major expense of the fish farming business. Nearly 50% farmers reported that they are using only soft rice hulls for fish feed given its easy availability. AP and CBOs in Taachileik reported that rice and rice hulls from the household are mainly used for fish feed and in Waingmaw, retailers reported that leftovers and chicken waste are used as feed by many farmers.
- APs in Madaya reported that many farmers are involved in the hatchery business and thus are using high-quality feed containing eggs, sesame flats, soft rice, vitamins, rice hulls, etc. which is expensive
- The use of quality fish feed is highest in Salin (17%) followed by Tachileik (10%) and Khin-U (7%). In Khin-U, 33% farmers are also using sesame flat along with soft rice hulls as feed.

- APs reported that some of the farmers have newly constructed fishponds in Tachileik and Waingmaw to get enrolled in the WorldFish project.
- 76% farmers reported that they purchase inputs monthly.
- Of 180 farmers interviewed, 140 farmers (78%) responded that they do require a loan for SSA business with the highest proportion being in Khin-U (100%) and lowest in Tachileik (50%) due to their hesitation to take loans from formal credit providers (concern for regular repayments) as reported by IP and CBO.
- The average loan amount required for one complete season is reported is MMK 328,044.
- Various actors including wholesalers, retailers, processors, and CBO/CSOs have suggested providing loans to farmers at an affordable interest rate to boost fish farming in the study area
- 63% farmers across townships preferred monthly interest between 1.0%-2.0%, while 30% farmers preferred monthly interest less than 1.0%.
- 83% farmers preferred interest and principal repayment at the time of harvest i.e. lump-sum bullet

### **Gender Inclusion**

- Various actors across townships reported that the available credit sources can be availed by both males and females. Terms and conditions differ due to different credit appraisal of institutions.
- Across townships, APs and IPs reported that women are most likely to avail loans from MFIs, VSLAs, and their known acquaintances.
- There is no stigma with the involvement of women in fish farming
- It the distribution of labor amongst males and females which differ across townships, although there is no set rule. Women are mostly involved in feeding and retail selling whereas hard labor such as development/renovation of the pond, harvesting, and travel for purchases is mostly done by males.

### **Regulatory Environment**

- The aquaculture sector in Myanmar is governed by the Aquaculture Law 1989
- Only land dedicated by the Department of Land Administration is provided to the farmers for conducting fish farming legally
- Fishponds with a surface area up to 0.03 acres (25ft.\* 50ft.), being used for household consumption, is legally tax-exempted per the existing laws
- As reported by DoF official, DoF verifies that farmers are using GAqP for fish farming before granting the license
- The process of obtaining a fish farming license is cumbersome and is also differ under the different governments
- The support from DoF in terms of technical assistance and fishlings free of cost (*under Covid relief measure*) is only restricted to licensed fish farmers
- Awareness of the fishpond licensing system is low amongst SSA farmers
- The license fee of MMK 1 Million is also considered very high by smallholders

### **Gaps identified**

- There is no formal source available that caters to the needs of small-scale fish farmers. As the fish feed is the major expense of the fish farming business and is dependent on the bodyweight of fishes



in the pond, its requirement increases over the growing period. Also, a single time disbursement can lead to improper loan utilization. No microfinance product to this requirement of multiple disbursements in tranches.

- VSLAs are providing loans for fish farming in the various township but the loan amount is insufficient and loan tenure also does not match the growing period. Additionally, the community fund is managed in the personal savings account of an individual. Such practices are unsustainable and fraught with the risk of fraudulent withdrawal and ownership conflicts.
- There is an immense disparity in fish farming practices across townships. The wide variation in aquaculture practices and investments by small fish farmers indicates a significant lack of skills and know-how on fish farming.
- Fish feed is the costliest input in fish farming. It is also the single most important factor affecting fish growth. The lower the quantity of fish feed required for obtaining a kilogram of fish harvest, the better is the perceived quality of feed. The respondents lacked awareness of the significance of the feed quality and thus, require to be trained in this aspect.
- Pond registration for fish farming is a statutory requirement. During our study, none of the SSA farmers were found to have obtained the necessary licenses for fish farming. This non-registration of ponds also inhibits SSA farmers from accessing benefits out of DoF schemes such as the provision of quality fingerlings worth MMK 40,000 under Covid-19 Economic Relief Plan (CERP).

### ***Proposed Solutions***

The study team proposes four models based on international best practices as well as suitability to local conditions. These models proposed aim to promote channels for providing credit to SSA farmers and developing their capacity to undertake sustainable business. The proposed models are:

- Revolving fund Grant to Community Organization
- Revolving Fund to NGOs/IPs
- Fish Feed as working capital support to Small Scale Aquaculture Farmers
- Hybrid Model - MFI for Credit Access & NGO/IP for AqBDS, IDS

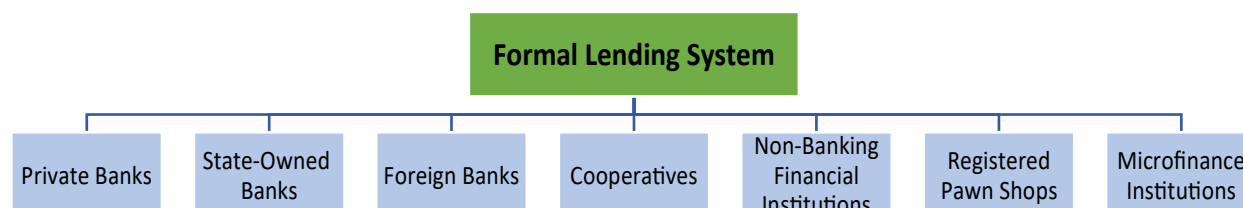
These models are discussed in detail in Chapter 4.

## 1. Analysis of the Current Lending System

### 1.1 Introduction to Formal Lending System

The formal lending system in Myanmar has grown and diversified in the recent decade with the help of liberalized regulations and foreign investments. The various entities providing formal credit are shown in **Figure 1.1** below. Besides, the government-sponsored Mya Sein Yaung (MSY) project has grown rapidly since its launch in 2014 and played a vital role in providing credit and developing infrastructure in rural areas.

**Figure 1.1:** Formal Lending Providers



The banking system in Myanmar comprises three different types of institutions namely State-Owned Banks, Private Banks, and Foreign Banks. All banks were nationalized in 1963 and until 1993, the banking sector was completely state-owned. The private sector banks could operate again from 1993 and have acquired a considerable market share in recent years due to branch expansion and better services. Foreign banks were given licenses by the government in 2014 and are slowly gaining momentum. **Table 1.1** below shows the distribution of banking structure.<sup>1</sup>

**Table 1.1:** Myanmar Banking Structure

	Number		Branches		Total Assets (%)		Total Deposits (%)	
	2015	2018	2015	2018	2015	2018	2015	2018
State Owned Banks	4	4	515	533	51	31	44	23
Private Banks	24	27	1,306	1,844	44	58	54	68
Foreign Banks*	13	13	0	0	5	11	2	9

\*Foreign Banks were permitted to open branches from May 2019

#### 1.1.1 Private Banks

Private banks are regulated by the Central Bank of Myanmar (CBM) and a total of 26 banks were operational at the end of March 2020. Broadly there are three categories of private banks in the country: municipality-owned, semi-private banks, and privately owned banks. The municipality-owned

<sup>1</sup> Source: Krungsri Research Paper. Accessed on 2 July 2020. 'Limiting overdraft exposure: Implications for Myanmar's banking sector'. [https://www.krungsri.com/bank/getmedia/a51f8424-fba9-4cad-b8b4-0c55eeb66cbe/RI\\_Myanmar\\_Banking\\_Stability\\_191118\\_EN.aspx](https://www.krungsri.com/bank/getmedia/a51f8424-fba9-4cad-b8b4-0c55eeb66cbe/RI_Myanmar_Banking_Stability_191118_EN.aspx)

banks are 100% owned by the government, the semi-private banks are partially owned by the government while privately owned banks are completely owned by individuals/corporations. The private banks have registered an impressive growth after 2011 when the sector was gradually liberalized. Most of the growth has been contributed by three privately owned banks namely Kanbawza Bank (KBZ), Ayeyarwady Bank (AYA), and Co-operative Bank (CB Bank). The banks which cater to agriculture borrowers in various capacities are Ayeyarwaddy Farmers Development Bank, Myanmar Apex Bank and Yoma Bank.

The Myanmar Apex Bank (MAB) provides medium-term loans (up to three years) of maximum MMK 400,000 per acre to the farmers in the agriculture sector. The Yoma Bank backed by International Finance Corporation (IFC) has forayed into the Small and Medium Enterprise (SME) and Agriculture Segment. In December 2015, the bank partnered with Livelihoods and Food Securities Trust (LIFT) and launched the Agribusiness Finance Program (*sharing loan risk*). The farmers were given hire-purchase loans to finance agriculture machinery. The ticket size of the loan suggests that the program catered to large and medium farmers.

At the end of December 2018, 88.5% of the private sector loans comprised trading, construction, services, production, etc. while the **agriculture sector comprised only 2.1% of the total loans outstanding**. The portfolio faces a high geographical concentration given 80% of the loans were concentrated in the Yangon region and 12% in the Mandalay region.<sup>2</sup>

Some of the private sector banks like Asia Green Development (AGD) Bank, AYA Bank, CB Bank, MAB, Myanmar Microfinance Bank, and Yoma Bank are adopting the indirect lending route to serve the agriculture borrowers. **These banks are giving term loans to the microfinance institutions (MFIs) who in turn are disbursing loans to the farmers for short-term working capital requirements.**

Currently, the CBM has regulated the minimum bank deposit rate at 5%, and the maximum lending rate at 10% for collateralized loans and 13% for non-collateralized loans. The private banks feel that the margin of 500 basis points on collateralized loans (i.e. the difference between the maximum lending rate and minimum deposit rate) is not sufficient to give loans to the agriculture sector, of which they have limited knowledge and which they perceive to be of high risk.<sup>3</sup>

In March 2017, the CBM announced that it will be compulsory for local private banks to grant a minimum portion of their loans to the agriculture and SME sector.<sup>4</sup> However, nothing has been materialized yet, on the proposed measure.

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<sup>2</sup> Same as Reference Number 1

<sup>3</sup> Source: Mekong Business Initiative. Accessed on 7 July 2020. 'Myths and Maths: The impact of Financial Regulations on Agriculture in Myanmar'. <https://www.mekongbiz.org/wp-content/uploads/2017/06/The-Impact-of-Financial-Regulations-on-Agriculture-in-Myanmar.pdf>

<sup>4</sup> Source: The Myanmar Times. Accessed on 8 July 2020. 'Agricultural sector and SMEs to receive private bank loans'. <https://www.mmtimes.com/business/25141-agricultural-sector-and-smes-to-receive-private-bank-loans.html>

### 1.1.2 State-Owned Banks

The State-Owned Banks (SOBs) fall under the purview of the Ministry of Planning, Finance and Industry (MOPFI). Four such banks are working per the policy mandates provided to them by the government. The SOBs deal with several operational challenges ranging from limited staff capabilities, outdated banking infrastructure, and weak corporate governance. As a result, the financial performance of these institutions has deteriorated over the past several years.

The government with the assistance of the World Bank is exploring the option of consolidation of the four SOBs into a retail commercial bank and a development bank. According to the proposal, the Myanmar Agriculture Development Bank (MADB) and Myanmar Economic Bank (MEB) will be merged, given their widespread retail outreach, to form a retail bank. The other two banks namely Myanmar Foreign Trade Bank (MFTB) & Myanmar Investment and Commercial Bank (MICB) would be merged to form a development bank.<sup>5</sup>

#### 1.1.2.1 Myanmar Economic Bank

The Myanmar Economic Bank (MEB) was established in 1976 and it is the largest SOB in the country. It has 315 branches spanned throughout the country at the end of March 2020. The bank provides direct lending to SME borrowers, wholesale funding to both the agriculture and construction sector through MADB and Construction & Housing State Development Bank (CHDB)<sup>6</sup> respectively. It also provides banking services to all government agencies. The bank has borne significant losses over the years due to its mandate of giving subsidized loans at negative interest margins to MADB (offering subsidized loans to MADB while providing higher interest on savings to its customers as per CBM directions). Recently, it has revised its policy and provides loans to MADB at an 8% interest rate per annum against the minimum deposit rate of 5%.

#### 1.1.2.2 Myanmar Agriculture Development Bank

The MADB was established in 1953 as a state agricultural bank and is the main provider of loans to farmers in Myanmar. The bank mainly offers loans for a limited number of crops: pre-monsoon loan for a sugar plantation, monsoon loan for paddy, and winter loans for beans, pulses, etc.

Owing to the lack of a robust credit appraisal system, natural disasters, and the low prevalence of crop insurance in the country, the bank has suffered substantial losses. As a corrective measure, the bank has made changes in the collateral policy. It now demands farmers to deposit original Form 7 (*land use certificate*) with the bank compared to the earlier practice of giving a copy of it.

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<sup>5</sup> Source: The ASEAN+3 Macroeconomic Research Office. Accessed on 9 July 2020. 'AMRO Annual Consultation Report – Myanmar 2019'. [https://www.amro-asia.org/wp-content/uploads/2019/10/Annual-Consultation-Report-on-Myanmar-2019\\_-for-publication.pdf](https://www.amro-asia.org/wp-content/uploads/2019/10/Annual-Consultation-Report-on-Myanmar-2019_-for-publication.pdf)

<sup>6</sup> The CHDB was established in 2013 as a private bank under Ministry of Construction to provide loans for affordable housing.

The major sources of funding for MADB are MEB and the Japan International Cooperation Agency (JICA). MADB provides concessional loans to the farmers in the range of 0.5% - 0.8% per month and repayment is done at the harvest time. **These loans are based on a lump-sum bullet model where the farmers pay both principal and interest components at the time of harvest.** The maximum ticket size for paddy loans and other seasonal crops offered by MADB is MMK 150,000 per acre and MMK 100,000 per acre respectively. The bank has recently started offering an additional MMK 50,000 per acre loan to the farmers due to the disruption in income caused by the coronavirus pandemic.

A farmer is eligible to get a maximum loan on 10 acres of land; resulting in a cap of MMK 1,500,000 for paddy and MMK 1,000,000 for other seasonal crops. The bank has changed its lending methodology **from group to individual lending since mid-2018**, given the borrowers feel hesitant to provide mutual guarantees.

#### 1.1.2.3 Myanmar Foreign Trade Bank

The Myanmar Foreign Trade Bank (MFTB) was established under the Financial Institutions of Myanmar Law (FIML) in 1990 and specializes in international banking. It provides foreign exchange-related services to both the government/state enterprises and individual customers.

#### 1.1.2.4 Myanmar Investment and Commercial Bank

The Myanmar Investment and Commercial Bank (MICB) was established under the FIML in 1990. It provides international banking services like remittances in local and foreign currencies and commercial banking services to its customers.

### 1.1.3 Foreign Banks

The foreign banks are regulated by the Central Bank of Myanmar (CBM), which has followed a gradualist approach to allow foreign players to expand their operations and provide the necessary capital to support the banking industry. From 1993 to 2014, the foreign banks were permitted to open a bank representative office. In June 2014, the central bank announced the first phase of foreign bank licensing, and nine branch licenses were issued, followed by another four in January 2016, in the second phase.

The foreign bank license holder includes the Industrial and Commercial Bank of China, State Bank of India, Sumitomo Mitsui Banking Corporation, etc. **The policy of allowing license holders to serve the local companies through wholesale banking channels since 2018 has opened an additional door for microfinance institutions (MFIs) to raise funds.** Several MFIs have approached foreign banks to raise debt, preferably in local currency.

#### 1.1.3.1 Licensed – Branch & Subsidiary

The CBM announced a third round of licensing system in November 2019 under which branch license and subsidiary license (*newly introduced*) was given to the current representative officeholders. As a

result, seven banks were given a preliminary license in April 2020 of which three obtained subsidiary licenses and the rest were given branch licenses.

A branch license holder will be able to provide services from one place of business that is currently permitted to foreign bank license holders. This includes export financing services to local corporates, wholesale banking services to local companies in both local and foreign currency, etc.

A subsidiary license holder will be allowed to offer retail services from 1 January 2021, in addition to all services available to the branch license holder. They will also be allowed to open a maximum of 10 service points (including branches and automated teller machines (ATMs)).

### 1.1.3.2 Representative Offices

A total of 45 representative offices were operational in the country at the end of March 2020. According to the 2016 Financial Institutions Law, the representative offices cannot engage in any lending activity and can offer services related to remittance, payment settlement, etc.

### 1.1.4 Cooperatives

The Cooperatives are regulated by the Cooperative Department under the purview of the Ministry of Agriculture, Livestock and Irrigation (MOALI)<sup>7</sup> and are widely spread across the country. The major three types of cooperatives are Agricultural Cooperatives, Trading Cooperatives, and Financial Cooperatives.

After the microfinance law came in 2011, 77 financial cooperatives received the microfinance license and were jointly regulated by the Ministry of Planning and Finance (now renamed as MOPFI) and the Ministry of Cooperatives. In February 2016, the microfinance regulator placed the cooperative MFIs under the sole supervision of the Ministry of Cooperatives.

The Cooperatives are allowed to provide loans only to its members, for which they are required to pay a nominal registration fee. The loans are provided in a group-based lending system for six months duration under the lump sum bullet method at an interest rate of 1%-2% per month. The members are required to deposit 10% of the loan amount as upfront compulsory savings which in practice is often deducted from the loan amount itself.

In August 2013, the Export-Import (Exim) Bank of China sanctioned up to \$900 million loan in tranches to the Ministry of Cooperatives.<sup>8</sup> The funds were obtained at an interest rate of 4.5% per annum payable during tenure of 10 years. This external funding proved to be a catalyst in the cooperative growth story leading to an increase in the number of cooperatives from 21,138 (with 2.2 million members) in 2013 to 34,887 (with 3.2 million members) in 2018.<sup>9</sup> The cooperatives have helped to bridge the credit gap to a

<sup>7</sup> MOALI: The ministry was composed with two former ministries - Ministry of Livestock, Fisheries and Rural Development & Ministry of Agriculture and Irrigation and Ministry of Cooperatives.

<sup>8</sup> Source: United States Agency for International Development (USAID). Accessed on 11 July 2020. 'Banking and Finance in Myanmar'. <https://www.nathaninc.com/wp-content/uploads/2018/02/Turnell-Banking-and-Finance.pdf>

<sup>9</sup> Source: FINMARK TRUST and United Nations Capital Development Fund (UNCDF). Accessed on 13 July 2020. 'MAP Refresh Myanmar Diagnostic 2018'.

certain extent by providing timely funding to the farmers in the remote areas. At the end of October 2018, MMK 62.8 billion or 9% of the total loans disbursed by the Cooperatives were towards the Livestock sector.

In July 2020, the Cooperative Department announced that \$25 million worth of vouchers will be distributed in two phases to the farmers across six states/regions namely Ayeyarwaddy, Magway, Mandalay, Nay Pyi Taw, Sagaing, and Shan. The program will assist 300,000 farmers to purchase agriculture equipment and inputs without paying any cash and subject to a cap of MMK 120,000 per individual.<sup>10</sup>

### 1.1.5 Registered Pawn Shops

The Pawn Shops are regulated by the authority of the state/region or municipality. According to Finscope Survey 2018, the number of clients served by registered Pawn Shops decreased from 1,100,000 in 2013 to 700,000 in 2018. They provide short-term credit often in the form of emergency loans with an average tenure of four months. A large portion of savings in the country is kept in the form of gold. As a result, people find it viable to obtain immediate cash by keeping the valuables with the pawnshop.

The interest rate varies drastically depending upon the value of the collateral. Typically, an interest rate of 3% monthly is charged for placing gold as collateral while around 10% monthly can be charged for less valuable collaterals.

### 1.1.6 Mya Sein Young Project

The Mya Sein Young project started in 2014-15 under the supervision of the Department of Rural Development, MOALI. The project was designed to improve the livelihoods and further develop infrastructure in poor villages. The villages are selected for the project in consultation with the local community and the members of parliament. A village administration committee is established in each village which has the responsibility of fund management ranging from loan authorization, loan disbursement, collecting repayments, and preparing audited financial statements.

All selected villages are provided MMK 30 million under the project. Based on the group lending methodology, the villagers are provided a loan for a maximum period of one year at an interest rate of 0.5%-1% per month under the partial bullet repayment method. Here, the interest is paid monthly/quarterly while the principal is paid at the end of the tenure.

The funds are earmarked as revolving funds, which is based on the concept of lend, collect, and re-lend. The business model of the project is designed in a manner that the interest income is shared equally between the village administration committee and the government. The infrastructure development activity is commenced once MMK 10 million is accumulated as interest income by the village committee.

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[http://finmark.org.za/wp-content/uploads/2019/04/Myanmar\\_Diagnostic\\_2018\\_CB3\\_repro.pdf](http://finmark.org.za/wp-content/uploads/2019/04/Myanmar_Diagnostic_2018_CB3_repro.pdf)

<sup>10</sup> Source: The Myanmar Times. Accessed on 14 July 2020. 'Myanmar co-op department to distribute equipment vouchers to help farmers'. <https://www.mmtimes.com/news/myanmar-co-op-department-distribute-equipment-vouchers-help-farmers.html>

As of 26 December 2018, 2.4% of the loans disbursed under the project were towards the fishery sector and it served 6.8 million people in 10141 villages of 288 Townships.<sup>11</sup>

### 1.1.7 Microfinance Institutions

The microfinance institutions (MFIs) are regulated by the Financial Regulatory Department (FRD), formerly known as Myanmar Microfinance Supervisory Enterprise (MMSE) which comes under the purview of MOPFI. The scope of their services is confined to offering loans and accepting deposits from its members.

The microfinance services started in 1997 through the United Nations Development Programme (UNDP) Human Development Initiative (HDI) across Dry Zone, Shan State, and Delta. Three players were chosen as implementing partners namely Partner Agencies Collaborating Together - PACT (Dry Zone), GRET (Shan State), and Grameen Trust (Delta). The Grameen Trust worked till 2003 and their operations were handed over to EDA Rural Systems from 2003-2005. In February 2006, the UNDP consolidated all activities and selected PACT as the sole operator of its microfinance operations.

Financial cooperatives, non-governmental organizations (NGOs) like Save the Children, GRET, World Vision and Proximity Designs, etc. gradually emerged as other players in this sector (*with the help of donations*), to serve the needs of poor households.

In November 2011, the government introduced **Microfinance Business Law**. It became mandatory for all the institutions doing microfinance business to obtain a license from the regulator. Also, MFIs are required to obtain prior approval to start operations in the new areas (State/Region). The law formalized the sector and many INGOs, financial cooperatives and commercial players (local and international) joined the fray to offer services afterward. **The donor element in microfinance reduced considerably over time and was replaced by equity funding and commercial loans.**

The MFIs can charge a maximum of 28% interest rate per annum and further details are discussed in **Section 1.3**. The institutions offer two kinds of loans namely group loans and individual loans. Over the years, many MFIs in Myanmar are gradually moving towards the individual loan model, broadly to tap the SME market, and because group borrowers feel hesitant to give guarantees for each other when the loan amount increases.

The MFIs have filled the lending gap in the agriculture sector to a certain extent by providing working capital loans and purchasing fixed assets (Hire Purchase). The major players working in the agriculture domain are BRAC Myanmar Microfinance (BRAC), Early Dawn Microfinance, LOLC Myanmar Microfinance (LOLC), Maha Agriculture Public Company, Microfinance Delta International (MIFIDA), Pact Global Microfinance Fund (PGMF), Proximity Designs, etc. The various repayment options adopted by MFIs are weekly/bi-weekly/monthly collection, partial bullet, and lump sum bullet, as explained below.

❖ **Weekly/Biweekly/Monthly payment:** Both principal and interest component is collected either weekly, bi-weekly, or monthly.

<sup>11</sup> Source: Zaw Min Naing. Yangon University of Economics. Accessed on 17 July 2020. 'Credit Market for Rural Development in Myanmar'. [https://meral.edu.mm/records/1087/file\\_details/Zaw%20Min%20Naing%20%28EMDevS%20-%2057%29.pdf?community=yueco#.Xyt82igzY2w](https://meral.edu.mm/records/1087/file_details/Zaw%20Min%20Naing%20%28EMDevS%20-%2057%29.pdf?community=yueco#.Xyt82igzY2w)



- ❖ **Partial bullet payment:** The interest component is collected monthly, quarterly, half-yearly, and the principal portion is collected at the end of the tenure.
- ❖ **Lump-sum bullet payment:** Both principal and interest component is collected at the end of the tenure.

A total of 189 MFIs operated in the country at the end of September 2019, of which 17 institutions had deposit-taking license (details discussed in **Section 1.3**). For the same period, the top 20 MFIs (in terms of portfolio outstanding) control more than 70% of the \$1.3 billion<sup>12</sup> market.

The microfinance industry is on the cusp of significant transformation with **new microfinance law** coming in place, replacing the 2011 Microfinance Business Law. The new law was approved by the Upper House of Parliament (Amyotha Hluttaw) in July 2020 and will be in force soon after the president's approval. The regulations governing microfinance services are discussed in **Section 1.3**.

### 1.1.8 Non-Banking Financial Institutions

The Non-Banking Financial Institutions (NBFIs) are regulated by CBM. A total of 29 institutions have been provided license till the end of June 2020. The loans given by NBFIs are of relatively higher ticket size compared with the loans offered by MFIs. The NBFIs do not cater to small farmers, which is the target population for WorldFish.

## 1.2 Informal Lending System

The informal lending system comprising of money lenders, acquaintances, village savings and loan associations (VSLA), and unregistered pawn shops are widespread across the country. Even though the interest rate charged is extremely high, it is still preferred by the borrowers in rural areas mainly due to the availability of necessary cash at the time of emergency along with flexible repayment options.

The money lenders charge between 10%-20% interest per month depending upon the borrower's bargaining power and collateral offered. With the growth of MFIs and Cooperatives in rural areas, the number of adults borrowing from moneylenders reduced from an estimated 5.9 million in 2014 to an estimated 4.2 million in 2018.<sup>13</sup>

The VSLA follows the revolving fund model, which is based on the concept of lend, collect, and re-lend. An interest rate of 2%-3% interest rate per month is charged from its members. The terms and conditions of obtaining a loan and depositing savings (if applicable) vary depending on many factors such as the preference of the community, the mandate of the promoters, and the decision of the respective administration authority of the area. The various VSLA examples are discussed in **Section 2.1**.

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<sup>12</sup> Source: Frontier Myanmar. Accessed on 15 July 2020. 'Limited relief for microfinance borrowers as the clock ticks on debt payments'. <https://www.frontiermyanmar.net/en/limited-relief-for-microfinance-borrowers-as-the-clock-ticks-on-debt-payments/>

<sup>13</sup> Same as Reference Number 9

People borrowing from unregistered pawnshops is popular in the country, given the bulk of savings is in the form of gold as stated above. The borrower resorts to these players during emergency who offer them short term loans at an extremely high-interest rate.

### 1.3 Policy, Rules, and Laws - MFIs

The MFI services are limited to loans and accept deposits as savings. **These loans are subject to an interest rate cap of 28% per annum. Above it, a maximum 2% of the disbursed loan amount can be charged as other fees.** Of this 2%, 1.5% constitutes loan processing fees and other charges while 0.5% is set aside as a reserve for Beneficiary Welfare Fund (BWF). The BWF is provided as a safety net to the client in case of an unforeseen event, where cash pay-out is provided along with writing-off the outstanding loan amount.

The guidelines required to be followed by the microfinance license holders are as below:

- Maintain a minimum of MMK 100 million as paid-up capital
- No collateral can be taken from the client for any loan product
- The maximum loan amount offered to a client cannot exceed MMK 10 million
- Solvency ratio (Total Equity/Total Assets) should be a minimum of 12%

On the savings front, all MFIs may take a maximum 5% of the disbursed loan amount as compulsory savings, on which they are required to pay a minimum 14% interest per annum. For receiving voluntary savings, MFIs need to obtain a 'Deposit-Taking Licence'. The following conditions need to be fulfilled before applying for Deposit-Taking Licence:

- A minimum of MMK 300 million as paid-up capital
- A minimum of three years of experience in carrying out microfinance activities in Myanmar
- Profits made for a minimum of two consecutive years
- A suitable management information system (MIS) in place
- Strong internal controls

The deposit-taking MFIs are required to pay a minimum of 10% interest per annum on the voluntary savings and consistently maintain a minimum liquidity ratio (Total Cash/Total Voluntary Savings) of 25%.

## 2. Analysis of Lending System in the Selected Y1 Townships

This section describes the various credit providers working in the Waingmaw, Salin, Madaya, Khin-U, Tachileik, and Pekon townships for the study. Additionally, this section explores the degree of credit available to small-scale aquaculture (SSA) farmers<sup>14</sup> and other farmers in the study areas.

### 2.1 Existing Credit Delivery System

There are significant numbers of formal credit providers available in the townships ranging from SOBs, Private Banks, Cooperatives, MFIs, Registered Pawn Shops, and MSY project. The NBFIs and Foreign Banks do not operate in any of the study areas.

Among informal credit providers, moneylenders and unregistered pawnshops are found in all the townships. The VSLAs are widely present across four townships namely Salin, Waingmaw, Pekon, and Tachileik.

#### 2.1.1 Magway Region – Salin Township

The formal credit providers operating in this township are State-Owned Banks (MADB & MEB), Private Banks, MFIs, Cooperatives, Registered Pawn Shops, and MSY project. Among private banks are AGD, KBZ, Global Treasure Bank (GTB), and Myanmar Oriental Bank. A total of 10 MFIs namely Alliance for Microfinance in Myanmar (Alliance), ASA Microfinance Myanmar, BG Microfinance Myanmar, BNK Capital Myanmar (BNK), Hana Microfinance (Hana), LOLC, MIFIDA, PGMF, Sathapana Limited (Sathapana), and Tu Tu Finance are operating in the township.

#### 2.1.2 Sagaing Region – Khin-U Township

The formal credit providers operating here are State-Owned Banks (MADB & MEB), MFIs, Cooperatives, Registered Pawn Shops, and MSY project. A total of 10 MFIs namely Alliance, BRAC, BNK, Hana, MC Easy Microfinance, Myat Kyun Thar Microfinance, PGMF, Sathapana, Shin Han Microfinance, and Tu Tu Finance are operating in the township.

#### 2.1.3 Mandalay Region – Madaya Township

The various formal credit providers operating in Madaya are State-Owned Banks (MADB & MEB), Private Banks, MFIs, Cooperatives, Registered Pawn Shops, and MSY project. Nine MFIs operating in the township are Advans MFI Myanmar, Alliance, Fullerton Finance Myanmar, Great Victory Myanmar, Maha Agriculture Public Company, Myat Kyun Thar Microfinance, Sathapana, Tu Tu Finance, and Vision Fund Myanmar (VFM).

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<sup>14</sup> The study used “small scale aquaculture (SSA) farmers” and “farmers” interchangeably.

#### 2.1.4 Kachin State – Waingmaw Township

The formal credit providers are limited in this township to MADB and MEB, Cooperatives, one MFI (VFM), Registered Pawn Shops, and MSY project. Waingmaw is located close to Myitkyina and it was found most of the commercial bank branches are located in Myitkyina. As a result, the people residing in Waingmaw have to visit Myitkyina for availing banking services.

#### 2.1.5 Shan State (South) – Pekon Township

The various formal credit providers operating in this township are State-Owned Banks (MADB & MEB), Private Banks, MFIs, Cooperatives, Registered Pawn Shops, and MSY project. Four MFIs operating in the township are Hana, PGMF, Sathapana, and VFM.

#### 2.1.6 Shan State (East) – Tachileik Township

In Tachileik township, activities of Small-Scale Aquaculture Investments for Livelihoods and Nutrition (SAIL) project of WorldFish is confined to Tarlay. The formal credit providers working in Tarlay are very limited due to various factors like small population, far from the township's center, relatively low demand for credit. Only one SOB (MADB), one MFI (VFM), few cooperatives, and the MSY project are operational here.

The township is closely located to the Myanmar/Thailand border due to which both local currency Kyat and Thailand currency Baht are interchangeably used. **The study team found that loans offered by all sources other than VSLAs are provided in Kyat while VSLA, the informal lending source, provides loans in Baht.**

### 2.2 Current options of financial credit available to farmers

All formal credit providers, except private banks, offer loans to the farmers for agriculture and livestock activities. Private banks focus on deposit products and remittance services while credit is provided mainly for the real estate sector. None of the farmers reported taking loans from Registered Pawn Shops.

Most of the farmers have agriculture as a primary source of income followed by fish farming as an additional source. **It is a common practice by the farmers to utilize a portion of the agriculture loan for buying fish feed, which is the major expense for fish farming.**

Among the informal sources of credit, a handful of farmers took loans from the moneylender. The loans offered by input suppliers are limited to the farmers whom they trust and have a long-term association. It is apparent that farmers are able to access loans from VSLAs which has a unique target based on the mandate of the promoters.

### 2.2.1 Magway Region – Salin Township

The farmers received loans from MADB, Cooperatives, PGMF, and MSY project primarily for agriculture activity. The only source for farmers to obtain loans for fish farming is through input suppliers and VSLA formed in 2018 by Pact Myanmar under the MYCulture Project<sup>15</sup>.

Pact Myanmar formed one VSLA each across 11 villages where the project was implemented. A grant of MMK 65,000 was provided to all beneficiaries for purchasing fishlings. Further, each beneficiary was required to contribute 10% of the grant amount to form a VSLA. A committee comprising of Chairman, Treasurer, and Accountant, was formed among the beneficiaries and training was provided to them on VSLA management under the MYCulture project.

The VSLA interviewed comprised of 16 members with a capital of MMK 104,000 (6,500\*16) and initially gave the loan to two borrowers worth MMK 52,000 each. The interest income is added back to the revolving fund and the corpus has now increased to MMK 288,000. The amount collected is equally disbursed on the same date to the next round of borrowers. The loans are provided to the members on a rotational basis and the amount is decided based on the available fund. **Table 2.1** below describes the features of the loan product.

**Table 2.2: Features of Loan Product – VSLA formed by Pact**

Interest Rate	3% per month
Loan Processing Fees	Nil
Tenure	Three months
Repayment Frequency	Lump-Sum Bullet
Guarantor	Not Required
Savings	Not Applicable

Some of the VSLAs have stopped functioning after the MYCulture project ended in 2019. It is largely attributed to the demotivation of members and the seasonality of fish farming. The implementing partner (IP) PACT reported that they will revive the defunct VSLAs under the SAIL project.

### 2.2.2 Sagaing Region – Khin-U Township

The farmers obtained loans mainly from MADB and MFIs, followed by Cooperatives for cultivating various crops. Among the six townships studied for this report, Khin-U has the highest potential for fish farming. It was found that the township has a mix of both SSA farmers and large-scale aquaculture farmers.

Unlike other townships, in Khin-U it was observed that MSY project has been providing loans since 2015 for “Fishery Sector Development” in Yone Suu village. The farmers received a loan of MMK 300,000 per acre (for pond size more than one acre) and a maximum of MMK 150,000 (for pond size less than one acre). **Table 2.2** states the features of the loan product.

<sup>15</sup> The MYCulture project was implemented by Pact in Salin Township from October 2015 to November 2019

**Table 2.3: Features of Fishery Sector Development Loan Product – MSY**

Interest Rate	1% per month
Loan Processing Fees	Nil
Tenure	One year
Repayment Frequency	Partial Bullet (Interest every quarter and Principal at the end of the tenure)
Guarantor	Not Required
Savings	Not Applicable

### 2.2.3 Mandalay Region – Madaya Township

The farmers reported taking loans for agriculture purposes from MADB, MFI, and Cooperatives. Unlike other townships, VSLA and MSY project for fishery sector development are not available. This further restricts options for farmers to avail credit.

### 2.2.4 Kachin State – Waingmaw Township

In Waingmaw township, primarily, loans for agriculture and livestock activities are being provided by MADB. A very few farmers have opted for loans from Cooperatives, MSY project, and VFM.

The study team identified one VSLA named ‘Micro Credit Union’ formed by Kachin Baptist Convention (KBC) church in Nawng Hee village in 2014. The VSLA is formed by the church members (mostly women and one member per household). The corpus of the VSLA is funded by members’ savings. Members need to submit a loan application stating both the loan amount and purpose of the loan to the committee one week before the disbursement date. Each member is eligible to obtain a loan up to three times her/his saving amount.

The first of every month is fixed for savings, collection of loan installments, and disbursement of fresh loans. If there is any extra fund left after the planned disbursement, it is disbursed to other borrowers immediately to avoid keeping cash with the committee.

The VSLA is administered by a nine-member committee that is governed by pastors. The committee is empowered to manage the fund. The features of the loan product offered by this VSLA is captured in **Table 2.3** below.

**Table 2.4: Features of Loan Product – Micro Credit Union VSLA**

Interest Rate	2% per month
Loan Processing Fees	MMK 1000
Tenure	Flexible, maximum one year

Repayment Frequency	Monthly
Guarantor	Not Required
Savings (MMK)	10,000 – 100,000 per month

The interest amount collected, along with monthly savings, is added to the corpus, and thus with time, the loan amount available increases for all members. In case borrowers face difficulty to pay installments, loans are rescheduled, or emergency loans are provided based on the discretion of the committee members.

**The study team found that for the VSLAs formed under church guidance, the borrowers take debt matters very seriously as it involves a religious element.** KBC Church has formed a similar type of VSLAs in other areas of the township.

### 2.2.5 Shan State (South) – Pekon Township

The farmers have obtained loans from MADB, Cooperatives, MFIs, MSY project, and VSLA. Approximately 50 VSLAs are operating in Pekon Township. The study team came across two VSLAs functioning in the township.

In the first case, the VSLA was promoted by KMSS under the ‘Livelihood Program’. 20 members from Lei Htun Village, who were interested in compulsory savings and taking loans, were selected. A capital of MMK 2 million was provided by KMSS for two years to the VSLA in 2008. For the same period, the members were required to deposit MMK 1,000 monthly as compulsory savings, which was added to the revolving fund. To manage the VSLA, a committee of seven members was formed and KMSS provided them training to administer the fund.

After two years, the principal amount along with 0.5% monthly interest was returned to KMSS. Afterward, whatever money left at the VSLA acted as a revolving fund for credit requirements. The average loan size reported is MMK 200,000. **Table 2.4** below lists the features of the loan product offered by KMSS.

**Table 2.5: Features of Loan Product – VSLA formed by KMSS**

Interest Rate	2% per month
Loan Processing Fees	Nil
Tenure	Maximum one year
Repayment Frequency	Partial Bullet (Interest every six months and Principal at the end)
Guarantor	Not Required
Savings	Not Applicable now

In 2013, Japan Nippon Foundation (JNF) constructed a school in Lel Htun Village. As an honor to the labor contributed by the villagers, a VSLA is formed by the foundation with a donated capital of MMK 4.5 million. This contribution is considered a ‘Village Fund’. One person from each household of the village is eligible to obtain a loan from this VSLA.

A nine-member committee, including the teachers, is appointed to manage the fund. The loan can be taken by any member from the village, subject to a loan appraisal conducted by the committee. The average loan disbursed amount is MMK 200,000. Here, the interest amount is not added to the revolving fund. Rather, it is used for the maintenance of the school and the salary of temporary teachers. The features of the loan product are discussed in **Table 2.5** below.

**Table 2.6:** Feature of Loan Product – VSLA formed by JNF

Interest Rate	2% per month
Loan Processing Fees	Nil
Tenure	Maximum one year
Repayment Frequency	Partial Bullet (Interest every 6 months and Principal at the end)
Guarantor	Any two members of the group
Savings	Not Applicable

### 2.2.6 Shan State (East) – Tachileik Township

Only a few farmers have reported obtaining loans from VFM, MSY project, and VSLA in Tarlay (WorldFish implementing area). The 2011 earthquake disrupted the livelihood and in general, **the farmers are uncomfortable obtaining loans since they feel it will be an additional burden**. KMSS has formed VSLAs since 2006 across nine villages in Tarlay. KMSS contributes a grant of THB 25,000-50,000<sup>16</sup> (equivalent to MMK 1,082,500-2,165,000) against the contribution of villagers ranging from THB 10,000-25,000 (equivalent to MMK 433,000-1,082,500).

The VSLAs were promoted by KMSS under the ‘Livelihood Program’. The objective of the VSLAs formed is to promote village development activities. A five-member committee, comprising of village leaders, pastors, etc., is appointed by KMSS to manage the fund. Again, the loan is provided to village members subject to a loan appraisal conducted by the committee. **Table 2.6** below lists the features of the loan product offered by KMSS.

**Table 2.7:** Features of Loan Product – VSLA formed by KMSS

Interest Rate	2% per month
Loan Processing Fees	Nil

<sup>16</sup> The exchange rate used for reference is THB 1 equals MMK 43.3



Tenure	Maximum one year
Repayment Frequency	Partial Bullet (Interest every 6 months and Principal at the end of the tenure)
Guarantor	Borrowers' relative, in case the committee feels repayment capacity is weak
Savings	Not Applicable

The loan amount varies between THB 500-20,000 (equivalent to MMK 21,000-866,000). The interest earned is not added back to the revolving fund; instead, it is used for village development activity. The study team found that a portion of the capital is always kept with the village leader as an emergency fund in form of cash-in-hand.

### 3. Gap Analysis

This chapter aims to identify gaps in credit access to SSA farmers in the study areas. The various measures adopted to identify gaps range from analyzing the loans offered by credit providers available in the townships, capturing the experience in exercising those options to the actual usage of the loan availed. This is also supported by understanding the credit requirement of SSA farmers in the short to medium-term followed by identifying their preferred source of credit. The study also analyses the conditions of aquaculture in the study areas and any improvements seen during the past few years, by conducting KIIs with various value chain actors such as aquaculture promoters (AP), wholesalers, retailers, transporters, community-based organizations (CBOs)/civil society organizations (CSOs), processors, input suppliers (IS), Department of Fisheries (DoF) staff, and township coordinator of implementing partners (IP). In the end, the role of women in fish farming and their involvement in various activities is also analyzed along with the regulatory environment for fish farming prevailing in the country.

#### Respondents Profile

The study focused on the credit availability to SSA farmers (for both agricultural and non-agricultural purposes) for which the team has conducted KII with various SSA value chain actors including SSA farmers. These are spread across six townships i.e. **Khin-U, Madaya, Pekon, Salin, Tachileik (Tarlay town), and Waingmaw** in the states/regions selected by WorldFish for the intervention. **Table 3.1** summarises the number of interviews conducted during this study.

**Table 3.8:** Number of interviews conducted with various stakeholders across six townships

Stakeholder / Township	Waingmaw	Salin	Madaya	Khin U	Tachileik	Pekon	Total
SSA Farmers	30	30	30	30	30	30	<b>180</b>
Aquaculture Promoter	4	4	4	4	4	4	<b>24</b>
Implementing Partner	1	1	1	1	1	1	<b>6</b>
Department of Fisheries Staff	1	2		1		1	<b>5</b>
Input Suppliers		2	3			1	<b>6</b>
Retailers	3	2	2	3	4	2	<b>16</b>
Wholesalers		2	2	2		2	<b>8</b>
Processors	3		2		2	4	<b>11</b>
Transporters			2		2	2	<b>6</b>
CBO/CSO		4	2	2	4	2	<b>14</b>
VSLA Coordinator	2	2			3	4	<b>11</b>
MFIs (LO/BM)	1	1	1	1	1	1	<b>6</b>
<b>Total*</b>	<b>45</b>	<b>50</b>	<b>49</b>	<b>44</b>	<b>51</b>	<b>54</b>	<b>293</b>

\*16 interviews were conducted with the assistance of the WorldFish team

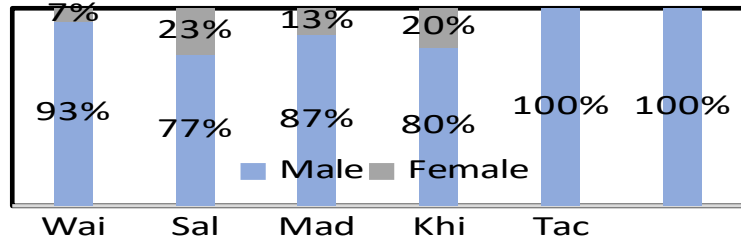
In addition to the 293 interviews held with various actors, the study team conducted four KIIs with the senior management of leading microfinance institutions namely PGMF, BRAC, Early Dawn, and VFM.

### Demographic Profile of SSA Farmers

The average age of the interviewed SSA farmers is 47 years with Madaya being the township with the highest average age (52 years) and Khin-U and Tachileik being the townships with the lowest average age (43 years).

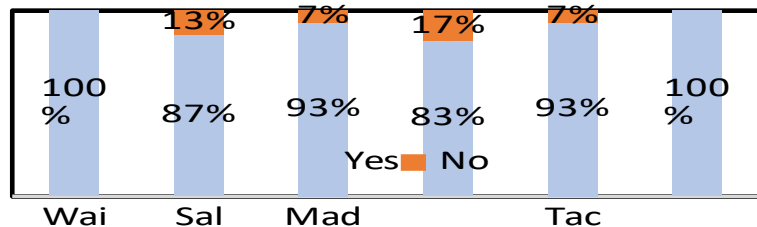
Of the total 180 SSA farmers interviewed, 89% are male respondents and the rest are female respondents. The highest proportion of females interviewed is in Salin (23%) while none of the farmers interviewed in Tachileik and Pekon are female. The proportion of males and females interviewed in each township is shown in **Figure 3.1**.

**Figure 3.1: Gender distribution of SSA farmers interviewed across townships**



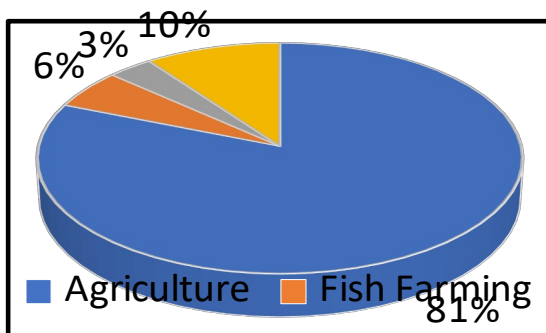
The household-head is usually the person who takes the major decisions in the family whether it be financial or social. Most of the SSA farmers (167 out of 180) interviewed are household-head. The maximum proportion of household-heads, amongst the interviewed farmers, is in Waingmaw (100%) and Pekon (100%) whereas the minimum proportion is in Khin-U (83%). The township-wise distribution of household-heads is shown in **Figure 3.2**.

**Figure 3.2: Township wise distribution of household-heads amongst interviewed SSA farmers**

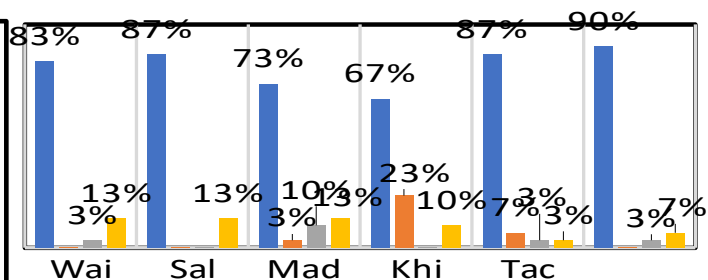


The study further analyzed the primary and secondary sources of income amongst the interviewed SSA farmers. 81% farmers reported agriculture as their primary source of income. Only 6% of respondents reported fish farming as their primary source, as shown in **Figure 3.3** and **Figure 3.4** below.

**Figure 3.4: Primary source of income of interviewed SSA farmers**



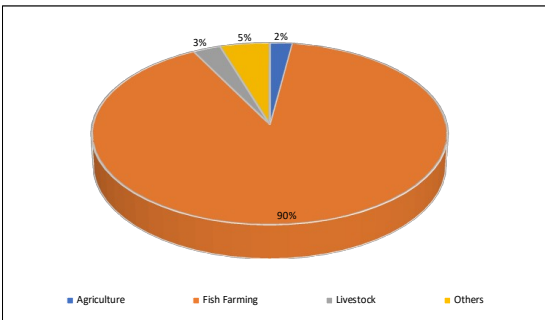
**Figure 3.3: Primary source of income of SSA farmers interviewed across townships**



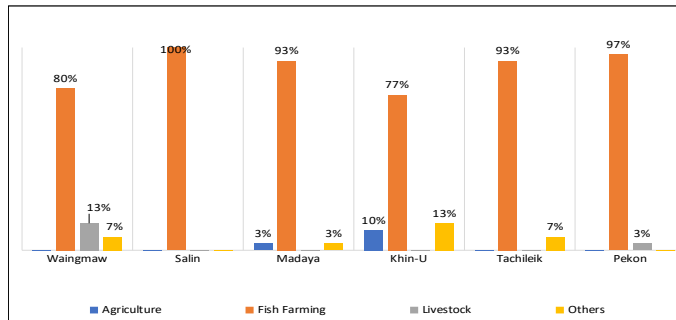
Among all the townships, the maximum (90%) farmers in Pekon have agriculture as the primary source of income while the minimum 67% farmers have agriculture as the primary source in Khin-U. Also, a maximum of 23% farmers in Khin-U reported fish farming as their primary source of income, as evident from **Figure 3.4**.

Among the secondary source of income, fish farming is reported by 90% of the interviewed farmers. This is shown in **Figure 3.5** and **Figure 3.6**.

**Figure 3.2:** Secondary source of income of SSA farmers interviewed



**Figure 3.3:** Secondary source of income of interviewed SSA farmers across townships



While all the farmers interviewed in Salin reported fish farming as their secondary source of income, the proportion of such farmers in Waingmaw and Khin-U is only 80% and 77% respectively, as evident from **Figure 3.6**.

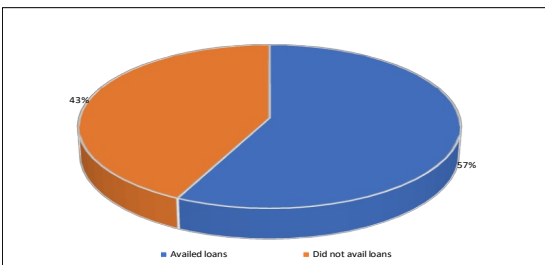
It can be seen from **Figure 3.5** and **Figure 3.6** above that nearly 20% farmers in Waingmaw, 3% in Madaya, and 3% in Pekon did not report **fish farming even as their secondary source of income**.

### 3.1 Credit Options

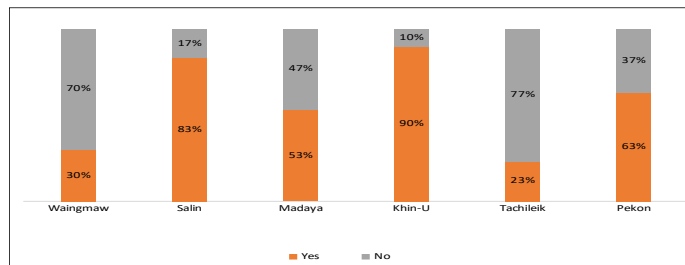
#### 3.1.1 Sources of Credit used

The study team found that 103 out of 180 respondents have availed loans in the last year, as shown in **Figure 3.7** and **Figure 3.8**.

**Figure 3.4:** Proportion of farmers availing loans in last one year



**Figure 3.5:** Township-wise proportion of farmers availing loans in last one year

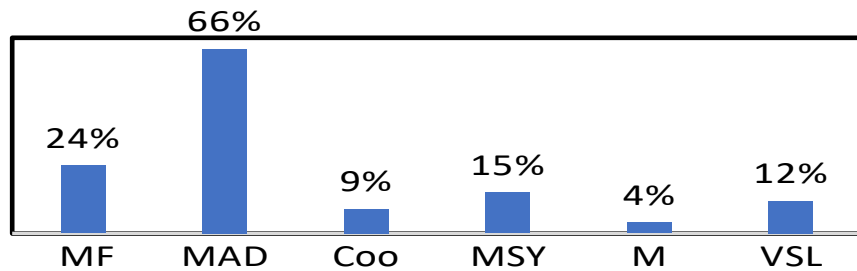


The proportion of farmers availing loans varies significantly across the townships and is correlated with the credit behavior prevailing in the townships. The highest proportion of farmers availing loans were found in Khin-U (90%) followed by Salin (83%).

The government sources available in these townships (Cooperatives/MSY project) have limited funds which are not able to meet the requirements of all the SSA farmers. As perceived by retailers in Waingmaw, a significant proportion of farmers (70%) have not availed loans due to the limited availability of credit sources and the resistance of farmers to offer guarantors/guarantees. Also, APs reported that farmers consider the current features of loan products available is not meeting their cashflows, and thus, they prefer investing their own reserve in fish farming. In the case of Tachileik, IP reported that the reason for farmers not availing loans is due to low confidence of farmers in agriculture and fish farming both and are also concerned about the regular repayments.

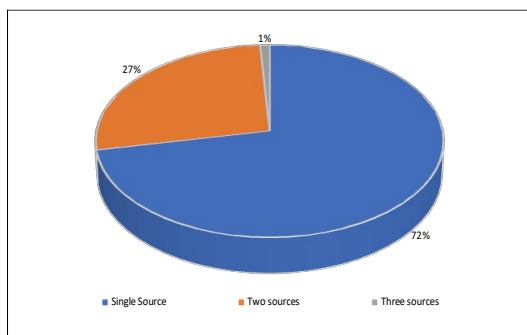
Source wise analysis of the loans reveals that MADB is the most preferred source for the farmers (66%), mainly due to its accessibility, low-interest rate, as well as the lump sum bullet repayment system. MFIs are the second most preferred source because of their accessibility, followed by the MSY project, as evident from **Figure 3.9**.

**Figure 3.9: Proportion of farmers availing loans from various sources – cumulative**

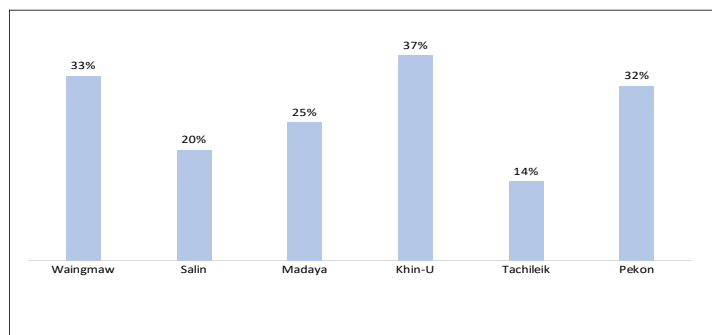


A total of 29 (28%) farmers have availed loans from multiple sources in the last one year, of which 28 farmers have taken a loan from two sources and one farmer from Salin availed loans from three sources. The number of sources-wise and township-wise distribution of these 29 farmers is shown in **Figure 3.10** and **Figure 3.11**.

**Figure 3.6: Proportion of farmers based on number of loan sources in last one year**



**Figure 3.7: Proportion of farmers availing loans from multiple sources – across townships**

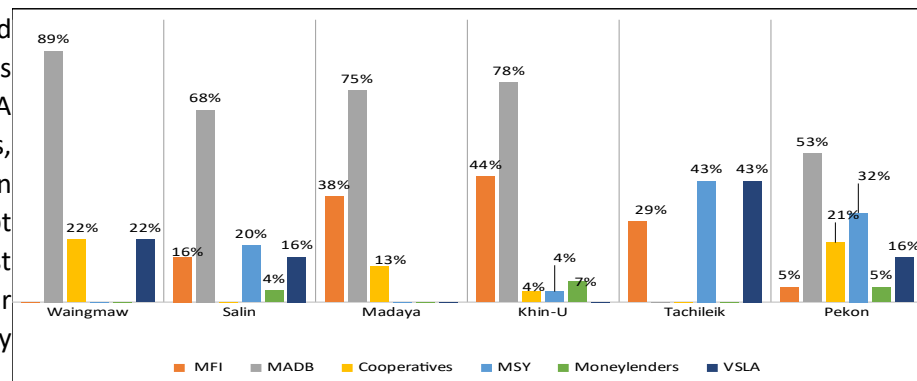


As evident from **Figure 3.11**, nearly one-third of the farmers interviewed in Waingmaw, Pekon and Khin-U have availed loans from multiple sources in the last one year. Further, 23 (79%) out of 29

farmers with multiple loans have MADB as one of the sources. It shows MADB as a source is not able to meet the requirements of farmers. The maximum proportion of farmers with unfulfilled requirements from MADB are found in Khin-U (33%) and Waingmaw (33%) followed by Madaya (25%).

The study further dissects the credit ecosystem at the township level and explores the various sources from which the SSA farmers have availed loans, as shown in **Figure 3.12**. In all townships except Tachileik, MADB is the most preferred source for availing loans followed by MFIs as discussed above.

**Figure 3.8: Proportion of farmers availing loans from various sources – across townships**



*\*Sum of percentages is more than 100% due to multiple loans availed by some farmers*

None of the interviewed farmers availed loans from VFM, the only MFI present in Waingmaw. This shows that the features of loans offered by MFI are not as per the requirements of farmers. Farmers are relying more on MADB for agriculture due to its low-interest rate. In Tachileik, farmers are equally relying on the MSY project and VSLAs for loans. The main reason for this is the lack of awareness about the presence of MADB and low confidence, as reported by APs. Also, IPs reported that SSA farmers in Tachileik prefer VSLA over other formal sources because it provides flexible repayment options and in the case of emergency, only the principal amount is collected, and interest is waived. The farmers also utilized VSLA facilities present in other three townships namely Waingmaw, Salin, and Pekon. In Waingmaw, only 2 farmers (22%) have availed loans from Cooperatives. During the discussion with the management of MFF Waingmaw unit, it was found that loan from Cooperatives is not preferred due to non-transparent practices.

**The in-kind credit facility** is available only in four townships namely Salin, Khin-U, Pekon, and Madaya. The awareness level of such credit facilities is found to be low among the farmers. Even the APs reported that no in-kind credit facility is available in Khin-U, Pekon, Waingmaw, and Tachileik; the ones available in Salin and Madaya offer credit only to known people. This view is also reciprocated by IPs and other value chain actors i.e. retailers, wholesalers, processors, transporters, and CBOs/CSOs. Most of the retailers and wholesalers have not offered credit to SSA farmers in the study area. In exigent circumstances, the payment to the farmers is delayed by at most 10 days without any extra cost. The study team found one wholesaler in Pekon reported providing advances to fishermen (who catches fish from Pekon Lake) known to her under an arrangement in which the fish is sold only to the wholesaler.

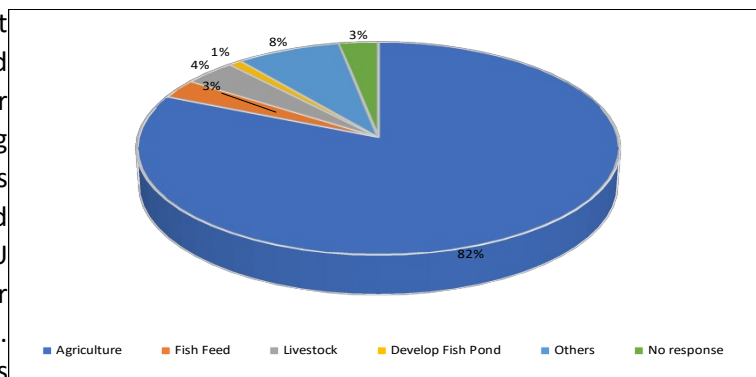
Only 14 (8%) farmers reported such a source available in the township while even fewer (four farmers) availed this option in the last one year. Of these four farmers, three farmers in Salin availed credit from IS while only one in Khin-U availed credit from a wholesaler.

The credit by IS and wholesalers is provided on the actual cost without charging any extra interest as reported by IS from Salin and Madaya. However, such customers are not provided any discount which other customers paying 100% upfront may receive sometimes. This facility is available only to known farmers. The main reason for not offering credit to the wider public is the lack of trust as reported by IS from Salin. The IS from Pekon, Madaya, and Salin also reported that their scale of business is limited and thus, the proceeds from sales are required for reinvestment.

### 3.1.2 Loan Purpose

Out of 103 SSA farmers, 82% of the SSA farmers availed loans for agriculture. It is attributed to the fact that MADB which is the most preferred source, provides loans only for agriculture. 4% farmers reported availing loans for livestock. Only 3% farmers reported availing loans for the fish feed from VSLA in Salin and MSY in Khin-U and only 1% reported availing for developing fishponds from Cooperatives. This is represented in **Figure 3.13**. As reported by APs, retailers, wholesalers, processors, and IPs, there are no formal credit providers offering credit for fish farming in the study area.

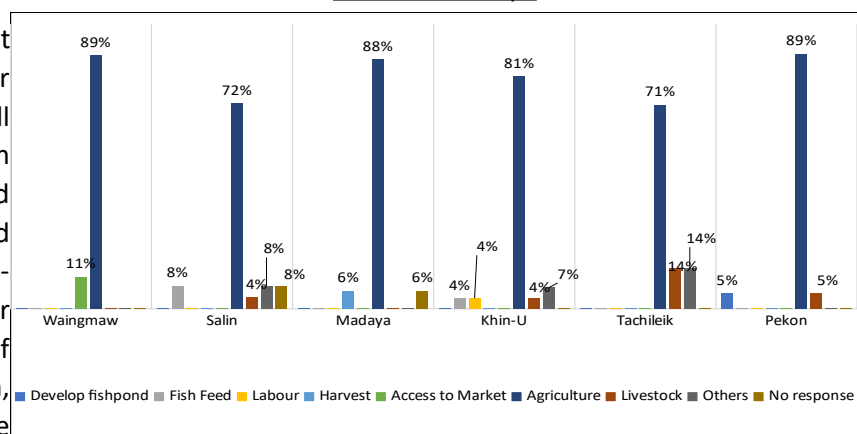
**Figure 3.9: Main purpose for availing loans by proportion of farmers - cumulative**



A significant proportion of the farmers (79%) reported that the loan amount was sufficient for the purpose for which it was obtained. However, it was found that the farmers widely used the loan amount for buying fish feeds, to supplement the additional source of income (*details discussed in Section 3.2 below*). The IP from Salin also validated that since farmers have agriculture business in parallel, they can get agriculture loans which can partially be used for fish farming.

A township wise analysis of the main purpose of loans availed is shown in **Figure 3.14**. Most farmers have taken loans for agriculture purposes across all townships. Only 8% farmers in Salin and 4% in Khin-U reported availing loans for fish feed whereas only 4% farmers in Khin-U reported availing loans for livestock. This is mainly because of the presence of VSLAs in Salin, and MSY project in both these

**Figure 3.10: Main purpose for availing loans by proportion of farmers – across townships**

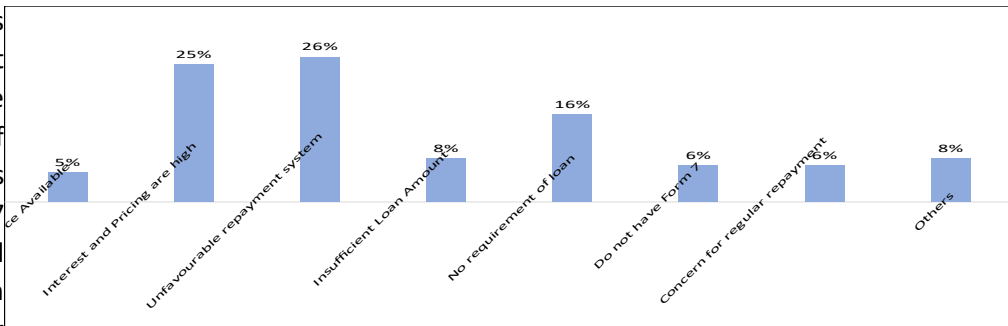


townships. However, AP and IP from Salin reported that the loan amount obtained from VSLA is insufficient to cover expenses for one complete season. In Tachileik, both agriculture and fish farming are undertaken for subsistence purposes and not as a source of income. Thus, farmers are reluctant to avail loans for these activities. This has been reported by IP in the township and confirmed by other actors like retailers, processors, and CBOs.

### 3.1.3 Hindrances and Inhibitions

The study team also tried to explore the reasons for farmers not availing loans in the last year. Out of 180 farmers interviewed, 77 (43%) farmers did not avail loans in the last one year

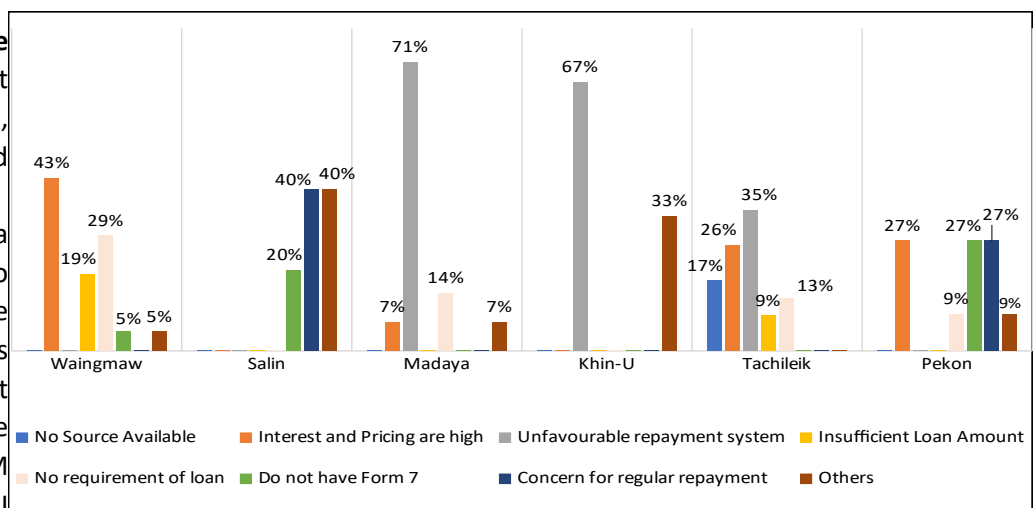
**Figure 3.11: Main reasons for not availing loans by proportion of farmers – cumulative**



due to various factors ranging from high-interest rates, unfavorable repayment systems to non-requirement of loans. It is evident from **Figure 3.15** that nearly 50% farmers reported high pricing and unfavorable repayment system combined as the reason for not availing loans.

The township wise analysis is shown in **Figure 3.16** reveals that all the farmers, who reported non-availability of sources as a reason, belong to Tachileik. The lack of awareness about credit providers like MADB, VFM (only MFI

**Figure 3.12: Main reasons for not availing loans by proportion of farmers – across townships**



present), and MSY among farmers is also confirmed by several APs. The maximum proportion of farmers who find the repayment system unfavorable belong to Madaya (71%) followed by Khin-U (67%) and Tachileik (35%). The farmers prefer the lump-sum bullet repayment system over the monthly option because the income is realized only at the end of the season. VSLAs are flexible in case of any exigent circumstances and thus, are preferred by farmers over formal sources. Waingmaw reported the highest



proportion of farmers (43%) who stated high pricing as the reason for not taking a loan followed by Pekon (27%) and Tachileik (26%). Unavailability of Form 7 for not obtaining loans was found in Pekon (27%), Salin (20%), and Waingmaw (5%).

The 77 farmers, who have not availed loans in the last one year, are further inquired about managing the expenses related to the fish farming business. Of these, 75 (97%) farmers reported that they are using income from other businesses to support it. Only one farmer in Pekon reported using savings and one in Khin-U reported obtaining fish feed and fish seeds from a wholesaler beforehand.

Out of a total of 14 farmers who report the availability of an in-kind facility, 10 farmers in various townships did not avail loans. During the discussion with farmers, the two main reasons reported are the high pricing of the in-kind credit facility and the non-requirement of credit.

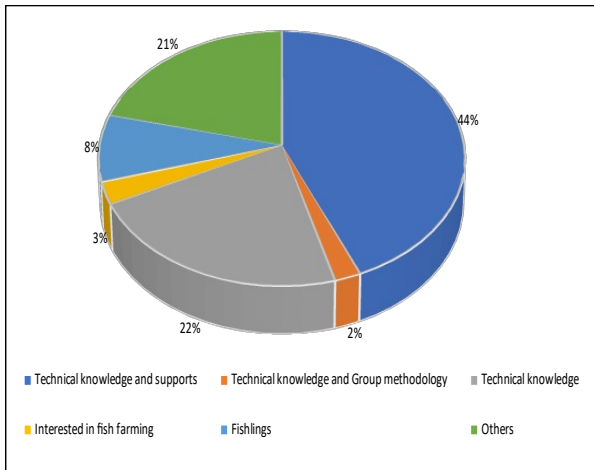
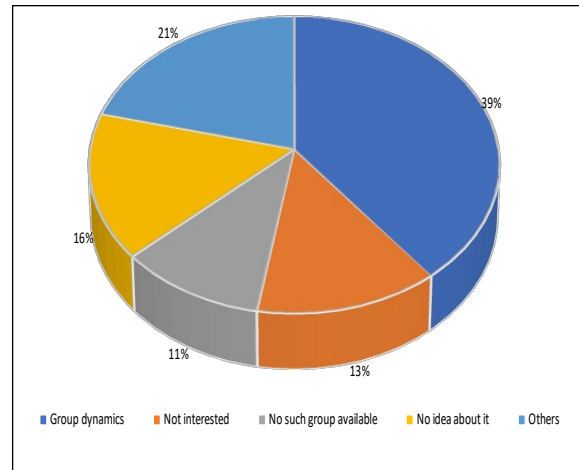
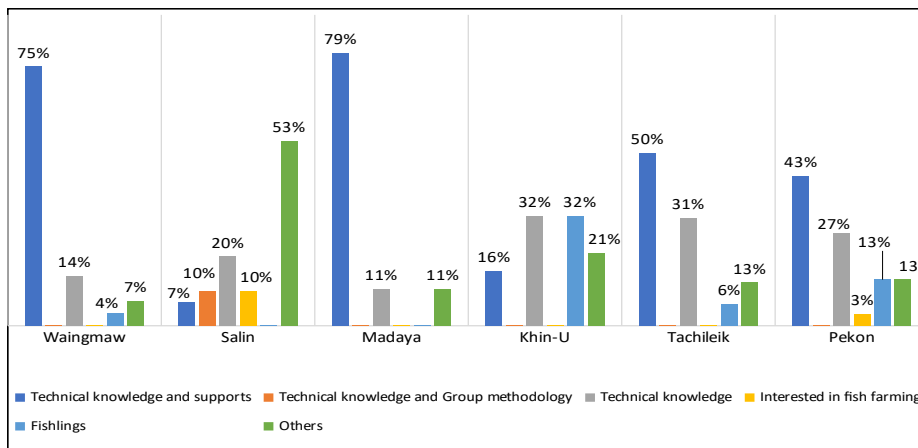
### 3.1.4 Contract Farming

The study team found that farmers across townships are not involved in contract farming. However, during the discussion, the farmers were able to appreciate the benefits of collective contract farming and expressed the interest to join such a group. Wholesalers and retailers on prodding shared their disinterests in getting into contract production as they lacked confidence in the quality of products being supplied by SSA farmers. They opined that SSA farmers lacked skills and knowledge and training on scientific fish farming and hence, the quality of their produce varies widely.

Of the 180 farmers interviewed, a high proportion of farmers, 142 (79%) responded in favor of joining a group involved in contract fish farming. The highest proportion of farmers (100%) wishing to join such a group is in Salin and Pekon, followed by Waingmaw (93%). In Madaya, Khin-U, and Tachileik, the proportion of such farmers is only 63%, 63%, and 53%, respectively. This is mainly because farmers in these townships prefer to take individual loans and consider mutual liability burdensome, as suggested by transporter and AP from Madaya.

The main reason for the farmers to join a group involved in contract fish farming is to get technical knowledge (68%). 44% farmers also wished to get some supports (fishlings/fish feed) while 2% wanted to work in groups. 8% specifically responded that they wish to join a group involved in contract fish farming to obtain fishlings. This can be seen in **Figure 3.17** below.

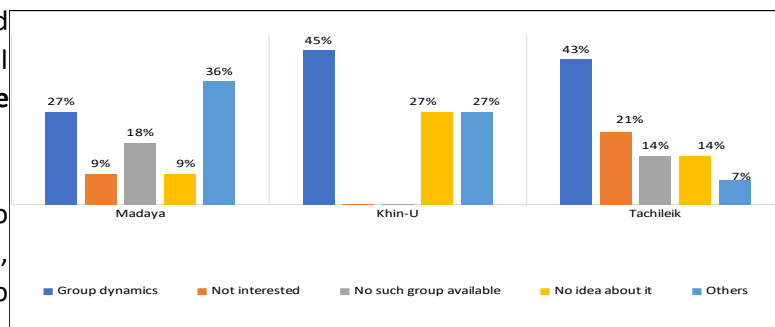
There are 39 farmers as well, who do not wish to join the group involved in contract fish farming. Of these, 15 farmers reported that they do not want to work in groups while 6 farmers reported they do not have any idea about contract fish farming. 5 farmers also reported a lack of interest as the reason for not wishing to join such a group. This can be seen in **Figure 3.18** below.

**Figure 3.13: Main reasons for farmers wishing to join group of contract farmers**

**Figure 3.14: Main reasons for farmers not wishing to join group of contract farmers**

**Figure 3.15: Main reasons for farmers wishing to join group of contract farmers – across townships**


In Waingmaw and Madaya, 75% and 79% farmers respectively wish to join contract fish farming for technical knowledge along with supports. In Pekon, the main reason that the farmers wish to join contract farming is technical knowledge along with supports (43%). In Salin, most of the farmers (53%) wish to join contract

farming because of other reasons (such as the support in resources, word of mouth, etc.). In Khin-U, 32% farmers each wish to join contract farming for fishings and just the technical knowledge while in Tachileik, 50% farmers wish to join contract farming for technical knowledge along with supports, and 31% wish to join it only for technical knowledge. This can be seen in **Figure 3.19**.

Of the 39 farmers who do not wish to join the group of contract farmers, maximum (14 farmers) belong to

**Figure 3.16: Main reasons for farmers not wanting to join group of contract farmers – by townships**


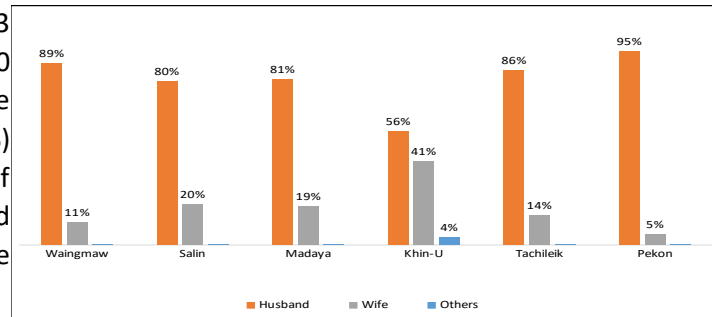
Tachileik. Group dynamics have been cited as the main reason for not joining a group of contract farmers, especially in Khin-U and Tachileik. This can be seen in **Figure 3.20**.

### 3.2 Repayment Behaviour

#### 3.2.1 Ownership of the loan

The study team found that, of the 103 farmers who reported availing loans, 80 farmers (78%) reported loan is availed in the name of husband and 23 farmers (21%) reported that loan is availed in the name of wife. Only one farmer from Khin-U reported that the loan is availed in the name of the daughter, as evident from **Figure 3.21**.

**Figure 3.17: Ownership of loans by proportion of farmers – across townships**

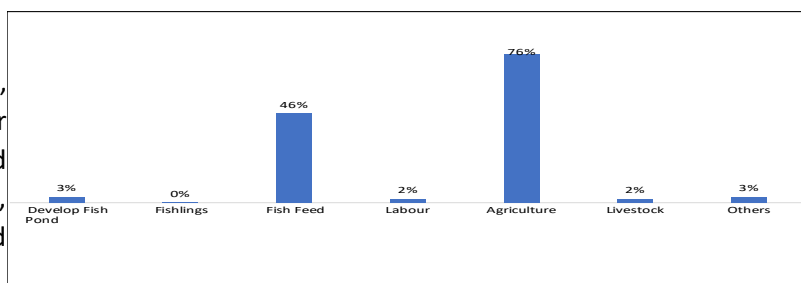


For in-kind credit facilities, all four farmers (i.e. three in Salin and one in Khin-U) reported that the credit is availed in the name of the husband.

#### 3.2.2 Actual usage of the loan

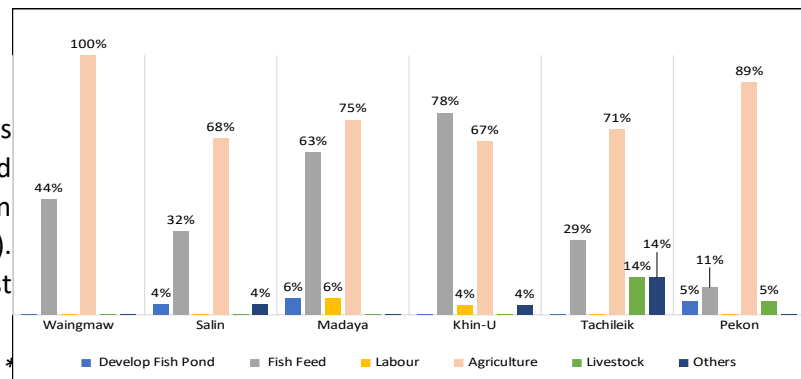
As mentioned above in **Section 3.1**, 82% farmers availed loans for agriculture while only 3% reported availing loans for fish feed. However, 76% farmers reported that they used the loan for agriculture while 46% farmers reported that they used it for buying fish feed. None of the farmers reported using loan amount for buying fishlings. This can be seen below in **Figure 3.22**.

**Figure 3.18: Actual usage of loans availed by farmers – cumulative**



*\*Sum of percentages is more than 100% due to multiple usage of single loan*

**Figure 3.19: Actual usage of loans availed by farmers – across townships**



The maximum proportion of farmers (78%), who reported that they used the loan for buying fish feed were in Khin-U followed by Madaya (63%). This can be attributed to the highest proportion of farmers in Khin-U with fish farming as a primary source of income whereas in Madaya, it is because of the high usage of special feed for hatchery businesses, as reported by APs. In

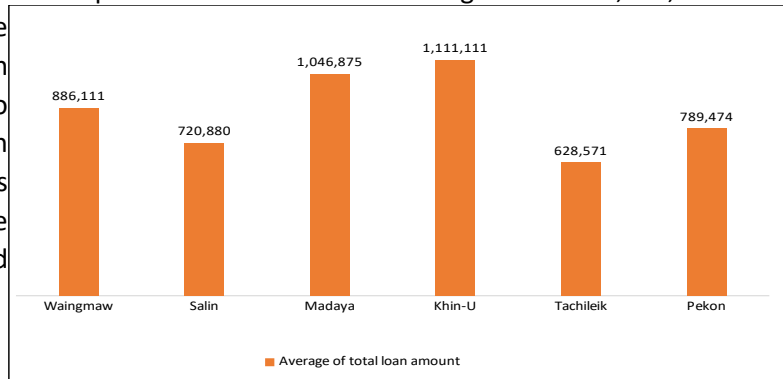
Waingmaw, only 44% farmers reported that they used the loan for buying fish feed because of the availability of limited credit sources and the practice amongst the farmers to invest their own money in SSA business, as reported by retailers in the township. **Figure 3.23** shows the proportion of farmers using loans for various purposes across townships.

### 3.2.3 Loan terms and conditions

The study team found that the average loan amounts availed by farmers in the last one year vary considerably across townships. **Overall, the average of total loan amount availed by 103 farmers in the last one year is MMK 8,94,631.**

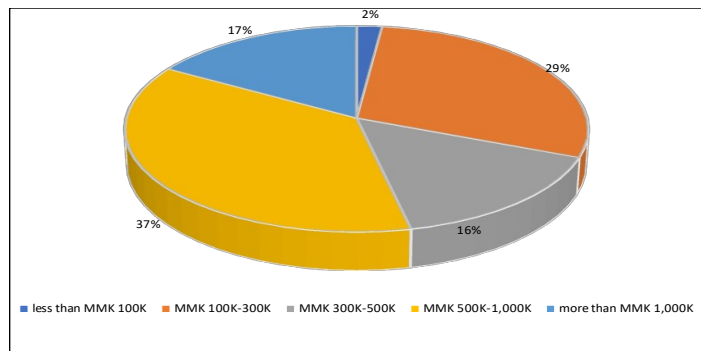
The minimum average loan amount reported is MMK 628,571 in Tachileik and the maximum average loan reported is in Khin-U amounting to MMK 1,111,111. This variation can be attributed to the presence of experienced farmers in Khin-U and Madaya who are willing to avail loans whereas farmers in Tachileik are unwilling to take loans due to a lack of confidence in the business, as reported by AP, IP, and CBO. This can be seen in **Figure 3.24**.

**Figure 3.20:** Average of total loan amount availed by farmers in last one year– across townships



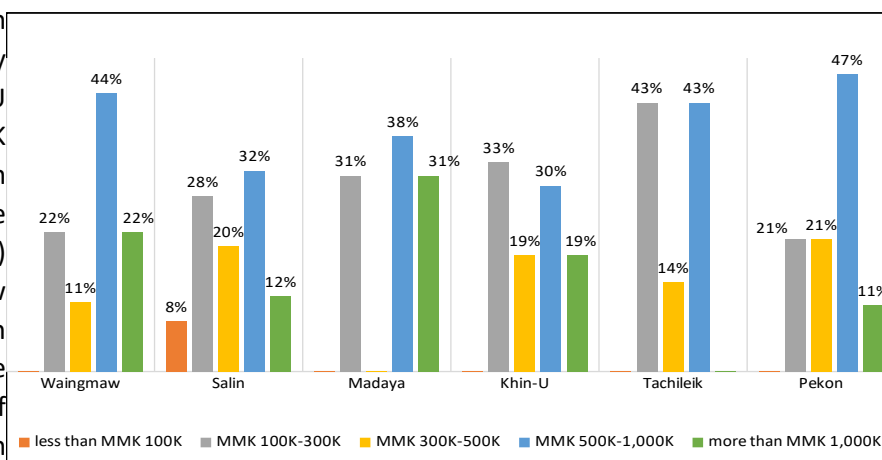
When the total loan amount is segregated into buckets, it is observed that 54% farmers have availed more than MMK 500,000 loan in the last one year while only 2% have availed loans less than MMK 100,000. This can be seen in **Figure 3.25**.

**Figure 3.21:** Bucket-wise proportion of farmers for total loan amount availed in last one year – cumulative



The highest proportion of farmers in more than MMK 1,000K bucket are found in Madaya (31%) followed by Waingmaw (22%) and Khin-U (19%). In MMK 500K-1,000K bucket, the maximum proportion of farmers are found in Pekon (47%) followed by Waingmaw (44%) and Tachileik (43%). In MMK 300K-500K bucket, the maximum proportion of farmers are found in Pekon (21%) followed by Salin (20%) and Khin-U (19%). In MMK 100K-300K bucket, the maximum proportion of farmers are found in Tachileik (43%) followed by Khin-U (33%) and Madaya (31%). The lowest bucket i.e. sub- MMK 100K total loan amount available in the last one year has only 8% farmers in Salin; no other township has farmers in this bucket. This can be seen in **Figure 3.26**.

**Figure 3.22 : Bucket-wise proportion of farmers for total loan amount  
 availed in last one year – across townships**

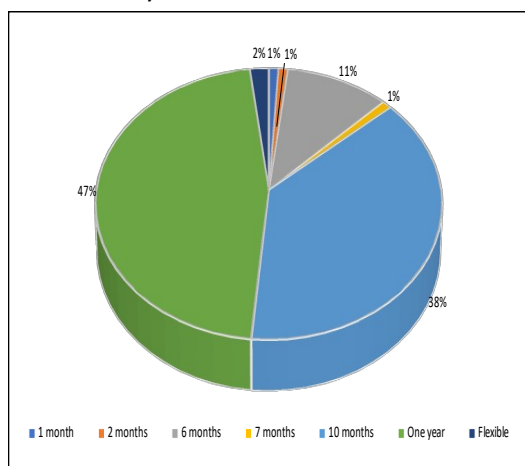
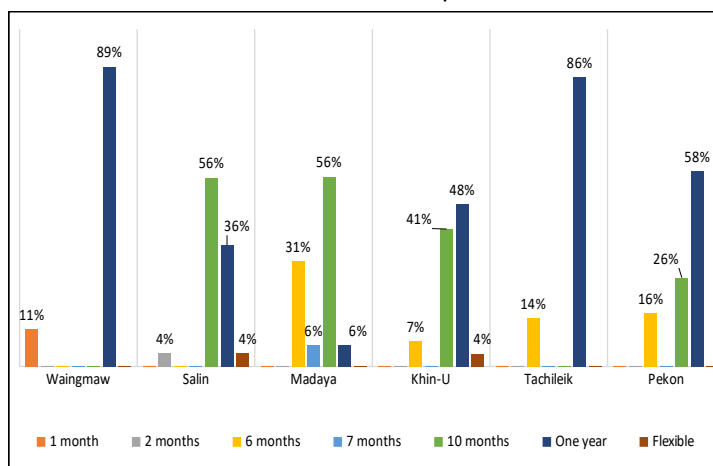


The loan amount availed by farmers from an institution varies significantly across and within townships. This is mainly due to various types of credit providers present in these townships that are providing loans for different purposes. **Table 3.2** below shows the minimum and maximum total loan amount availed by farmers, from any provider, across townships in the last one year.

**Table 3.9: Maximum and Minimum loan amount availed by farmers – across townships**

Loan Amount (in MMK)	Waingmaw	Salin	Madaya	Khin-U	Tachileik	Pekon	Overall
Maximum	15,00,000	50,00,000	17,00,000	20,00,000	10,00,000	15,00,000	50,00,000
Minimum	1,00,000	12,000	2,00,000	1,50,000	1,00,000	1,50,000	12,000

The loan tenure varies from one month to one year. The study considers the highest tenure of all the loans availed by a farmer for analysis. 47% farmers reported one-year tenure of the loan availed while 38% farmers took loans for 10 months. This can be attributed to 10-month agriculture loans provided by MADB and one-year loans provided by MFIs. One farmer each in Salin and Khin-U reported that loans offered by VSLAs were flexible in tenure. This can be seen in **Figure 3.27** and **Figure 3.28** below.

**Figure 3.23: Loan Tenure of loans availed by farmers - cumulative**

**Figure 3.24: Loan Tenure of loans availed by farmers – across townships**


At the township level, the maximum farmers availing loans for one year belong to Waingmaw and Tachileik at 89% and 86% respectively. Loans for 10-month tenure given by MADB are popular among Salin, Madaya, and Khin-U township farmers.

The study also analyses monthly interest paid by farmers using the average interest of loans availed by individual farmers. Of the 103 farmers who availed loans, 50% reported that the monthly interest paid by them is less than 1.0%. This is following the fact that most farmers have availed agricultural loans from MADB at a monthly rate of sub-1.0%. Only one farmer from Waingmaw reported that he is not paying any interest on the loan availed from the Church Loan Group. 29% farmers reported that they are paying monthly interest in the range of 1.0%-2.0% while 20% farmers reported availing loans at a monthly interest of more than 2.0%. This can be seen in **Table 3.3** below.

**Table 3.10: Average interest range (per month) for all the loan availed by a farmer – across townships**

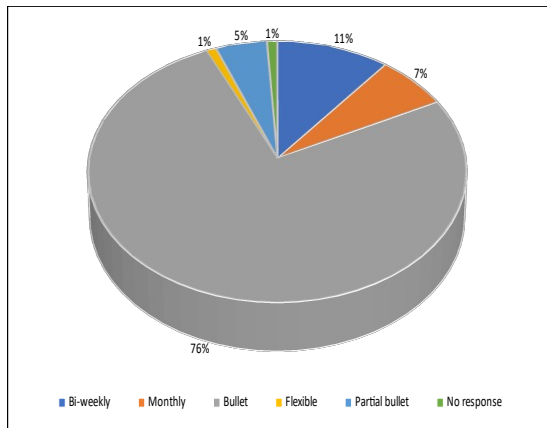
Interest range	Waingmaw	Salin	Madaya	Khin-U	Tachileik	Pekon	Total
<i>N</i>	9	25	16	27	7	19	103
No Interest Rate	11%	0%	0%	0%	0%	0%	1%
less than 1%	56%	64%	56%	44%	0%	47%	50%
1%-2%	33%	12%	25%	30%	57%	42%	29%
2%-2.5%	0%	16%	19%	19%	14%	5%	14%
2.5%-3%	0%	8%	0%	0%	29%	0%	4%
more than 3%	0%	0%	0%	4%	0%	5%	2%

Tachileik has reported the maximum proportion of farmers (57%) in the 1.0%-2.0% interest range because none of the farmers reported availing loans from MADB. Most of the farmers falling under the 2%-2.5% category have taken loans from the MFIs.

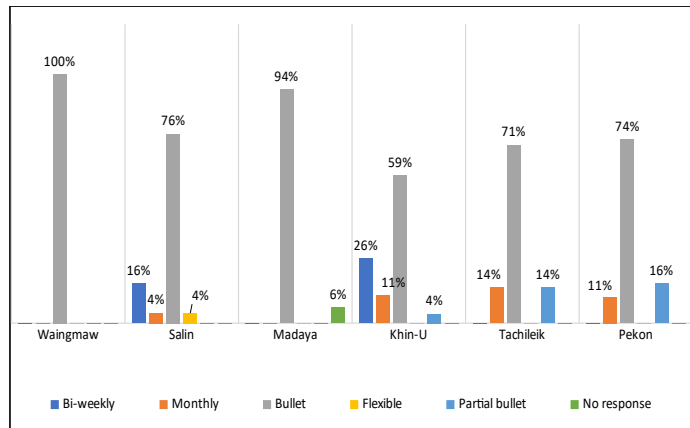
Considering that majority of loans were taken for agriculture, the repayment frequency is also skewed towards lump-sum bullet repayments. Of the 103 farmers who availed loans, 76% reported their

repayment frequency as the bullet, only 11% reported it to be bi-weekly and 7% reported it to be monthly. Even fewer i.e. 5% farmers reported their repayment frequency as Partial-bullet repayment. This can be seen in **Figure 3.29** and **Figure 3.30** below.

**Figure 3.25: Repayment frequency of loans availed by farmers - cumulative**



**Figure 3.26: Repayment frequency of loans availed by farmers – across townships**



Most of the farmers, across townships, have obtained loans at bullet repayment conditions. Waingmaw reported 100% farmers obtaining loans at bullet repayment followed by Madaya (94%) and Salin (76%). For farmers who availed loans in-kind, three farmers from Salin reported their repayment frequency to be monthly while one from Khin-U reported it to be six months.

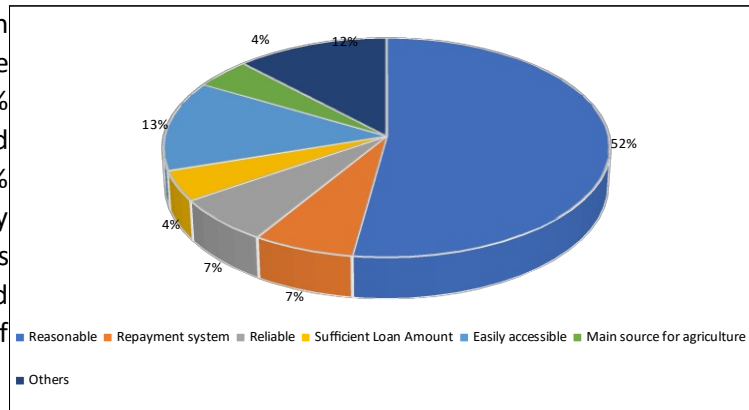
98 farmers (95%) who availed loans reported that the repayment frequency was decided by the lender. Only 2% each reported that it was decided by the owner or as a joint decision. All farmers in Khin-U, Tachileik, and Pekon reported that the repayment frequency was decided by the lender while in Salin, Waingmaw, and Madaya, it was reported by 92%, 89%, and 88% farmers, respectively. Only in Salin, 8% farmers, who availed loans from VSLA, reported that they themselves decided the repayment frequency of the loans availed. 11% farmers in Waingmaw (one farmer who availed loan from Chruach loan group) and 6% in Madaya (one farmer who availed loan from MFI) reported that the repayment frequency was decided by the owner and the lender jointly.

For farmers who availed loans in-kind during last one year, three from Salin reported that their repayment frequency was decided by the lender while one from Khin-U reported that it was jointly decided by him and the lender.

### 3.2.4 Loan satisfaction

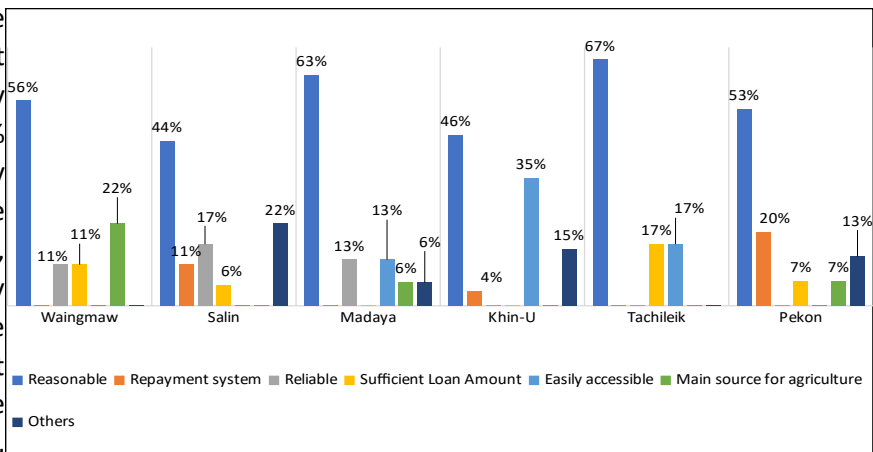
**Figure 3.27: Loan Features mostly liked by satisfied farmers - cumulative**

Of the 103 farmers who availed loans in the last one year, 90 farmers (87%) were satisfied with the loan. Of these, 52% farmers reported that they mostly liked the reasonableness of the loan and 13% reported that they mostly liked the easy accessibility of the loan. 7% farmers equally reported that they mostly liked the repayment system and reliability of the source, as evident from **Figure 3.31**.



In Khin-U, 46% farmers reported that they mostly liked the reasonableness of the loan and 35% reported that they mostly liked the easy accessibility. In Salin, 44% farmers reported that they mostly liked the reasonableness of the loan, 17% reported that they mostly liked the reliability of the source and 11% reported that they mostly liked the repayment system. In Madaya,

**Figure 3.28: Loan Features mostly liked by satisfied farmers – across townships**



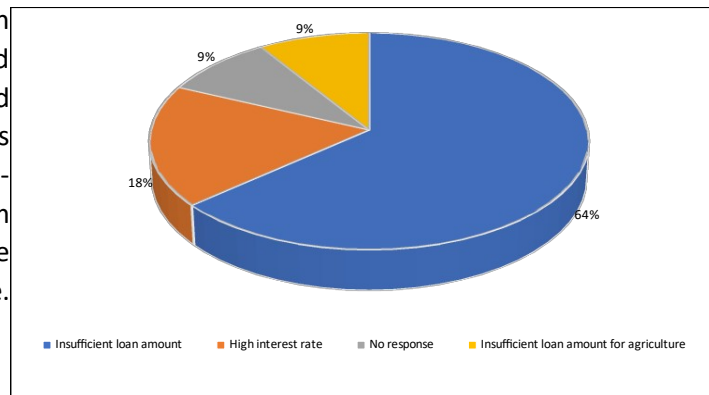
63% farmers reported that they mostly liked the reasonableness of loan, 13% equally reported that they mostly liked the easy accessibility and reliability of the source. In Pekon, 53% farmers reported that they mostly liked the reasonableness of the loans, and 20% each reported that they mostly liked the repayment system. In Waingmaw, 56% farmers reported that they mostly liked the reasonableness of loan, 22% reported that they mostly liked that their credit source was the main source for agriculture and 11% each reported that they mostly liked the reliability of the source and that the loan amount was sufficient. In Tachileik, 67% farmers reported that they mostly liked the reasonableness of the loan, and 17% each reported that they mostly liked the easy accessibility of source and that the loan amount was sufficient.

All four farmers who have taken loans in-kind are satisfied with the loan features. The farmer from Salin liked that inputs can be purchased at down payment (lower than actual price) and one that it was helpful in difficult times; one farmer did not provide any particular reason for his satisfaction. One farmer from Khin-U mostly liked that fish feeds and fish seeds can be purchased on credit with no extra interest.



Of the 103 farmers who availed loans in the last year, 11 farmers (11%) also reported that they were not satisfied with the loan. Out of these, 64% farmers reported that the least liked feature of loans availed was insufficient loan amount. 18% farmers also reported that they least liked the high-interest rate of loans. One farmer from Pekon reported that he least liked that the loan amount was insufficient for agriculture. This can be seen in **Figure 3.29**.

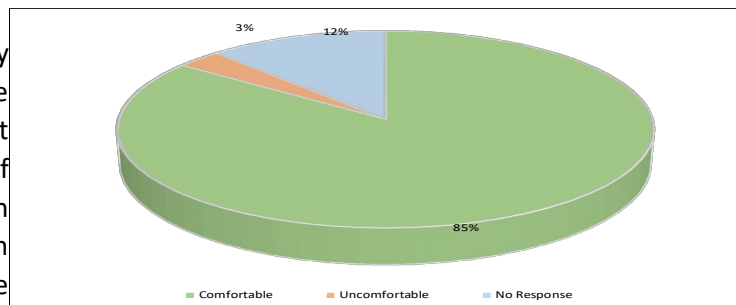
**Figure 3.29: Loan Features least liked by unsatisfied farmers - cumulative**



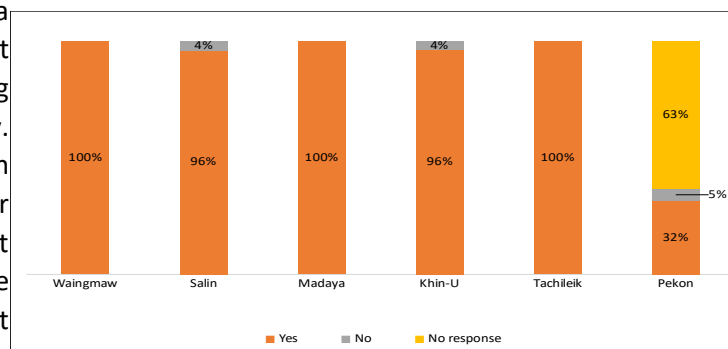
Five unsatisfied farmers in Salin and one in Tachileik reported that they least liked the insufficient amount of loans while one farmer in Khin-U least liked the high-interest rate. In Pekon, four farmers were unsatisfied with the loan, one each with the insufficient amount, high-interest rate, and insufficient amount for agriculture while one farmer did not report any reason.

Of the 103 farmers who availed loans in the last one year, 88 farmers (85%) reported that they were comfortable with their repayment frequency while only three farmers (3%) reported that they are uncomfortable with the repayment system. This can be seen in **Figure 3.30**. Of the three farmers not comfortable with repayment frequency, one farmer is from Pekon who availed loan for agriculture from an MFI and was paying monthly installments but preferred bullet repayment for his loan. One farmer is from Khin-U who has taken a loan from a moneylender with the partial-bullet repayment option but prefers paying interest every month rather than quarterly. The remaining one farmer is from Salin who has taken a loan from MADB for agriculture but instead of bullet repayment prefers a partial-bullet system where interest is collected twice rather than just at the end of tenure.

**Figure 3.30: Comfortability with repayment frequency of loans availed by farmers**



**Figure 3.31: Comfortability with repayment frequency of loans availed by farmers – across townships**



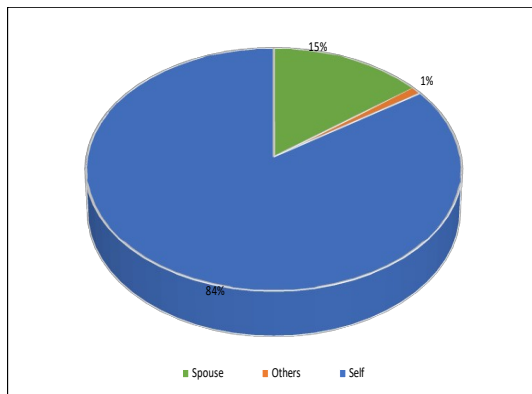
A township wise analysis reveals that except for Pekon, approximately 100% of the farmers in other townships are comfortable with the repayment frequency. In Pekon, only 32% farmers reported that

they were comfortable with their repayment frequency and 5% reported that they were not comfortable. This can be seen in **Figure 3.35**. All four farmers who availed loans in-kind during last one year were comfortable with their repayment frequency.

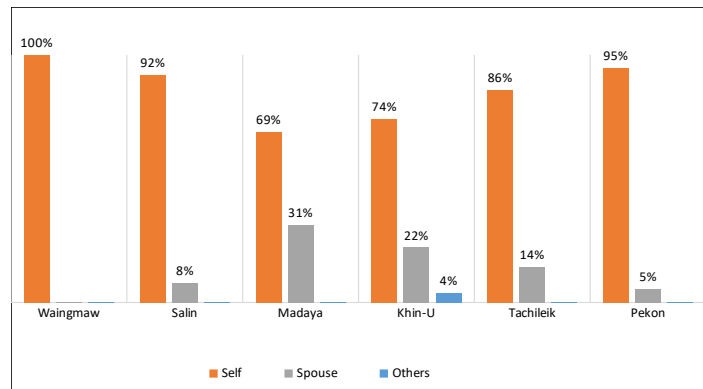
### 3.2.5 Responsibility of repayment

Of the 103 farmers who availed loans in the last one year, 84% reported that they themselves repaid the loan while 14% reported that it is their spouse who repaid the loan; only one farmer from Khin-U reported that the loan is repaid by his daughter. This can be seen in **Figure 3.36** and **Figure 3.37**.

**Figure 3.32: Repayment responsibility of loans availed by farmers – cumulative**



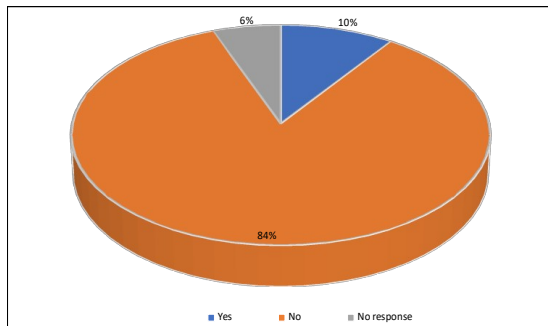
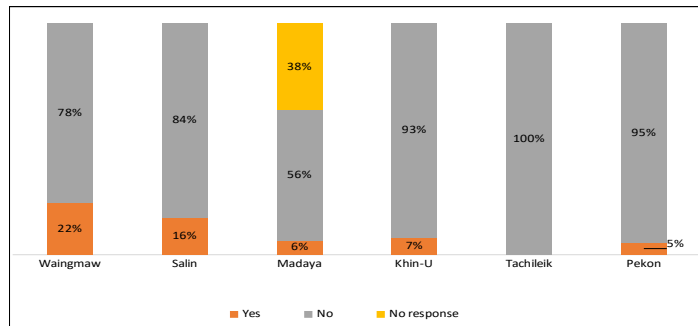
**Figure 3.33: Repayment responsibility of loans availed by farmers – across townships**



In Khin-U, 74% farmers reported that they themselves repaid the loan while 22% and 4% reported that it is their spouse and daughter, respectively, who repaid the loan. In Salin, 92% farmers reported that they themselves repaid the loan. In Pekon, 95% farmers reported that they themselves repaid the loan. In Madaya, only 69% farmers reported that they themselves repaid the loan and 31% reported that it was repaid by their spouse. In Tachileik, 86% farmers reported that they themselves repaid the loan and 14% reported that it was repaid by their spouse. All farmers in Waingmaw reported that that they themselves repaid the loan, as evident from **Figure 3.37**.

### 3.2.6 Difficulty in repayment

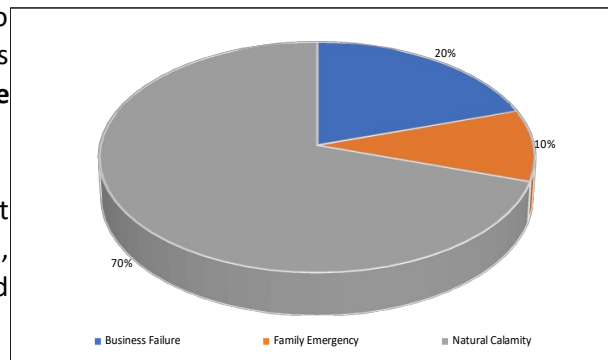
In line with comfortability with repayment frequency, 84% farmers reported that they did not face any difficulty in repaying loans on time; only 10% reported that they faced some difficulty in repaying loans on time whereas 6% farmers did not respond to the question. This can be seen in **Figure 3.38** and **Figure 3.39**.

**Figure 3.34: Difficulty in on-time repayment faced by farmers**

**Figure 3.35: Difficulty in on-time repayment faced by farmers – across townships**


All the farmers who did not respond to the question belong to Madaya (38% farmers from the township). The highest proportion of farmers who faced difficulty in repaying the loan on time are from Waingmaw (22%) followed by Salin (16%). None of the farmers from Tachileik reported this issue. None of the farmers who availed loans in-kind reported any difficulty in repaying installments on-time.

Of the total 10% farmers who faced difficulty in repaying loans on time, 70% reported that it was due to natural calamity, 20% reported that it was due to business failure while only 10% reported that it was due to family emergency. This can be seen in **Figure 3.40**.

Various forms of natural calamities faced in different townships are drought and flood in Pekon & Salin, drought in Khin-U, flood in Madaya & Waingmaw, and earthquake & drought in Tarlay.

**Figure 3.36: Reasons for difficulty in on-time repayment faced by farmers – cumulative**


In Khin-U, two farmers reported facing difficulty in repaying installments on-time due to natural calamity and family emergency. In Waingmaw, two farmers reported facing difficulty in repaying installments on-time due to natural calamity and business failure. All four farmers in Salin reported natural calamity as the reason for facing difficulty in repaying installments on-time. One farmer in Madaya reported business failure as the reason for facing difficulty in repaying installments on-time while one in Pekon reported natural calamity as the reason for it. APs in Salin and Khin-U reported that SSA business will suffer this year due to little rainfall till the time of the interview.

### 3.3 Requirements of SSA Farmers

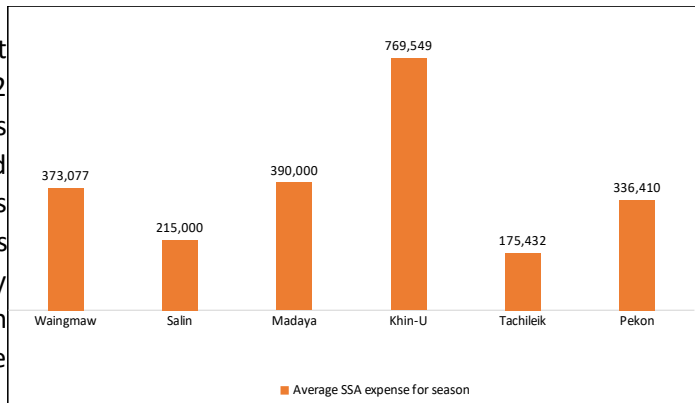
#### 3.3.1 Current expenses incurred by SSA Farmers

The study also focused on the current expenses incurred by SSA farmers. The average expenses incurred by farmers (with a focus on 0.5 acres of pond size) for one season varied significantly across townships.

This variation is mainly because of the length of the business activity, type of feed used as well as the professionalism of the SSA farmers. **Overall, the average expenses incurred by 180 farmers reported for one season is MMK 352,729.**

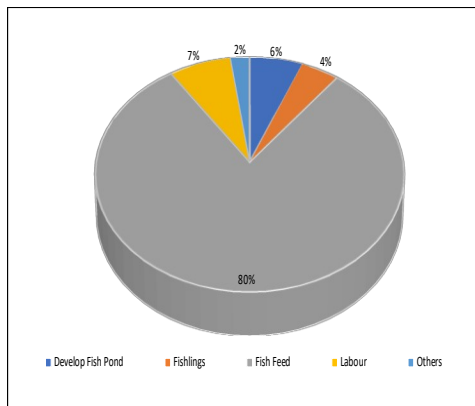
The maximum average cost incurred is in Khin-U at MMK 769,549 due to high fish farming potential followed by Madaya at MMK 390,000. The minimum average cost incurred is in Tachileik at MMK 175,432 followed by Salin at MMK 215,000. As reported by IP and confirmed by retailers and transporters, the low amount in Tachileik is mainly due to lack of technical knowledge as well as the fact that fish farming is mainly done for household consumption rather than as a secondary source of income. This can be seen in **Figure 3.41**.

**Figure 3.37: Average expenses incurred by farmers for SSA business in a season – across townships**

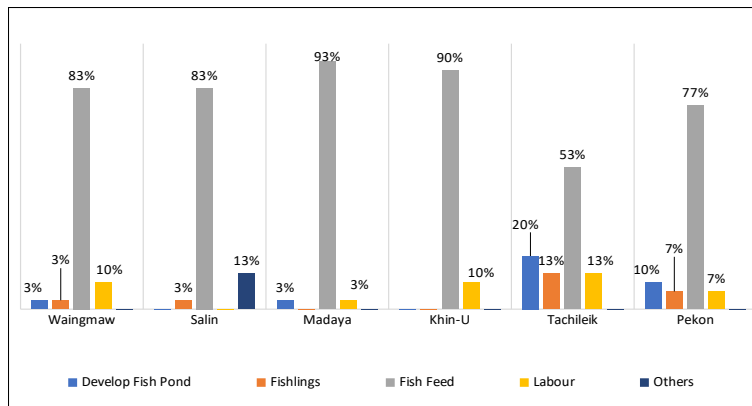


Of the 180 SSA farmers, 80% farmers reported fish feed as the major expense of the fish farming business. Only 4% farmers reported that buying fishlings was the main expense for them given fishlings are provided to them under various NGO projects as reported by APs, IPs, and other value chain actors (processors, transporters, and CBOs). The township-wise analysis reveals that more than 80% farmers across townships, other than Tachileik, reported fish feed as the major expense for their fish farming business. In Tachileik, only 53% reported fish feed as the major expense mainly due to the nascent stage of fish farming, and farmers are reluctant to purchase fishlings or fish feeds. Rice and rice hulls from the household are used for fish feed which is inexpensive as reported by AP and CBOs in the township. This can be seen from **Figure 3.42 and Figure 3.43 below**.

**Figure 3.38: Main expense incurred in fish farming business - cumulative**



**Figure 3.39: Main expense incurred in fish farming business – across townships**



APs in Khin-U reported that the reason for high expenses in fish farming is due to the presence of experienced farmers who are doing business more systematically and using high-quality feed (mix of soft

rice hulls, and bean flats or sesame flat). On the other hand, in Waingmaw, as reported by retailers, leftovers, and chicken waste are used by many farmers. APs in Madaya also reported that many farmers are involved in the hatchery business and thus are using high-quality feed containing eggs, sesame flats, soft rice, vitamins, rice hulls, etc. which is expensive. However, the turnaround time is only 3-4 months for hatchery and hence, lower expenses are incurred.

In Tachileik, **20% farmers incurred expenses on the development of fishpond. APs reported that some of the farmers have newly constructed fishponds to get enrolled in the project.**

The study further analyzed the amount spent by farmers on activity which was the major component in their fish farming business. The average expenditure on each such activity (with a focus on 0.5 acres of pond size) across townships and overall is shown in **Table 3.4** below.

**Table 3.11:** Average expenditure incurred on the main activity in fish farming

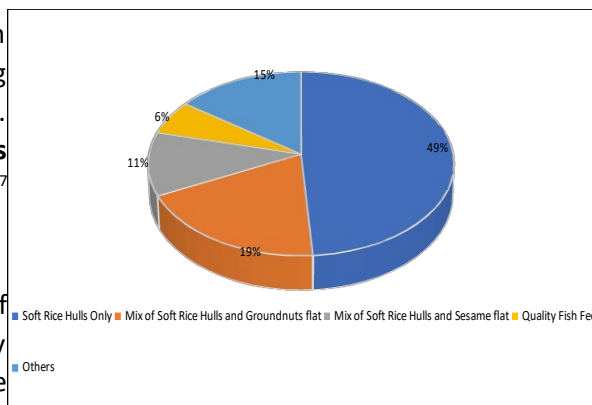
Activity (amount in MMK)	Waingmaw	Salin	Madaya	Khin-U	Tachileik	Pekon	Total
<i>N</i>	26	30	26	19	28	28	157
Develop Fishpond	<b>300,000</b>	-	60,000	-	<b>118,333</b>	198,333	151,364
Fishlings	-	100,000	-	-	73,333	-	83,333
Fish Feed	<b>295,652</b>	<b>146,400</b>	<b>268,681</b>	<b>549,246</b>	103,429	<b>243,636</b>	<b>266,689</b>
Labour	233,333	-	90,000	250,000	55,500	400,000	158,741
Others	-	125,000	-	-	-	-	125,000

It is to be noted that in the table above, the average is for the most expensive activity of fish farming business as reported by farmers i.e. in Madaya, only one farmer reported the development of fishpond as the most expensive activity and only one reported it as labor; hence, these averages, and so on.

Across townships other than Tachileik, average expenses on fish feed are either the highest or comparable to the highest. Only one farmer from Pekon reported that the main expense for him was MMK 400,000 on labor. In Tachileik, the highest average expense is for the development of fishpond. This is because new ponds have been developed in Waingmaw and Tachileik recently, as reported by APs. In Khin-U and Madaya, the average expenses on the development of fishponds are the lowest due to already existing fishponds. In Salin, the average expenses of MMK 125,000 is spent on the repair and maintenance of fishpond.

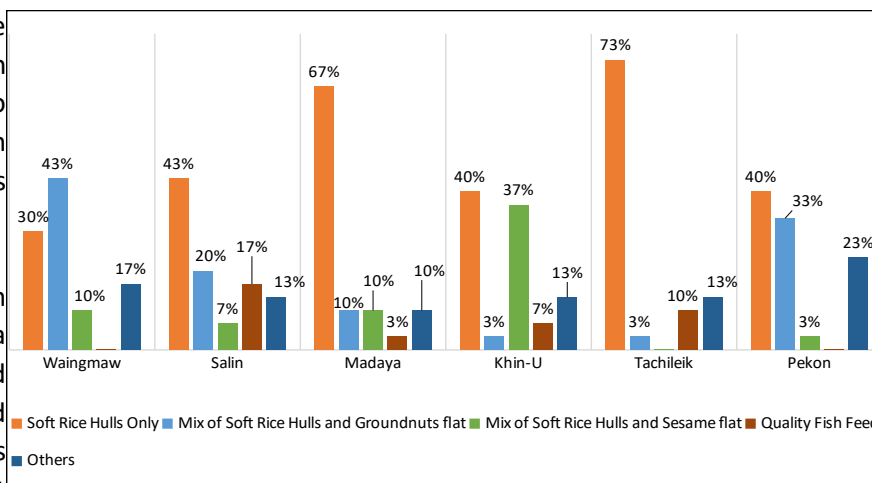
The study team also analyzed the type of fish feed being used by the farmers. Nearly 50% farmers reported that they are using only soft rice hulls for fish feed. Only 6% farmers reported that they are using quality fish feed from factories for their business. **Quality fish feed means the manufactured fish feeds providing balanced nutrition for the farmed fish.**<sup>17</sup> This can be seen in **Figure 3.23 (a)**.

**Figure 3.40: Type of fish feed used by farmers for fish farming – cumulative**



The township wise analysis reveals that the use of quality fish feed is highest in Salin (17%) followed by Tachileik (10%) and Khin-U (7%). Given the large-scale production of rice in Myanmar, soft rice hulls are easily available and thus, used as feed by most of the farmers across townships. In Khin-U, 33% farmers are also using sesame flat along with soft rice hulls as feed. This is evident in **Figure 3.45**.

**Figure 3.41: Type of fish feed used by farmers for fish farming – across townships**



The average amount spent on the fish feed per month (with a focus on 0.5 acres of pond size) varies considerably based on feed used across townships. While the highest amount is being spent on a mix of soft rice hulls and sesame flat (MMK 56,177) followed by quality fish feed (MMK 53,000), the lowest amount is being spent on only sesame flats (MMK 14,000). This is shown in **Table 3.5** below.

**Table 3.12: Average expenditure per month on fish feed**

Type of Fish Feed (amount in MMK)	Waingmaw	Salin	Madaya	Khin-U	Tachileik	Pekon	Total
<i>N</i>	26	30	26	20	28	30	160
Soft Rice Hulls Only	20,778	12,538	<b>31,269</b>	<b>41,333</b>	11,182	23,583	21,123
Sesame flat		13,500	<b>15,000</b>				14,000
Mix of Soft Rice Hulls and Groundnuts flat	36,833	21,167	<b>40,000</b>	<b>80,000</b>	10,000	27,000	31,531
Mix of Soft Rice Hulls	43,333	20,000	35,000	<b>77,354</b>		40,000	56,177

<sup>17</sup> [https://en.wikipedia.org/wiki/Commercial\\_fish\\_feed](https://en.wikipedia.org/wiki/Commercial_fish_feed)

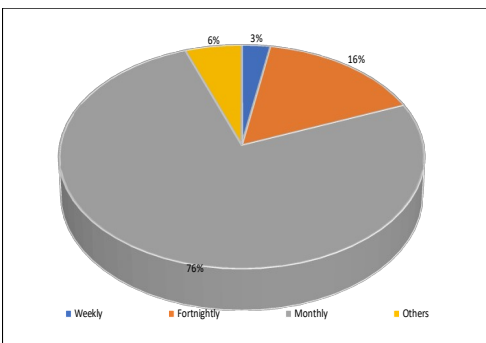
Type of Fish Feed (amount in MMK)	Waingmaw	Salin	Madaya	Khin-U	Tachileik	Pekon	Total
and Sesame flat							
Mix of Soft Rice Hulls, Groundnut flats and Sesame flat	20,000			70,000			45,000
Quality Fish Feed		26,000	120,000	105,000	35,000		53,000
Soft Rice Hulls and Rice		19,000	10,000			50,000	24,500
Others	60,000			40,000	11,778	26,167	26,576

It can be seen from the table above that other than for soft rice hulls and rice, for all other feeds, the average expenses were highest in Madaya and Khin-U. This can be attributed to the higher potential for fish farming in these townships and more farmers following technical farming practices, as per APs and IP in these townships. Only soft rice hulls is the cheapest feed across townships.

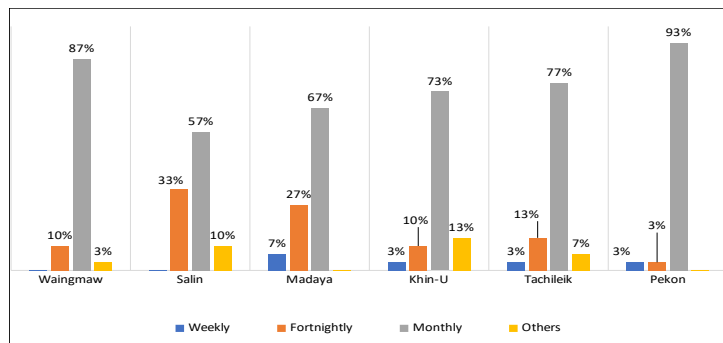
### 3.3.2 Frequency of input purchase

The study team analyzed the frequency of input purchase for all the 180 farmers interviewed. While 76% farmers reported that they purchase inputs monthly, 16% farmers also reported purchasing inputs fortnightly and only 3% farmers reported that they purchase inputs weekly, as seen from **Figure 3.46** and **Figure 3.47**.

**Figure 3.42:** Frequency of input purchase by farmers – cumulative



**Figure 3.43:** Frequency of input purchase by farmers – across townships

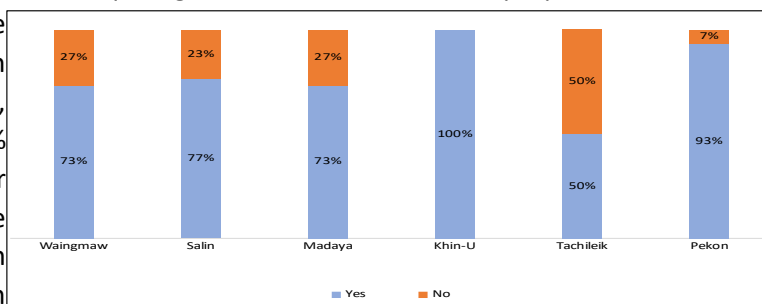


Township-wise analysis shows a slight variation in the trend where only 57% and 67% farmers respectively in Salin and Madaya reported purchasing inputs monthly. In Salin, one-third of the farmers prefer purchasing inputs on a fortnightly basis.

### 3.3.3 Loan requirements and preferred terms

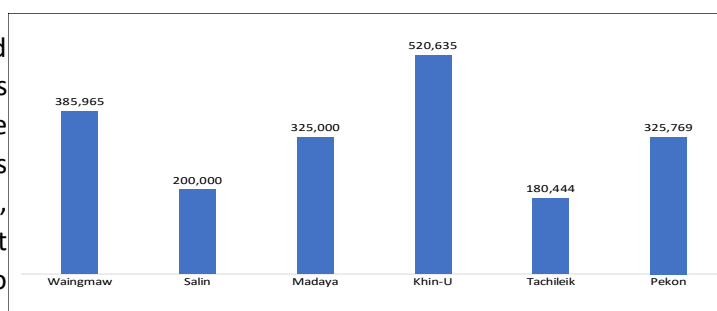
**Figure 3.44:** Proportion of farmers requiring loan for SSA business – across townships

Of 180 farmers interviewed, 140 farmers (78%) responded that they do require a loan for SSA business. All farmers from Khin-U responded in favor of requiring loans while in Pekon, this proportion is 93%. For Salin, Waingmaw, and Madaya, the proportion of farmers that responded in favor of requiring loan were 77%, 73%, and 73%, respectively. Only 50% farmers in Tachileik responded in favor of requiring loans; this is because farmers hesitate to take loans from formal credit providers due to concern for regular repayments, as reported by IP and CBO. Farmers in Tachileik are more inclined to take loans from informal credit providers like VSLAs formed by the IP, KMSS due to their flexibility in repayments and interest waiver in case of genuine reasons. This can be seen in **Figure 3.48**.



**Figure 3.45:** Average loan amount required by farmers for SSA business

The average loan amount (as reported) required by farmers for fish farming (with a focus on 0.5 acres surface area) varied considerably across townships. This variation in loan amount required can be attributed to the farming practices (hatchery/grow-out, type of feed used, duration of fish farming, etc.) in different townships. Overall, for all the farmers who responded in favor of requiring loan for fish farming, the average loan amount reported is MMK 328,044. The minimum average loan required is reported in Tachileik at MMK 180,444 while the maximum average loan amount required is reported in Khin-U at MMK 520,635 as seen in **Figure 3.49**.



Various actors including wholesalers, retailers, processors, and CBO/CSOs have suggested providing loans to farmers at an affordable interest rate to boost fish farming in the study area.

All the farmers were also asked about their preferred monthly interest rate. 63% farmers across townships preferred monthly interest between 1.0%-2.0%, while 30% farmers preferred monthly interest less than 1.0%. This can be seen in **Table 3.6** below.

**Table 3.13:** Monthly interest rate preferred by farmers for requisite loans – across townships

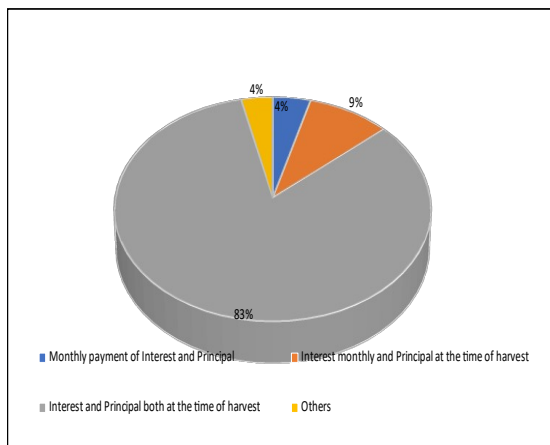
Interest range	Waingmaw	Salin	Madaya	Khin-U	Tachileik	Pekon	Total
<i>N</i>	22	23	22	30	15	28	140
less than 1%	23%	17%	45%	50%	0%	29%	30%
1%-2%	73%	48%	55%	50%	100%	68%	63%
2%-2.5%	5%	13%	0%	0%	0%	4%	4%
2.5%-3%	0%	17%	0%	0%	0%	0%	3%



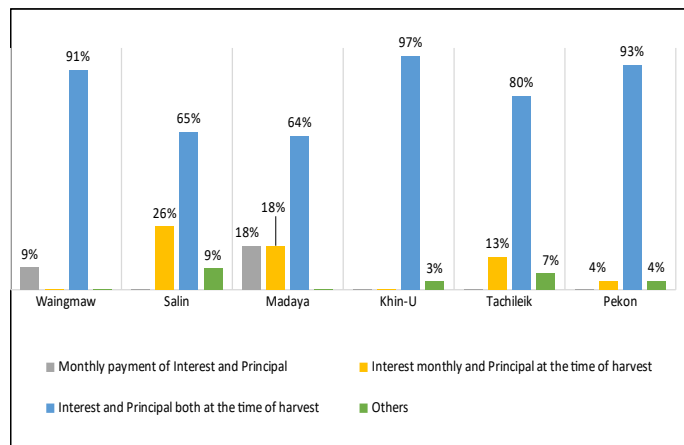
It can be seen from Table 3.6 that all the farmers from Tachileik preferred interest rates between 1.0%-2.0% given that farmers are not aware of the loans from MADB. In Waingmaw, the proportion of farmers who preferred interest rate between 1.0%-2.0% is 73% while those who preferred interest rate less than 1.0% is 23%. In Khin-U, the preference of the farmers is equally divided between less than 1.0% and 1.0%-2.0% interest range. In Madaya, the proportion of farmers who preferred interest rates between 1.0%-2.0% is 55% while those who preferred interest rates less than 1.0% are 45%. In Pekon, the proportion of farmers who preferred interest rate between 1.0%-2.0% is 68% while those who preferred interest rates less than 1.0% are 29%. In Salin, the proportion of farmers who preferred interest rate between 1.0%-2.0% is 48% while the rest of the farmers proportionately prefer other interest rate ranges with **17% also preferring interest rate more than 2.5%**.

The farmers who responded in favor of requiring loan for the fish farming business were also asked about their preferred repayment frequency. Maximum 83% farmers preferred interest and principal repayment at the time of harvest i.e. lump-sum bullet and 9% farmers preferred repayment of interest monthly and principal at the time of harvest. It can be seen from **Figure 3.50** and **Figure 3.51** below.

**Figure 3.46: Repayment frequency preferred by farmers for loan required for SSA business**



**Figure 3.47: Repayment frequency preferred by farmers for loan required – across townships**



The data is consistent with township wise analysis wherein more than 90% of farmers in Waingmaw, Pekon, and Khin-U prefer lump-sum bullet repayment. The proportion of lump-sum bullet repayment preference in Salin, Madaya, and Tachileik is 65%, 64%, and 80% respectively.

The farmers prefer a lump-sum bullet repayment system given the nature of cash inflows and uncertainty in the fish farming business.

### 3.4 Gender Inclusion

The study team also analyzed the role of women in the fish farming business as well as the accessibility of credit by them. Interviews were conducted with various key informants across the fish farming value chain. As reported by IPs, although the available credit sources can be accessed by both male and

female, the methodology of offering loans differ institution-wise leading to the difference in their clientele. The terms and conditions of these loans do not differ based on gender. Also, there is no stigma associated with women's involvement in any activity of fish farming, but the distribution of labor differs across different townships. This is also confirmed by APs and other value chain actors such as IS, processors, retailers, wholesalers as well as CBOs.

In Salin, women mostly avail loans from MFIs and friends & families. Both men and women can avail loans from MADB and VSLAs as reported by APs and IP. Men are mostly involved in the development of pond and harvesting while retail selling of fishes is done by women in villages. In Madaya, both men and women can avail loans from MADB, MFIs, and cooperatives but as reported by APs, it is MFIs which are most likely to give loan to women. Both men and women participate in the whole business cycle as reported by IP but hard labor such as development/renovation of pond and travel for purchases is mostly done by men. In Khin-U, IPs reported that men mostly avail loans from MADB and cooperatives while women mostly avail loans from MFIs. Fishponds are mostly dug by machines. Other hard labor is mostly contributed by men with women supporting in other activities of fish farming. In Pekon, both men and women avail loans from both formal and informal sources including VSLA formed by KMSS but IPs reported that it is VSLAs and MFIs which are most likely to give loan to women. There is no clear designation of tasks in the fish farming business but men mostly contribute towards the development of ponds, cleaning the area, and harvesting. In Waingmaw, IPs reported that men can mostly avail loans from MADB, MSY project, and Cooperatives, and women can mostly avail loans from MFIs. Labor in fish farming is equally distributed amongst men and women; however, women spend lesser time on fish farming business due to other household chores. APs reported that women in Waingmaw are also more involved in fish feeding and retail selling whereas harvesting is mostly done by men. In Tachileik, women are most likely to avail loans from VSLA formed by KMSS and MFIs. APs reported that labor in fish farming is equally distributed amongst men and women. However, the development of ponds is manually done mostly by men while feeding and selling of fish are mostly done by females.

#### **Case Study: Female SSA farmer**

Ma Nilar Win, a 32-year-old small-scale aquaculture farmer lives in Nyaung Pin Thar Village, located in Pekon Township. There are four members in her household and the main income source used to be the sale of fish by her mother at Pekon Market. Ma Nilar Win was suggested to start small-scale catfish farming in the household by her uncle around six months back. She initiated the business by purchasing 1500 fish seeds for MMK 105,000 from a supplier in the township.

Ma Nilar Win came to know that fish feed is essential for her business and she used quality feed for fish farming. Replacement of water in fishpond early in the morning and feeding the fish twice a day became her daily routine. After three months, she could sell the catfish at MMK 5,000 per viss (1 viss = 1.63 Kg) to her neighbors. Gradually, the business scale expanded, and recently, she has completed the third round of harvest. This helped in supporting her family. However, she has highlighted the challenges faced in the business as follows:

“Too much or too little feeding leads to high risk in breeding catfish and my first challenge was to

understand the right amount of fish feed required by the fish at their different sizes”

She has also cited cold weather as a hindrance to her business that has killed fishes in the past. She has started exploring the right season for the business to reduce this risk. Despite it being a promising business, she has limited financial capacity to scale up to a certain level. Providing technical and financial support to small-scale fish farmers like Ma Nilar Win will bring a positive impact on their lives.

### 3.5 Regulatory Environment

The aquaculture sector in Myanmar is governed by the Aquaculture Law 1989. Only dedicated land is provided to the farmers for conducting fish farming legally. The farmers need to procure a fish farming license for surface area above 0.03 acres by submitting relevant documents, as reported by DoF official from Waingmaw. Also, up to 0.03 acres of surface area, fishpond is legally tax-exempted per the existing laws.

For procuring the license, SSA farmers have to approach the Department of Land Administration which will issue Form 39 i.e is the title document to convert the designation of land from agriculture to aquaculture and other non-agriculture activities. Once the farmer procures the document, DoF will take the initiative to verify the fishpond with good aquaculture practices as reported by DoF official from Shwe Bo District (next to Khin U Township) and issue a fish farming license.

The study team found many unregistered fishponds operating across the six townships. It is largely attributed to the cumbersome process of obtaining a fish farming license and the practices which differ under the different governments, as reported by DoF officials. The unregistered fishponds are largely held by SSA farmers who indulge in fish farming mainly for family consumption. The support from DoF in terms of technical assistance and fishlings free of cost (*under Covid relief measure*) is only restricted to licensed fish farmers. As a result, many SSA farmers who have unregistered fishponds are unable to derive support from the government.

Also, the study team observed that the SSA farmers were not aware of the fishpond licensing system. The license fee of MMK 1 Million is also considered very high by smallholders.

### 3.6 Summary of KIIs with different stakeholders

The following section provides a brief overview of all the discussions with various stakeholders along the value chain. As confirmed by APs, and wholesalers, farmers are motivated to conduct fish farming due to the availability of natural resources as well as fishlings and technical knowledge by IPs.

#### 3.6.1 Aquaculture Promoters

Fish farming is interconnected with agriculture as the products from the latter can also be used for fish feeds such as rice hulls, beans flat, sesame flat, etc. Fish farmers follow poor aquaculture practices across townships but with the intervention of IPs in Salin, Khin-U, and Madaya, the farmers are

becoming more structured in the maintenance of ponds and feeding practices. Technical knowledge is still a major constraint in Waingmaw, Pekon, and Tachileik. SSA farming is a seasonal activity of eight months in Salin and Tachileik and six months in Khin-U and Waingmaw. In Madaya and Pekon, it is normally a year-long activity. New fishponds have been recently dug in Waingmaw and Tachileik, to get support from the project.

According to APs in Khin-U, quality fish feed is costly and around MMK 2 million will be required for one season. The APs also suggested that credit providers should give a loan of MMK 300,000 per fish farmer for six months, with lump sum bullet repayment. The market is easily accessible in all the townships and fish can mostly be sold in the village/township itself. The exception is Tachileik (Tarlay town) due to its small size and thus limited market potential.

### 3.6.2 Implementing Partners

Fishponds are usually developed beside agricultural farms to have an extra income source for the family. Pact, which is running the Fish for Livelihood Project in Salin is planning to reform the VSLA for fish farmers under this project as the loan amount offered under the current VSLA program is inadequate and it demotivates some of the members to contribute and later to get loans from VSLA. However, in Waingmaw, SSA farmers have limited financial resources, and forming VSLA with their contribution will be a challenge for their participation.

IPs have provided technical knowledge and fishlings to farmers in Madaya and Khin-U. They are now monitoring the fishponds and assisting in the preparation of fishponds for the rest of the farmers. VSLAs formed by KMSS is very flexible in terms of repayment, and in case of default due to genuine reasons, only the principal amount is collected, and interest is waived. Most of the fish farmers do not buy fish feed from the suppliers.

IPs from Khin-U and Waingmaw suggested that **instead of providing credit in cash, in-kind (fish feed, fishling) should be given to the SSA farmers to ensure proper utilization.** Also, it is a good idea to establish Fish Feed Mill in the township from which the SSA farmers can easily access fish feed.

In Pekon, farmers are satisfied with the VSLAs in the area and IP is planning to form more VSLAs for the fish farmers.

### 3.6.3 Department of Fisheries Staff

DoF officers in the townships are supporting the fish farmers with Good Aquaculture Practices (GAqP) which includes providing quality fish seed and technical supports. Currently, the department is providing fingerlings worth MMK 40,000 under CERP to fish farmers with registered fishponds. Any farmer can purchase fishlings from a Government hatchery existing in the township but the government support under CERP is only available for farmers with licensed ponds.

There is no program from the Government to support SSA farmers and DoF staff is mainly focusing on the large-scale farmers/licensed ponds in the Pekon/Khin-U. However, DoF supports SSA farmers in collaboration with NGOs (JICA, MyCulture Project, Fish for Livelihood Projects) for technical assistance.

MSY program in Pekon is limited to large scale fish farmers with licensed fishponds and thus restricts SSA farmers from taking loans under this program.

In Khin-U, the minister has restricted making additional fishponds in the township as it decreases the agriculture land for cultivation. But there are no restrictions on the existing fishponds. Also, access to water in the pond is a constraint for the fish farmers in the township this year.

DoF staff from Waingmaw suggested that the ethnic people in the state are honest and committed to the business. It would be better if a group of SSA farmers is formed and credit and other assistance are given to them. DoF staff from Salin suggested that credit alone is insufficient for farmers. They should gain financial literacy and technical knowledge to change fishing practices.

#### **3.6.4 Input Suppliers**

Farmers involved in the hatchery business believe that fishlings production can be more profitable than breeding fish for one complete season, due to shorter turn-around-time. These farmers are themselves gaining technical knowledge from their own experience and consider it to as a major constraint faced by other fish farmers.

A fish feed miller was provided to two individuals in Salin under MyCulture Project to supply fish feed to nearby project beneficiaries. Miller only was provided, and other accessories and investments have to be contributed by the individuals. No factory is present in Salin and Khin-U for Quality fish feed production. Raw materials such as rice hulls and beans flats are purchased in cash by farmers and no in-kind credit facility is available in the townships.

Input suppliers are operating on a small scale and thus, require cash for the next production. Also, there are some trust issues with unknown farmers due to which they don't provide them credit. The maximum amount of credit provided by fishlings seller in Salin is reported to be MMK 20,000.

As per feed producer from Salin, feed production is less during the harvest period as fishes are stopped feeding weeks before harvesting. Farmers prefer selling fish in the community events over directly selling in the market because cash is not immediately received in the latter case. Also, due to limited consumers in the township, harvesting is done in a piecemeal manner which also results in delays in farmers receiving cash for their produce by a week/10days.

In Madaya, some farmers are doing integrated farming (fish and poultry). This integrated practice is not encouraged by the government as it is against GAqP. As an incentive, the government is providing La Na 39 to fish farmers with pure fishponds. It is also a challenge for the SSA farmers to meet with all the GAqP which is verified by the DoF team before granting a fishpond license.

IS perceive that different sources provide credit based on gender (their internal credit mechanism). Women can take loans from MFI whereas males can take loans from MADB and Cooperatives.

### 3.6.5 Retailers

Fish farming on small scale can be done along with the primary agriculture business and is considered profitable, given access to the fishpond. The scarcity of water is a major constraint for fish farming in Khin-U and Tachileik. In Tachileik, retailers opined that if the project does not provide them fishlings and technical knowledge, SSA farmers will not continue the business. Most of the retailers in Tachileik order fish from Thailand.

Fishes are purchased more from the wholesalers than from the SSA farmers because the purchases from SSA farmers are not always available. Some retailers in Salin and Waingmaw do purchase from the SSA fish farms to get fresh fishes. In Tarlay, retailers mostly purchase frozen fish and common carps from Thailand since the fish market is quite limited in Tarlay. To counter this, some farmers in Tarlay have formed groups to sell their produce.

In Madaya, the wholesalers do not purchase fishes on credit. In case of any insufficient amount, payment of a small amount can be postponed by the wholesalers. But it is subjected to genuine reason and no interest or additional amount is required to pay. In Pekon, there are limited credit sources in the township and most of the SSA farmers do not take loans and prefer investing their own money.

Retailers from Madaya suggested MFIs should give loans to female SSA farmers like their current practice of giving loans in a group to women with regular income. However, in Waingmaw, retailers suggested that IPs should provide fish feed as well.

### 3.6.6 Wholesalers

SSA farmers are interested in fish farming as it brings seasonal income to the families. There are many wholesalers available in the townships and each SSA farmer has their fixed customers or they sell at the events/festivals. The business, however, requires fish lings and credit support to purchase quality fish feed to earn more profit.

The wholesalers purchase fish from SSA farmers in bulk, at their farm itself. Sometimes the farmers sell their produce to the retailers at the township market. Wholesalers contact a few SSA farmers and make an appointment for harvest. In Salin, wholesaler, however, perceives that consumers prefer to purchase fish caught from the river or lake by the fishermen compared to that of SSA farmers and fishes imported from Yangon due to variation in taste.

Purchases by the wholesaler are mostly done in 100% cash but in case of large amounts, farmers have to wait for a week or 10 days. The actual amount is paid and no extra payment for the pending days. Wholesalers do not provide credit to SSA farmers but in Pekon, wholesalers sometimes offer it to trustworthy fishermen.

In-kind credit in Khin-U can be taken from wholesalers based on close relationships. Wholesalers suggest that it would be good to provide credit to SSA farmers so that they can feed quality fish feed to the fish. Credit should be provided in-kind to ensure proper utilization.

Wholesalers from Khin-U reported that there is no issue in the quality of fish purchased from SSA farmers as it is purchased in weight. Many more organizations like BRAC are required to support SSA farmers beyond credit with fishlings and quality fish feed.

### 3.6.7 Processors

Processors from Pekon report that Pekon lake is the source of income for fishermen and there are very few SSA farmers in the township; few people breed "Catfish" in man-made ponds. Usually, SSA farmers come to sell their produce at Processors' place of business. However, in the case of large-scale farmers/SSA farmers in their village, processors visit the fishponds. The processor from Salin reported that fresh fish from the ponds are easier sold than the fish paste produced since better quality commercial fish paste products are easily available in the local market.

Moneylenders are reliable sources in the case of an emergency. Credit is provided to only known people with 5%-10% interest per month. Loan tenure can be extended as long as the interest is paid monthly. Only one-fourth of the fishponds in Madaya is licensed under DOF. Recently, the SSA farmers have been encouraged to get their fishponds registered with MMK 30,000 per acre for a year. However, under this process farmers, who are doing integrated farming (poultry and fish farming), will have to forego the poultry business.

Processors purchase fishes mostly in cash but sometimes when processors are unable to pay on time, no extra interest is charged for the number of days the amount is due.

### 3.6.8 Transporters

The transporters provide support to IPs to transport fishlings as well as fishes grown by farmers to nearby townships, especially when there are events/festivals. Transporter from Madaya suggests that SSA farmers require not only fishlings but also fish feed and medical supplies and that lenders should supply these inputs as well. Payment for the purchase by transporter from Pekon sometimes takes two weeks as well but no additional interest/charges are paid for delayed repayment.

### 3.6.9 CBOs/CSOs

In Salin, scarcity of water for fish farming (aquaculture) is a major challenge. The main source of fish consumption comes from the fishermen who catch fish in the river. For some lakes in the township, business right is granted to large-scale farmers by the government and it is the main source of fish in the township.

In Pekon, CBOs/CSOs interviewed are involved in producing fish seeds and conservation of fisheries resources. It releases fishlings in Pekon lake for creating income opportunities for SSA farmers. Farmers have good linkages with the market. They also suggest providing credit to SSA farmers at a low-interest rate.

CBOs/CSOs in Tarlay suggested that a professional mindset needs to be inculcated amongst farmers for fish farming to scale-up their business. Farmers need to have confidence in the business first before availing loans from various providers.

### 3.6.10 VSLAs

**Salin:** Under "My Culture Project", 16 Farmers were encouraged to form VSLA. MMK 65,000 is granted to all 16 farmers individually by WF via Pact. VSLA was formed by 16 SSA Farmers in each village by contributing 10% of the amount (MMK 6500 was individually contributed to form VSLA group. No paid-up capital by PACT or World Fish). It is a revolving fund aimed to provide loans to every SSA member in-turns through a lottery system. Loans are offered for 3 months under lump sum bullet repayment at a 2%-3% monthly interest rate. The current loan amount is capped at MMK 72,000.

**Wingmaw:** VSLA is formed at the village level under the guidance of the church. The revolving fund is formed by the various amounts saved by the members. A member is eligible to take three times the member's savings as loans. Loans are offered under lump sum bullet repayment at a 2% monthly interest rate and maximum loan tenure is 12 months (option of deciding loan tenure is given to member). Interest collected is added back to the fund and monthly savings varies from minimum MMK 10,000 to MMK 100,000.

**Pekon VSLA formed by KMSS:** This VSLA is a microcredit facility under the Livelihood Program run by KMSS and members are usually project beneficiaries and the members of the church. After VSLA is formed, members are encouraged to do monthly savings of MMK 1,000 for two years. After 3 months, KMSS funded MMK 2 million to VSLA, and the fund is rotated as loans amongst the members. The average loan amount provided to members is MMK 200,000 at a 2% monthly interest rate, of which 0.5% interest was returned to KMSS while the remaining 1.5% was added to the fund. After two years, whatever money left at the VSLA acted as a revolving fund for credit requirements. Loan tenure can be six months/ one year and can be chosen by the borrower. Interest is paid every 6 months and principal at the end of the loan tenure.

**Pekon VSLA formed by JNF:** VSLA formed by JNF with a donated capital of MMK 4.5 million to honor labor contributed by village members in the construction of the school. This contribution is considered as 'Village Fund'. One member from each household is eligible to take a loan from the VSLA. No savings by the members. VSLA has been functioning with the 4.5 million capital paid by the foundation. The average loan amount is MMK 200,000 with one-year loan tenure and interest being paid after every 6 months and the principal at the end of the one-year loan tenure. The interest amount is not added to the revolving fund. Rather, it is used for the maintenance of school and the salary of temporary teachers.

**Tachileik:** This VSLA is a microcredit facility under the Livelihood Program run by KMSS and members are normally project beneficiaries. Lump-Sum amount (25% of the amount contributed by KMSS) was contributed by the village when the VSLA started. The average loan amount is MMK 150,000 and the maximum loan tenure is one year which can be decided by the borrower. Loans are offered at 2% monthly interest and interest being paid every 6 months, and the principal at the end of the one-year loan tenure. Interest from VSLA is not returned to KMSS but is utilized for village development purposes.



### 3.6.11 MFI Staffs (LO/BM)

MADB is located in all townships other than Tarlay and Waingmaw. In the case of Waingmaw, farmers must travel to Myitkyina Township (6 miles away) to access the loan while in the case of Tarlay, MADB Branch is located in Tachileik Township which is 28 miles away.

In Khin-U, the MSY project is implemented under "MSY Loans for Fishery Sector Development" and the same amount MMK 300,000 is given to the particular village with the same terms and conditions as the agriculture villages. Only large-scale fish farmers have access to get loans for fishpond for one-year loan tenure. Interest is collected every 6 months and the principal is paid at the end of the tenure.

No private bank is operational in Waingmaw and Khin-U. Some MFIs are also covering Khin U Township from Shwe Bo Town, 33 km away from Khin U.

### 3.6.12 Senior Management of MFIs

IFDA conducted KIIs with leaders of a few MFIs in Myanmar including, PACT, BRAC, DAWN & Vision Fund. The objective of the discussion was to understand the scope of microfinance for small fish farmers and delve deep into the reasons for poor access to microfinance services in WorldFish project areas.

None of the MFIs contacted had a product specifically catering to the needs of fish farmers nor were they aware of any other MFIs having such a product catering to the needs of small fish farmers. However, all MFIs were of opinion that their existing microenterprise loan or agriculture microcredit product can be suited to meet the needs of fish farmers and as per their understanding a special product was not required.

Most organizations believed pond fish farming by smallholders is a new livelihood opportunity. Farmers are adopting this enterprise seeing the success of large fishing companies. However, they lack the knowledge of scientific practices of fish farming and hence are unable to harvest profit. The underlying risk is discouraging for all MFIs and they are unable to see a business case for creating a credit product specific for fish farming.

Apprehensions were also raised on the viability of a microfinance product due to a small number of farmers who are present far and wide and thus, not giving a sustainable scale for designing a specific product for fish farmers. Understandably for their sustainability, a significantly higher number of potential farmers are desired to make the operation a commercially viable business proposition.

Few MFIs though showed interest in coming together for the pilot to understand the requirement, scope, scale, and viability under the condition that the total cost of the pilot is borne by some donor agency. Simultaneously the project sponsor must have an IP/NGO to undertake skill building for farmers on scientific fish farming management practices and organizing them into groups for smooth operation.

## 3.7 Gaps Identification

Based on the gaps identified, the IFDA team opines that the solution should resolve the following limitations which will be discussed in detail in **Chapter 4**.

### **3.7.1 Absence of microfinance product for Small-Scale Fish Farming**

The majority of the small pond owners contacted during the study expressed the need for a suitable loan product. WorldFish must facilitate a microcredit facility for the development of small-scale aquaculture.

On discussion with senior management executives of MFIs, we learned that few registered MFIs are lending to fish farmers in Myanmar. Each institution has a portfolio of products for agriculture and micro-enterprise. Some lending institutions do have products for fishing businesses and have offered credit for fishing in natural water bodies like rivers, large ponds, seas, etc. especially in the delta region. Accordingly, they have loan products for buying/leasing boats/trawlers, fishing nets, and other fishing-related equipment, etc. However, a loan product specific to the requirement of small-scale fish farmer growing fish in dugout ponds and/or naturally shallow paddy land is not available.

#### **3.7.1.1 Unique cash flow requirement for Fish Farming**

Fish farming in small ponds is a recent induction in the livelihood portfolio of Myanmar's farmers. It is being promoted for small farmers by few development agencies. Its cash flow requirement is also unique and distinct from any other agriculture or non-farm sector enterprise. Fish farming in captivity requires growing fish artificially and feeding quality fish feed to have an optimum Feed Conversion Ratio (FCR) to obtain an economic yield of fish. As the fish fingerlings grow over a period, the daily fish feed quantity requirement keeps increasing, based on the bodyweight of the fish. Accordingly, the cash required to purchase the feed increases month on month.

In any existing MFI loan products for agriculture or any other enterprise, one-time disbursement occurs which addresses initial investment required. However, in fish farming, the investment in the form of fish feed keeps increasing during the entire growing period until the fish is harvested. So, the quantum of investment required, to purchase fish feed based on the bodyweight of the fish, also increases continuously during the growing period. An ideal product for fish farming therefore should not only have multiple disbursement tranches based on the growing period, which may vary from township to township but also a higher amount in every subsequent tranche. Such an arrangement will adequately meet the expenditure of increasing the quantity of fish feed for the same number of fish in the pond over the growing period.

As rural people always face one or the other distress, the funds, if disbursed in one tranche, may be spent on some contingency faced by the farmer. He/She will thus face a cash shortage during the actual time of feed purchase during the growing season. Further one-time purchase of feed is not desirable as the quality of feed will deteriorate over time due to risks of microbial and fungal infections. This will be detrimental to fish growth thereby decreasing the profit extensively. Further, if a disciplined farmer keeps his fund safely for use during the fish growing period to buy feed as per monthly requirement, he/she ends up paying interest for idle cash which will erode his/her profitability. Thus, disbursement in monthly tranche is desirable based on the assessment of the growth of fish, the population of fish,

continuity of fish farming activity, and availability of water in the pond. As per the study, no such microfinance product was found.

### **3.7.2 Informal Community Organizations Managing Fund**

The study revealed that community funds are received and managed in the personal savings account of an individual. Such practices are unsustainable and are feasible only if the IPs/ NGOs are present. Legally, this is not considered as an ideal practice as it is fraught with the risk of fraudulent withdrawal and ownership conflicts. It is therefore imperative to have a formal structure of the organization to develop trust and credibility for managing community funds among the community as well as any external agencies. Incidentally, there also exists a law that facilitates the formation and formal association of rural folks into a village level institution recognized and registered by the local government. This will facilitate the opening of a bank account in the name of community institutions with democratically elected representatives having both authority and responsibility.

### **3.7.3 Poor Knowledge of Scientific Fish Farming Practices**

The study revealed an immense disparity in fish farming practices. The understanding of farming practices and the use of inputs varies from farmer to farmer. The wide variation in aquaculture practices and investments by small fish farmers indicates a significant lack of skills and know-how on fish farming. Few important training needs which emerged from the study are:

- a. importance of pond renovation at the start of monsoon season,
- b. use and identification of quality fishlings, its size, as well as the number of fishlings to be used per unit area of the pond,
- c. use of quality fish feed and the quantity of fish feed, and
- d. importance of pond water quality and the pond water treatment based on the water quality for the ideal fish growing condition.

An integrated knowledge & skill-building training on scientific practices of fish farming is desirable.

### **3.7.4 Poor Access to Quality Fish Feeds**

Fish feed is the costliest input in fish farming. It is also the single most important factor affecting fish growth. The lower the quantity of fish feed required for obtaining a kilogram of fish harvest, the better is the perceived quality of feed. This is measured as the Feed Conversion Ratio (FCR). Higher the protein content of the fish feed, lower is the FCR. Feed with FCR 1.2 (i.e. 1.2 kg of fish feed is required to obtain a growth of 1 Kg of fish) is considered the best and is costliest.

The respondents lacked awareness of the significance of the feed quality. They primarily used rice husk and beans flats as fish feed. Though quality feed with high protein content is relatively costly, feeds with lower FCR are also very cost-effective. Hence, training on the importance of quality feed and its constituents may help farmers to improvise with locally available raw materials.

### **3.7.5 Non-Registration of Fishponds**

Pond registration for fish farming is a statutory requirement and was mandated after the promulgation of Aquaculture Law 1989 & Freshwater Fisheries Law 1991. Fish Farming is recognized as a commercial activity in Myanmar and licenses for fish farming are issued by DoF. Any person who wishes to carry out aquaculture, on land other than the land designated for aquaculture or in fisheries waters, needs to obtain consent (from any other government department or organization, or any person holding any lease). However, aquaculture in one pond with a water surface area of 25 ft. x 50 ft. operated by a family for family consumption is exempted from the requirement to obtain a license.

During our study, none of the SSA farmers were found to have obtained the necessary licenses for fish farming as mandated by law. This is attributed primarily to the ignorance of the farmers about the existence of such a law. Further, some of them who are aware of the law feel the procedure is very tedious and time taking. The license fee of MMK 1 Million is also considered very high by smallholders.

As a principle promoter of livelihood by fish farming activity, WorldFish must on priority ensure that farmers comply with the statutory obligations and create awareness on this through their IPs. This has also prohibited these farmers to access DoF schemes such as the provision of quality fingerlings worth MMK 40,000 under CERP.

**Table 3.7** below gives a brief overview of the current situations of SSA farming found by the study team across all six townships.

**Table 3.14:** Current situations of SSA farming - across townships

Particulars	Salin	Madaya	Khin-U	Waingmaw	Pekon	Tachileik
Primary/Secondary source of income	Most of the farmers in the township have fish farming as a secondary source of income.	Most of the farmers in the township have fish farming as a secondary source of income. Fish farming does not feature even as a secondary source for a handful of farmers.	Most of the farmers in the township have fish farming as a secondary source of income.	Most of the farmers in the township have fish farming as a secondary source of income. Fish farming does not feature even as a secondary source for one-fifth of farmers.	Most of the farmers in the township have fish farming as a secondary source of income. Fish farming does not feature even as a secondary source for a handful of farmers.	Most of the farmers in the township have fish farming as a secondary source of income.
Fish Feed used		Quality fish feed is not being used by some of the farmers.		Quality fish feed is not being used by most of the farmers	Quality fish feed is not being used by most of the farmers	Quality fish feed is not being used by most of the farmers
Technical Knowledge				Very few farmers have technical knowledge about SSA	Very few farmers have technical knowledge about SSA	Many farmers do not have any experience in the SSA business
Market linkages for outputs						Limited fish market in Tarlay. Farming is mostly not being done on a business scale.
Cash Credit Sources	No source available for fish farming other than the VSLA in	No source available for fish farming	No source available for fish farming but farmers have	No source available for fish farming other than the VSLA in the township. The	No source available for fish farming other than the VSLA in the township. The	No source available for fish farming other than the VSLA in

Particulars	Salin	Madaya	Khin-U	Waingmaw	Pekon	Tachileik
	the township. The loan availed from VSLA is insufficient.		received loans under the MSY project for Fishery Sector Development.	loan availed from VSLA is insufficient.	loan availed from VSLA is insufficient.	the township. The loan availed from VSLA is insufficient.
In-kind credit sources	Available only for known farmers	Available only for known farmers	Available only for known farmers	No sources available	Wholesalers give advances to trustworthy fishermen but not to fish farmers.	No sources available
Willingness to take the loan	Some farmers in the township are not willing to take the loan for SSA business	Some farmers in the township are not willing to take the loan for SSA business		Some farmers in the township are not willing to take the loan for SSA business		Many farmers in the township are not willing to take a loan.
Hindrances in taking the loan		Unfavorable repayment system	Unfavorable repayment system	High-interest rate	High-interest rate	Unfavorable repayment system High-interest rate
Willingness to work in groups		Willingness to work in groups is limited	Willingness to work in groups is limited			Willingness to work in groups is limited
Awareness of the licensing process	Extremely limited awareness of the licensing process	Extremely limited awareness of the licensing process	Extremely limited awareness of the licensing process	Extremely limited awareness of the licensing process	Extremely limited awareness of the licensing process	Extremely limited awareness of the licensing process
Issues with VSLAs	VSLAs are unregistered in the township. Unity among the	No VSLA in the township	No VSLA in the township	VSLAs are unregistered in the township. VSLA is limited only	VSLAs are unregistered in the township. Interest collected by	VSLAs are unregistered in the township. The money is

<b>Particulars</b>	<b>Salin</b>	<b>Madaya</b>	<b>Khin-U</b>	<b>Waingmaw</b>	<b>Pekon</b>	<b>Tachileik</b>
	VSLA members, leading to the dissolution of VSLA formed			to the Church community.	KMSS for the capital invested initially For VSLA formed by JNF (in one village), funds are managed by account jointly held in the name of Chairman and Secretary	kept in the hand of the village leader instead of the normal practice of keeping it in the safe box. Dependence on village leader to decide loan beneficiary

## 4. Proposed Models of Intervention

### 4.1 Context

It is evident from the study that awareness training on integrated systems of small-scale aquaculture is an important gap. Many farmers and value chain actors do perceive that access to finance or microfinance is a bottleneck in the promotion of livelihood. It has also been observed that the farmers are comfortable in taking credit from community organizations like VSLAs. Members of VSLA empathize with farmers in their exigencies and are flexible in loan repayment, tenure as well as interest waivers. So, farmers prefer taking a loan from VSLA rather than from MFIs or any other formal institution. Globally, it has also been observed that community institution increases the bargaining power of farmers during any input purchase or sale of produce. Institutionalising the SSA farmers will therefore be an advantage to the project. Considering the above factors and overall findings of the study, we hereunder propose few models for extending credit to SSA farmers in the WorldFish project areas. All the models proposed below includes the broad guidelines for intervention and basic tenets of microfinance/other credit delivery mechanisms.

Based on how loans are delivered and guaranteed, globally, microfinance models revolve around individual lending and group-based lending approaches. During our study, a significant proportion of respondents expressed their desire for individual lending. Micro-credit to individuals without any collateral is offered by several major MFIs only after thoroughly verifying the capacity and past credit behavior of the individual. However, for collateral-free loans, lending in groups is preferred as individual members take mutual guarantee of each other which mitigates risks of financing institutions to a certain extent. The social capital of such a group also acts as security to members going through a rough phase or any exigencies as the group members are willing to help each other during times of any financial distress.

As desired by the respondents, our proposed models are based on the concept of revolving fund which follows the practice of lend-collect-relend. It has variants of lending to community institutions that will sublet to its members.

### 4.2 Premise from the Study

#### 4.2.1 CBOs

Often VLSAs have been found to defunct after the end of the project. However, the sensitivity and emotional connection of individual members with the VSLA shows community-based credit delivery has potential if nurtured properly. The key to their sustainability lies in the creation of a formal structure and electing the representative democratically. Few models which can be proposed to the community are Self-Help Groups (SHGs), Producer Cooperatives, or Producer Company. A long-term vision for carrying out all-encompassing livelihood promotion of SSA farmers includes organizing groups of individuals from the uniform socio-economic background into a three-tier structure - primary CBO at the township level which is federated first, at the state level, and finally at the national level. Training them on various



aspects of self-governance, credit delivery, aquaculture business development services including input and output market linkages will also be highly desirable.

#### 4.2.2 First Loan Loss Cost/ Guarantee fund

Most of the leading MFIs interviewed were unaware of the specific requirement of micro-credit for fish farming. As discussed in Section 3.7, most felt their existing credit product for agriculture or micro-enterprise could be extended for fish farming. Concerned about the “for-profit” sustainability of their organization, the senior management of the interviewed MFIs shared strong reservations regarding designing a micro-credit product to meet the specific needs of SSA farmers. This is because an immense expense is incurred on developing any new credit product as it includes developing software specific to capturing the disbursement tranche, tenure, interest calculation for on-time and delayed repayment, and all the other documentation. Subsequently, there will be a pilot of the product and its MIS, and later, the entire team will be trained on various aspects ranging from accounting to sales and collection, on loan appraisal process to disbursement and recovery, etc. The business case, thus, requires a certain minimum scale, which does not seem viable for the existing SSA farmers spread across 6 townships.

However, on prodding further, senior management of the interviewed MFIs told that they may participate in the pilot if approached, however, all costs and risks related to the pilot must be borne by the sponsoring agency.

### 4.3 Proposed Models

#### 4.3.1 Model I: Revolving Fund Grant to Community Organization

Globally, SHG Federation and Farmers Producer Organization (FPOs) are being empowered to receive



and manage funds and if nurtured well, they have been found to effectively manage their development growth trajectory. A gestation period is required and desired for nurturing the community organization, registering them with local government, instilling the credit discipline, and training them on practices of savings and internal lending before they are ready to receive grants. These parameters should also form a part of the appraisal process to assess if grants or

credit can be extended to these village-level institutions.

The implementing NGO acts as a facilitator for nurturing and preparing the SHGs. NGOs should have the mandate for institution building and training the members on every aspect of credit delivery as well as integrated fish farming practices. This will lead to effective and efficient utilization of credit for income generation through fish farming. Once the capacity building training and nurturing of community organization is complete, a revolving fund should be provided to these self-managed institutions.

In this model, appraisal of the savings and internal lending by CBOs will form the deciding factor for the quantum of the grant to be donated by development agencies. The effective utilization of this grant will form the basis for considering subsequent grants. The CBOs will further provide credit on a fortnightly/monthly basis to its members throughout the fish growing period and collect back principal along with interest after the fish harvest. This interest will help in increasing the corpus of CBOs. The intervention will not only impart confidence but will also provide a fillip to the CBOs in realizing their dreams.

**Activity Summary**      AqBDS, IDS by NGO & SCMS by CBOs

<b>Aquaculture Business Development Services</b>	<b>Institutional Development Services</b>	<b>Savings and Credit Management Services</b>
<ul style="list-style-type: none"> <li>• Training on scientific fish farming practices including importance of quality feed for increased yield, risk mitigation, disease &amp; pest control in fish, pond water quality testing &amp; management.</li> <li>• Total Quality Management (TQM) on local value addition &amp; fish processing – drying, fish paste, etc.</li> <li>• Alternate Market linkages - Input supply &amp; output sales</li> </ul>	<ul style="list-style-type: none"> <li>• Individual-level awareness, building solidarity, and trust.</li> <li>• Formation of groups, SHGs, federations, co-operatives, etc., of fish farmers.</li> <li>• Formalize group into a legal institution</li> <li>• Accounting and basic bookkeeping for savings and internal lending among groups</li> <li>• Record keeping on Loan utilization, Income Expenses summary to assess profitability from fish farming.</li> <li>• Building collaborations for increased bargaining power</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment of Savings and internal lending among group members.</li> <li>• Revolving fund to CBOs.</li> <li>• CBOs subsequently manages the lending to and collections from its members on a fortnightly / monthly basis.</li> <li>• CBOs charges interest from SSA farmers to increase its corpus for catering to the additional farmers</li> <li>• NGO/IP monitors and reviews their functioning.</li> <li>• NGO will continue to provide training on financial literacy, MIS, and other support to CBOs continuously.</li> </ul>

**4.3.2 Model II: Revolving Fund to NGO (IPs)**

NGOs are appointed as the IP to act as a unifying agency to undertake various skill-building activities along with working capital support to SSA farmers and collection of repayment with service charge premium.

The mandate of NGOs will include the formation of community organizations (SHG, Cooperative, Producer Company, etc.), nurturing such organizations, and building their capacity to manage savings and credit to its members. It will also train



them on the record-keeping of savings as well as the internal lending. The NGOs must also train community organizations on best practices in fish farming, along with the training on maintaining records for loan utilization and income earned from the activity. This will help in assessing the profitability of fish farming in the community. IPs are also entrusted with inculcating the credit discipline among the members and preparing them for receiving large loans from external agencies including banks and/or microfinance institutions.

In this model, the revolving fund grant for working capital support is received from WorldFish and managed by the NGO. The NGO assess the working capital need of SSA farmers and accordingly, provides the working capital on a fortnightly/monthly basis during the entire growing period. This working capital support along with a pre-decided premium as service charge should be collected from the SSA farmers after the sale of fish harvested. The service charge will increase the corpus of the NGO and it will help in increasing the reach to new SSA farmers or increasing the support to existing farmers. The entire corpus of microfinance revolving fund initially managed by NGO/IP will be transferred proportionately at the end of the project to the community organization formed and serviced under the project.

**Activity Summary**      AqBDS, IDS & SCMS by NGO / IP

<b>Aquaculture Business Development Services</b>	<b>Institutional Development Services</b>	<b>Savings and Credit Management Services</b>
<ul style="list-style-type: none"> <li>• Training on scientific fish farming practices including importance of quality feed for increased yield, risk mitigation, disease &amp; pest control in fish, pond water quality testing &amp; management.</li> <li>• TQM on local value addition &amp; fish processing – drying, fish paste, etc.</li> <li>• Alternate Market linkages - Input supply &amp; output sales</li> </ul>	<ul style="list-style-type: none"> <li>• Individual-level awareness, building solidarity, and trust.</li> <li>• Formation of groups (SHGs, Federations, Producer Co-operatives, Producer Company, etc.) of fish farmers.</li> <li>• Formalize group into a legal institution</li> <li>• Accounting and basic bookkeeping for savings and internal lending among groups</li> <li>• Record keeping on loan utilization, Income Expenses summary to assess profitability from fish farming.</li> <li>• Building collaborations for increasing bargaining power</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment of Savings and internal lending among group members.</li> <li>• Revolving fund to NGOs</li> <li>• NGO provides returnable working capital to individual fish farmers on a fortnightly / monthly basis as working capital support to SSA.</li> <li>• NGO charges service fees from SSA farmers to increase its corpus for catering to the need of additional SSA farmers.</li> </ul>

### 4.3.3 Model III: Fish Feed as Working Capital Support to Small Scale Aquaculture Farmers

On simple Pareto analysis, the cost of quality fish feed in pond aquaculture emerges to be the single largest investment for SSA. *Fish in Fish Out Ratio* significantly depends on the feed quality and the FCR of the feed used. According to our study, the cost of fish feed used for the entire growing period in ponds is nearly 70% of the total investment. The study also revealed that the high cost of fish feed is the primary reason for farmers shying away from using the quality feed. This results in poor FCR i.e. harvesting fish quantity much lower than the potential yield.



We, therefore, see immense potential in designing an intervention where the fish feed is sourced and/or produced in bulk by the NGO/IP of WorldFish to distribute it amongst SSA farmers.

This solution proposes to support SSA farmers in the form of fish feed through an NGO/IP of WorldFish. The NGO will buy quality fish feed in bulk at low cost and supply it to the individual fish farmer on a fortnightly/monthly basis, as per the farmer's need. The cost of fish feed given to farmers will be considered as working capital support. The farmer will return this working capital in cash to the NGO, after harvesting at the end of the season. A certain pre-decided premium to be levied as a service charge on the working capital. These returns received by the NGO/IPs should be reutilized in the next season as working capital support to new farmers adopting SSA and/or to increase the support of existing fish farmers who wish to scale up their operations.

Further, the NGO/IPs will also provide aquaculture and business development services and institutional development services to fish farmers. They will impart capacity building training for better fish farming techniques and market linkages for outputs and other inputs. NGOs/IPs will also organize SSA farmers under a formal institutional structure.

*Once the CBOs are registered, ownership of revolving funds should be transferred to community institutions after due training on managing funds and NGOs shall continue to provide handholding support till the institution is sustainable. Such institutions can even plan to install a fish feed production plant to manufacture quality fish feed and supply it to their members. This pilot has the potential to be showcased for attracting grant/donations from various multilateral agencies for scaleup.*

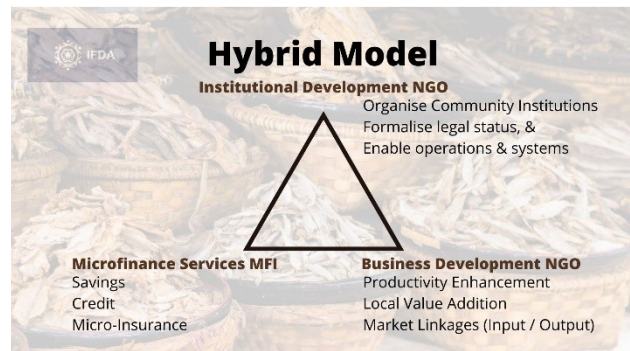
**Activity Summary**      AqBDS, IDS by NGO/IP & Fish Feed as Working Capital Support to SSA

Aquaculture Business Development Services	Institutional Development Services	Savings and Credit Management Services
<ul style="list-style-type: none"> <li>• Training on scientific fish farming practices including importance of quality feed for increased yield, risk mitigation, disease &amp; pest</li> </ul>	<ul style="list-style-type: none"> <li>• Individual-level awareness, building solidarity, and trust.</li> <li>• Formation of groups, SHGs, federations, co-operatives,</li> </ul>	<ul style="list-style-type: none"> <li>• NGOs provide fish feed on a fortnightly / monthly basis as working capital support to SSA.</li> <li>• NGO/IP collects back the</li> </ul>

control in fish, pond water quality testing & management. <ul style="list-style-type: none"> <li>• TQM on local value addition &amp; fish processing – drying, fish paste, etc.</li> <li>• Alternate Market linkages - Input supply &amp; output sales</li> </ul>	etc., of fish farmers. <ul style="list-style-type: none"> <li>• Accounting and basic bookkeeping for savings and internal lending among groups</li> <li>• Record keeping on Loan utilization, Income Expenses summary to assess the profitability of fish farming.</li> <li>• Formalize the group into a legal institution.</li> <li>• Building collaborations for increased bargaining power</li> </ul>	cost of fish feed plus service charges in cash after harvest at the end of the season. <ul style="list-style-type: none"> <li>• This fund will be used in the subsequent season to provide fish feed to new farmers and/or the same farmers for scaling up the activity.</li> <li>• Documentary evidence of savings and internal lending among group members forms the basis of an appraisal by NGOs.</li> </ul>
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#### 4.3.4 Model IV: Hybrid Model - MFI for Credit Access & NGO/IP for AqBDS, IDS

HYBRID Model, for holistic intervention, holds long term potential for livelihood promotion of SSA, converging NGOs and MFIs in partnership, complementing each other in the development process. Here NGOs will undertake Aquaculture Business Development Services and Institutional Development Services whereas Microfinance should be delegated to registered MFIs. We must appreciate that the microfinance institution's core strength and focus is credit delivery. The project will become scalable only when MFIs extends credit to SSA farmers.



Initially, MFIs need investment in product development, MIS software, pilot testing, and debugging to fine-tune the product for meeting customers' expectations. Subsequently, an immense investment in establishing township-wise offices and other infrastructure, like hiring and training teams on the specific microcredit product, etc. will be made based on the expected scale of operation. As of date, the village tract wise scale is not transpiring to a business case for investment on new product development for Fish Farming. Bearing all these costs will be the basis for the involvement of MFIs if WorldFish wishes to execute this model. This will be a long-term commitment until the number of SSA farmers flourishes to a sustainable scale. However, as they say, microfinance is an ultimate driver for empowering the poor and must not wait until sustainability is reached.

Credit delivery is a specialized function governed by various regulations being brought out by the Ministry of Finance from time to time. Only registered MFIs are allowed to undertake credit delivery and thereafter recovery in Myanmar. Hence, only registered microfinance institutions or cooperatives operating in the area should be invited to participate in this model.

Banks require fishpond licenses and land records as collateral for the mortgage, which is not possible for now and hence, are ruled out for partnership in any model. However, considering the lower interest rates by Banks, WorldFish is advised to promote licensing of the fishpond by their beneficiaries to enable them to seek credit from MADB and/or loans for fishery sector development under MSY.

The NGOs/IP can be engaged in imparting financial literacy to the community, making farmer groups for availing loans, preparing the community for the microfinance process, and most importantly, in capacity building training on scientific practices of fish farming, input-output linkages, and other activities for enhanced productivity and higher income.

In Myanmar, quite a few parent bodies have both an NGO as well as a registered MFI under their umbrella. Their NGO arm can receive grant funds from multilateral donor agencies and can provide both services for institutional development as well as business development for fish farming. The credit needs of the SSA farmer can be met by their registered MFI. A few of them are already associated with WorldFish as their IP but they will need initial investment for product development and basic implementation infrastructure as explained above.

*The popularity of pond fish farming is expected to grow over some time. Accordingly, the credit requirement in fish farming is expected to grow exponentially. The growing needs of micro-credit by fish farmers can be met by formal systems of credit. MFIs can raise funds independently from the market and other institutional investors for onward microcredit business. In all other proposed models, the amount of grant and/or revolving funds from WorldFish and other multilateral donors will be a limitation in scaleup.*

**Activity Summary**      AqBDS, IDS by NGO & SCMS by MFIs

<b>Aquaculture Business Development Services</b>	<b>Institutional Development Services</b>	<b>Savings and Credit Management Services</b>
<ul style="list-style-type: none"> <li>• Training on scientific fish farming practices including importance of quality feed for increased yield, risk mitigation, disease &amp; pest control in fish, pond water quality testing &amp; management.</li> <li>• TQM on local value addition &amp; fish processing – drying, fish paste, etc.</li> <li>• Alternate Market linkages - Input supply &amp; output sales</li> </ul>	<ul style="list-style-type: none"> <li>• Individual-level awareness, building solidarity, and trust.</li> <li>• Formation of groups of fish farmers.</li> <li>• Accounting and basic bookkeeping for savings and internal lending among groups</li> <li>• Record keeping on loan utilization, Income Expenses summary to assess profitability from fish farming.</li> <li>• Formalize group into a legal institution</li> <li>• Building collaborations for increased bargaining power</li> </ul>	<ul style="list-style-type: none"> <li>• Development of Product and necessary infrastructure.</li> <li>• Microcredit to SSA farmers provided by MFIs</li> <li>• Documentary evidence of savings and internal lending among group members forms the basis of appraisal for MFIs</li> </ul>

## Annex 1: Checklist of Questionnaires

### SSA Farmer

#### **A. Interview Details**

- A1. Date
- A2. Name of interviewer
- A3. Time taken for the interview
- A4. Village
- A5. Village Tract
- A6. Township
- A7. Region

#### **B. Farmer Profile**

- B1. Name
- B2. Age
- B3. Gender – Male/Female
- B4. Are you the Household Head?
- B5. What is the Household income source?
- B6. Are you an SSA farmer?
- B6.1 If yes, what is the size of your fishpond land (in acres)?

#### **C. SSA Farming Cost Analysis**

- C1. What is the average overall expense for your fishpond for one season?
- C2. What are the main expenses for your fish farming business and how much does it cost you?
- C3. What is the common fish feed used for your fish pond?
- C4. What is the average cost of fish feed per month?

#### **D. Access to Credit (In Cash)**

- D1. What are the available credit sources in your area?
- D2. Have you or anybody from your household taken loan in cash from anyone in last one year?
- D2.1 If yes, what is the credit source?
- D3. In whose name, the loan has been taken?
- D4. How much loan have you taken and what is the tenure?
- D5. How much is the interest rate (monthly figure)?
- D6. What is the main purpose for taking a loan?
- D7. What is the actual usage of the loan? Also, is the loan amount sufficient for the activity borrowed?
- D8. Have you found the conditions of loan satisfactory?
- D8.1 What do you like most about the loan?
- D8.2 What do you like least about the loan?
- D9. What is the repayment frequency of the loan?

- D10. Do you find the repayment frequency comfortable?  
D10.1 If no, what is the preferred repayment frequency and why?  
D11. Are you allowed to choose your own repayment frequency or is it decided by the lender?  
D12. Who has actually repaid the loan?  
D13. Due to any reasons, have you ever encountered any difficulties in repaying the loan on time?  
D13.1 If yes, what was the reason for it?  
D14. If loan is not taken, what is the main reason for not taking loans?  
D14.1 How are you then managing the expenses related to SSA farming business?

### **E. Loan(s) in kind**

- E1. Are there any traders, input suppliers, whole sellers, producers market committee member that given loan(s) in-kind to the community?  
E2. In last 1 year, have you taken loans from any of the above sources?  
E2.1 If yes, what are the credit sources?  
E3. In whose name, the loan has been taken?  
E4. What is the purpose of the loan that you have taken and what is its value?  
E5. How frequently do you purchase?  
E6. How much do you need to pay them back?  
E7. Have you found the condition of loans satisfactory?  
E7.1 What do you like most about the loan?  
E7.2 What do you like least about the loan?  
E8. What is repayment frequency of the loan?  
E9. Do you find the repayment frequency comfortable?  
E9.1 If no, what is the preferred repayment frequency and why?  
E10. Are you allowed to choose your own repayment frequency or is it decided by lender?  
E11. Who has repaid the loan?  
E12. Due to any reasons, have you ever encountered any difficulties in repaying the loan on time?  
E12.1 If yes, what was the reason for it?  
E13. If loan is not taken, what is the main reason for not accessing loans?  
E14. Do you need loan for SSA farming?  
E15. What will be the required loan amount for SSA farming business for one season?  
E16. What is your preferable loan repayment frequency?  
E17. What will be your preferred interest rate for the loan?  
E18. Do you wish to be attached to the group of contract farmers?  
E18.1 If yes, what are the reasons for it?  
E18.2 If no, what are the reasons for it?



## **Aquaculture Promoters**

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Township
- A4. Region/state
- A5. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. What is your main role and responsibility in “Fish for livelihood project”?

### **C. Demographic Information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture sector in your area?
- C2. Has it improved over the years? If yes, please explain in detail?
- C3. What motivates the SSA farmers to do fish farming in this township?
- C4. During which time of the year do farmers conduct fish farming? Is it all year long or seasonal?
- C5. What is the average time taken from breeding to harvesting?
- C6. What is the status of availability of primary resources for SSA farming in the township?
- C7. What are the common situations of the SSA farming in your township related to the following?
  - C7.1 Availability of fishlings
  - C7.2 Fish Seeds
  - C7.3 Cost for one season (per 0.5 acres of fishpond)
  - C7.4 Trainings
  - C7.5 Market Linkage (from where the SSA farmers are accessing their fishpond related purchases)
  - C7.6 Access to credit
  - C7.7 Is access to credit one of the constraints face by the farmer? If yes, how it is?

### **D. Current Options to Access Credit in the Township**

- D1. Who all the credit providers in your township?
  - D1.1 In case of cash loan what are the sources, average loan amount, interest rate, loan tenure?
  - D1.2 In case of kind what are the sources, type of in-kind, terms and conditions?
- D2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?
  - D2.1 If yes, what types of support are provided?
- D3. What are the requirements for accessing these supports from these credit providers/ government? (i.e. legal documents, registration of ponds, other documentations etc.)
- D4. In your opinion what are the major constraints faced by the farmers in accessing the available credit source in your township?
- D5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the farmer?

**E. Gender Integration**

- E1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?
- E2. Are the terms and conditions of the loan different for women and men?
- E3. Which type of organization is most likely to give a loan to women?
- E4. How the labor is distributed among men and women in small scale aquaculture farming?
  - E5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?
- E6. Any final remarks?

## **Implementing Partner**

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Township
- A4. Region/state
- A5. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. What is your role and responsibility in “Fish and Livelihood Project”?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture sector of the township/in your project area?
- C2. When did the program start in the township? What is the project duration?
- C3. What is the target population of the project in this township? Has it been achieved so far?
- C4. Do all the selected farmers have already fishponds?
- C5. What are main activities of the program and what kind of support is being provided to the SSA farmers?
- C6. If any support is being provided, any fees is charged, or it is free of cost?
- C7. What motivates the SSA farmers to do Fish Farming in this township?
- C8. During which time of the year do farmers conduct fish farming? Is it all year long or seasonal?
- C9. What is the average time taken from breeding to harvesting?
- C10. What is the status of availability of primary resources for SSA farming in the township?
- C11. What are the common situations of the SSA farming in your township related to the following?
  - C11.1 Availability of fishlings
  - C11.2 Fish Seeds
  - C11.3 Cost for one season (per 0.5 acres of fishpond)
  - C11.4 Trainings
  - C11.5 Market Linkage (from where the SSA farmers are accessing their fishpond related purchases)
  - C11.6 Access to credit
  - C11.7 Is access to credit one of the constraints face by the farmer? If yes, how it is?

### **D. Current Options to access credit in the Township**

- D1. Who all the credit providers in your township?
  - D1.1 In case of cash loan what are the sources, average loan amount, interest rate, loan tenure?
  - D1.2 In case of kind what are the sources, type of in-kind, terms and conditions?
- D2. Are the SSA farmers provided any cash or in-kind or input support from these agencies or the government?
  - D2.1 If yes, what types of support are provided?

- D3. What are the requirements for accessing these supports from these credit providers/ government? (i.e. legal documents, registration of ponds, other documentations etc.)
- D4. In your opinion what are the major constraints faced by the farmers in accessing the available credit source in your township?
- D5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the farmer?

**E. Gender Integration**

- E1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?
- E2. Are the terms and conditions of the loan different for women and men?
- E3. Which type of organization is most likely to give a loan to women?
- E4. How the labor is distributed among men and women in small scale aquaculture farming?
- E5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?
- E6. Any final remarks?

## DoF Staff

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Township
- A4. Region/state
- A5. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. What are your main responsibilities as a Township Officer in the Department of Fisheries (DoF) especially for the SSA farming?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture sector of the township?
- C2. Are there any government programs being implemented for SSA farming in the township?
  - C2.1 If yes, explore the following points:
  - C2.2 What are the objectives of the program?
  - C2.3 When did the program start in the township? What is the project duration?
  - C2.4 What are main activities of the program?
  - C2.5 Is there any funding agency supporting the program?
  - C2.6 What kind of support is being provided to the SSA farmers?
  - C2.7 What changes have taken place as a result of this program to the SSA farming in the township?
- C3. Has the number of SSA farmers increased in the township in these years?
- C4. What motivates the SSA farmers to do Fish Farming in this township?
- C5. During which time of the year do farmers conduct fish farming? Is it all year long or seasonal?
- C6. What is the average time taken from breeding to harvesting?
- C7. What is the status of availability of primary resources for SSA farming in the township?
- C8. What are the common situations of the SSA farming in your township related to the following:
  - C8.1 Availability of fishlings
  - C8.2 Fish Seeds
  - C8.3 Cost for one season (per 0.5 acres of fishpond)
  - C8.4 Trainings
  - C8.5 Market Linkage (from where the SSA farmers are accessing their fishpond related purchases)
  - C8.6 Access to credit
  - C8.7 Is access to credit one of the constraints face by the farmer? If yes, how it is?

### **D. Current Options to access credit in the Township**

- D1. Who all the credit providers in your township?

- D1.1 In case of cash loan what are the sources, average loan amount, interest rate, loan tenure?
- D1.2 In case of kind what are the sources, type of in-kind, terms and conditions?
- D2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?
- D2.1 If yes, what types of support are provided?
- D3. What are the requirements for accessing these supports from the government? (i.e. legal documents, registration of ponds, other documentations etc.)
- D4. In your opinion what are the major constraints faced by the farmers in accessing the available credit source in your township?
- D5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the farmer?

#### **E. Gender Integration**

- E1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?
- E2. Are the terms and conditions of the loan different for women and men?
- E3. Which type of organization is most likely to give a loan to women?
- E4. How the labor is distributed among men and women in small scale aquaculture farming?
- E5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?
- E6. Any final remarks?

## **Input Suppliers**

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Type of KII
- A4. Township
- A5. Region/state
- A6. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. How many years have you been in the business?
- B5. How are you associated with SSA farmers in this township?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture farming in your area/of the township?
- C2. What motivates the SSA farmers to do fish farming in this township?
- C3. What types of input have you been providing to SSA famers?
- C4. Among the inputs available, what is most demanded by the SSA famers and why is it so?
- C5. Is your business going well, in general?
  - C5.1 If yes, what are the key achievements that you have gained from this business?
  - C5.2 If no, what are the challenges that you have faced in your business?
- C6. Has the number of customers increased over the years?
  - C6.1 If yes, what is the reason?
  - C6.2 If no, what is the reason?

### **D. Terms and Conditions of the Input Services Offered**

- D1. Do the SSA farmers purchase in Cash or on Credit?
- D2. If you provide the inputs on Credit to SSA farmers, what are the features of the services offered?  
(Hint: type, conditions, price, tenure, interest, rate, repayment)
- D3. If credit is provided, is there any down-payment?
  - D3.1 If yes, what percentage?
- D4. What are the terms and conditions required by the SSA farmers to access the available services?
- D5. If credit is not offered as part of the services, why is it so?

### **E. Current Options to access credit in the Township**

- E1. Who all are the credit providers in your township?
  - E1.1 In case of cash loan what are the sources, average loan amount, interest rate, loan tenure?
  - E1.2 In case of in-kind what are the sources, type of in-kind, terms and conditions?
- E2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?
  - E2.1 If yes, what types of support are provided?

- E3. What are the requirements for accessing these supports from these credit providers/ government? (i.e. legal documents, registration of ponds, other documentations etc.)
- E4. In your opinion what are the major constraints faced by the farmers in accessing the available credit sources in your township?
- E5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the SSA farmers?

#### **F. Gender Integration**

- F1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?
- F2. Are the terms and conditions of the loan different for women and men?
- F3. Which type of organization is most likely to give a loan to women?
- F4. How the labor is distributed among men and women in small scale aquaculture farming?
  - F5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?
- F6. Any final remarks?



## **Retailers/Wholesalers**

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Type of KII
- A4. Township
- A5. Region/state
- A6. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. How many years have you been in the business?
- B5. How are you associated with SSA farmers in this township?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture farming in your area/of the township?
- C2. What motivates the SSA farmers to do fish farming in this township?
- C3. How have you been providing supports to SSA famers?
  - C3.1 Purchase of fish/fish products
- C4. How do you purchase the products from the SSA farmers?
  - C4.1 All year long? Seasonality?
  - C4.2 For purchase, do you go to the farmers or do they come and sell at your place?
  - C4.3 What is the maximum volume of product do you purchase at a time?
  - C4.4 Do you buy from individual farmers or farmers group formal or informally formed?
- C5. Is your business going well, in general?
  - C5.1 If yes, what are the key achievements that you have gained from this business?
  - C5.2 If no, what are the challenges that you have faced in your business?
- C6. Has the number of SSA farmers customers increased over the years?
  - C6.1 If yes, what is the reason?
  - C6.2 If no, what is the reason?

### **D. Terms and Conditions of the Input Services Offered**

- D1 Do you pay cash down or credit when you purchase the fish/fish products from the SSA farmers?
  - D1.2 If the purchase from SSA farmers is on credit, how much (maximum) time does it take you to pay them the full amount?
- D2 Do you also pay advance to the SSA farmers before purchasing their products? If yes, what are the conditions?
  - D2.1 What is the average advance amount?
  - D2.2 If advance is given to SSA farmers, how many SSA farmers in an average do you normally give?

- D3. Do you also give Credit to SSA farmers, what are the features of the services offered?  
(Hint: type, conditions, price, tenure, interest, rate, repayment)
- D4. What are the terms and conditions required by the SSA farmers to access the available services (advance/credit) from you?
- D5. What are the challenges that you face in giving advance or loans to SSA Farmers?
- D6. If advance/credit is not offered as part of the services, why is it so?

#### **E. Current Options to access credit in the Township**

- E1. Who all are the credit providers in your township?
- E1.1 In case of loan is given in cash, what are the sources, average loan amount, interest rate, loan tenure?
- E1.2 In case of in-kind what are the sources, type of in-kind, terms and conditions?
- E2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?
- E2.1 If yes, what types of support are provided?
- E3. What are the requirements for accessing these supports from these credit providers/ government? (i.e. legal documents, registration of ponds, other documentations etc.)
- E4. In your opinion what are the major constraints faced by the farmers in accessing the available credit sources in your township?
- E5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the SSA farmers?

#### **F. Gender Integration**

- F1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?
- F2. Are the terms and conditions of the loan different for women and men?
- F3. Which type of organization is most likely to give a loan to women?
- F4. How the labor is distributed among men and women in small scale aquaculture farming?
- F5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?
- F6. Any final remarks?

## **Processors**

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Type of KII
- A4. Township
- A5. Region/state
- A6. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. How many years have you been in the business?
- B5. How are you associated with SSA farmers in this township?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture farming in your area/of the township?
- C2. What motivates the SSA farmers to do fish farming in this township?
- C3. How have you been providing supports to SSA famers?
  - C3.1 Purchase of fish/fish products
- C4. How do you purchase the products from the SSA farmers?
  - C4.1 Seasonality?
  - C4.2 For purchase, do you go to the farmers or do they come and sell at your place?
  - C4.3 What maximum volume of product do you purchase at a time?
  - C4.4 Do you buy from individual farmers or farmers group of farmers?
- C5. Is your business going well, in general?
  - C5.1 If yes, what are the key achievements that you have gained from this business?
  - C5.2 If no, what are the challenges that you have faced in your business?
- C6. Has the number of SSA farmers customers increased over the years?
  - C6.1 If yes, what is the reason?
  - C6.2 If no, what is the reason?

### **D. Terms and Conditions of the Input Services Offered**

- D1 Do you pay cash down or credit when you purchase the fish/fish products from the SSA farmers?
  - D1.2 If the purchase from SSA farmers is on credit, how much (maximum) time does it take you to pay them the full amount?
- D2 Do you also pay advance to the SSA farmers before purchasing their products? If yes, what are the conditions?
  - D2.1 What is the average advance amount?
  - D2.2 If advance is given to SSA farmers, how many SSA farmers in an average do you normally give?
- D3 Do you also give Credit to SSA farmers, what are the features of the services offered?

(Hint: type, conditions, price, tenure, interest, rate, repayment)

- D4. What are the terms and conditions required by the SSA farmers to access the available services (advance/credit) from you?
- D5. What are the challenges that you face in giving advance or loans to SSA Farmers?
- D6. If advance/credit is not offered as part of the services, why is it so?

#### **E. Current Options to access credit in the Township**

- E1. Who all are the credit providers in your township?
  - E1.1 In case of loan is given in cash, what are the sources, average loan amount, interest rate, loan tenure?
  - E1.2 In case of in-kind what are the sources, type of in-kind, terms and conditions?
- E2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?
  - E2.1 If yes, what types of support are provided?
- E3. What are the requirements for accessing these supports from these credit providers/ government? (i.e. legal documents, registration of ponds, other documentations etc.)
- E4. In your opinion what are the major constraints faced by the farmers in accessing the available credit sources in your township?
- E5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the SSA farmers?

#### **F. Gender Integration**

- F1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?
- F2. Are the terms and conditions of the loan different for women and men?
- F3. Which type of organization is most likely to give a loan to women?
- F4. How the labor is distributed among men and women in small scale aquaculture farming?
  - F5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?
- F6. Any final remarks?

+ follow up questions emerging from the discussion on the above...

## Transporter

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Type of KII
- A4. Township
- A5. Region/state
- A6. Date

### **B. Respondent Profile**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. How many years have you been in the business?
- B5. How are you associated with SSA farmers in this township?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture farming in your area/of the township?
- C2. What motivates the SSA farmers to do fish farming in this township?
- C3. How have you been providing supports to SSA famers?
  - C3.1 Transport of Fish or Fish Products
  - C3.2 Purchase of fish/fish products
  - C3.3 Both Transport and Purchase of fish products
- C4. Is the transport solely your business or are you working for someone else?
- C5. Do you provide only transportation service or transport plus retailer?
- C6. What is the size of transport business? Eg. Number of vehicles used for transport etc.
- C7. Is this transport used only for the purchase of fish/fish products or any other purposes?
- C8. Where do you transport the fish/fish products to?
- C9. Is your business going well, in general?
  - C9.1 If yes, what are the key achievements that you have gained from this business?
  - C9.2 If no, what are the challenges that you have faced in your business?

### **D. Terms and Conditions of the Input Services Offered**

- D1. Do you purchase the fish/fish products from the SSA farmers in cash or credit?
  - D1.2 If the purchase from SSA farmers is on credit, how much (maximum) time does it take you to pay them the full amount?
- D2. Do you also pay advance to the SSA farmers before purchasing their products? If yes, what are the conditions?
  - D2.1 What is the average advance amount?
  - D2.2 If advance is given to SSA farmers, how many SSA farmers in an average do you normally give?
- D3. Do you also give Credit to SSA farmers, what are the features of the services offered?  
(Hint: type, conditions, price, tenure, interest, rate, repayment)
- D4. What are the terms and conditions required by the SSA farmers to access the available services (advance/credit) from you?

- D5. What are the challenges that you face in giving advance or loans to SSA Farmers?  
D6. If advance/credit is not offered as part of the services, why is it so?

### **E. Current Options to access credit in the Township**

- E1. Who all are the credit providers in your township?  
E1.1 In case of loan is given in cash, what are the sources, average loan amount, interest rate, loan tenure?  
E1.2 In case of in-kind what are the sources, type of in-kind, terms and conditions?  
E2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?  
E2.1 If yes, what types of support are provided?  
E3. What are the requirements for accessing these supports from these credit providers/ government? (i.e. legal documents, registration of ponds, other documentations etc.)  
E4. In your opinion what are the major constraints faced by the farmers in accessing the available credit sources in your township?  
E5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the SSA farmers?

### **F. Gender Integration**

- F1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?  
F2. Are the terms and conditions of the loan different for women and men?  
F3. Which type of organization is most likely to give a loan to women?  
F4. How the labor is distributed among men and women in small scale aquaculture farming?  
F5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?  
F6. Any final remarks?

## CBO/CSO

### **A. Interview Details**

- A1. Name of Interviewer
- A2. Time taken for interview
- A3. Type of KII
- A4. Township
- A5. Region/state
- A6. Date

### **B. Profile of CBO/CSO**

- B1. Name of the respondent
- B2. Contact Number
- B3. How long have you been living in this township?
- B4. What is the name of CBO/CSO that you're representing and how long have you existed in the township?
- B5. What is your designation/position in the CBO/CSO?
- B6. What are the areas of interventions by your CBO/CSO? Probe: Any activities in agriculture or fish farming?
- B6.1 If the CBO/CSO has intervention in agriculture or fish farming, what are the services provided to the farmers?
- B7. What are your main responsibilities in CBO/CSO in terms of providing services to Agriculture or Fish Farming?
- B8. What are the key achievements that you have gained from your interventions in SSA farming?
- B9. What are the challenges that you have faced in your interventions to SSA farming?

### **C. Demographic information of the SSA Sector of the Township**

- C1. How would you describe the small-scale aquaculture sector of the township?
- C2. Are there any programs being implemented for SSA farming in the township? *(Including the program implemented by the interviewed CBO/CSO)*
- C2.1 If yes, explore the following points:
- C2.2 What are the objectives of the program?
- C2.3 When did the program start in the township? What is the project duration?
- C2.4 What are main activities of the program?
- C2.5 Is there any funding agency supporting the program?
- C2.6 What kind of support is being provided to the SSA farmers?
- C2.7 What changes have taken place as a result of this program to the SSA farming in the township?
- C3. Has the number of SSA farmers increased in the township in these years?
- C4. What motivates the SSA farmers to do Fish Farming in this township?
- C5. What is the status of availability of primary resources for SSA farming in the township?
- C6. What are the common situations of the SSA farming in your township related to the following:
  - C6.1 Availability of fishlings

C6.2 Fish Seeds

C6.3 Cost for one season (per 0.5 acres of fishpond)

C6.4 Trainings

C6.5 Market Linkage (from where the SSA farmers are accessing their fishpond related purchases)

C6.6 Access to credit

C6.7 Is access to credit one of the constraints faced by the farmer? If yes, how it is?

**D. Current Options to access credit in the Township**

D1. Who all are the credit providers in your township?

D1.1 In case of cash loan what are the sources, average loan amount, interest rate, loan tenure?

D1.2 In case of in-kind what are the sources, type of in-kind, terms and conditions?

D2. Are the SSA farmers provided any cash or in-kind or input support from these credit providers or the government?

D2.1 If yes, what types of support are provided?

D3. What are the requirements for accessing these supports from the government? (i.e. legal documents, registration of ponds, other documentations etc.)

D4. In your opinion what are the major constraints faced by the farmers in accessing the available credit source in your township?

D5. Do you have any suggestions to the lenders who are already giving credit or will give credit to the SSA farmer?

**E. Gender Integration**

E1. In your experience, how the available credit (formal/informal) is differently accessed by women and men?

E2. Are the terms and conditions of the loan different for women and men?

E3. Which type of organization is most likely to give a loan to women?

E4. How the labor is distributed among men and women in small scale aquaculture farming?

E5. Is there any social stigma which restricts women from conducting certain activities in small scale aquaculture farming?

E6. Any final remarks?



## Glossary

Revolving Funds	A fund set up for specific purpose with a provision that repayments of those fund will be used for that purpose only
Wholesale Banking	The services provided by banks directly to financial institutions instead of retail clients
Emergency Loans	Loans provided to clients for a short-term period in an event of unforeseen circumstances
Feed Conversion Ratio	It is defined as total amount of feed consumed to a total amount of fish produced