WAREHOUSE RECEIPT FINANCING

TACKLING THE FINANCIAL NEEDS OF SMALLHOLDER FARMERS IN PAKISTAN

NOVEMBER 2019
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About Pakistan Microfinance Network
The Pakistan Microfinance Network is an association of retail microfinance providers. Our vision is to extend the frontiers of formal financial services to all and our mission is to support the financial sector, especially retail financial service providers, to enhance their scale, quality, diversity and sustainability in order to achieve inclusive financial services.

About MEDA
Since 1953, MEDA has been implementing effective market-driven programs globally. MEDA combines innovative private sector solutions with a commitment to the advancement and empowerment of excluded, low-income and disadvantaged communities (including women and youth) with core expertise in market systems and value chains, climate-smart agriculture, financial services, and investment. MEDA partners with local private, public and civil society actors, strengthening individuals, institutions, communities and ecosystems, and thereby contributing to sustainable and inclusive systemic change.

INNOVATE
Adoption of Agricultural Innovations through Non-Traditional Financial Services, is a three-year initiative implemented by MEDA and funded by the International Development Research Centre (IDRC). MEDA and its partners are assessing the potential of non-traditional finance to enable large scale adoption of agricultural innovations among women and men smallholder farmers in South Asia, South America and East Africa. The research and learnings will contribute to developing policy and programming recommendations.
# TABLE OF CONTENTS

## 1 INTRODUCTION
- 1.1 Research Objectives
- 1.2 Research Process
- 1.3 Research Limitations

## 2 BACKGROUND
- 2.1 Economic Context
- 2.2 General Features and Trends: Financial Services for SHF
- 2.3 General Features and Trends: Warehouse Receipt Financing (WRF)

## 3 WAREHOUSE & WAREHOUSE RECEIPT FINANCING
- 3.1 Enabling Environment
  - 3.1.1 Government Interventions
  - 3.1.2 Role of Private Sector: Arthis & Collateral Management Companies
  - 3.1.3 Role of Financial Service Providers (FSP)
  - 3.1.4 Role of Business Support Providers
- 3.2 Supply Side: WRF Services
  - 3.2.1 Warehouse Infrastructure
  - 3.2.2 Major Trends
  - 3.2.3 Major Barriers and Bottlenecks
- 3.3 Warehouse Receipt Financing
  - 3.3.1 Demand Side: WRF Clients
  - 3.3.2 Supply Side: WRF Loan Products
  - 3.3.3 Barriers
  - 3.3.4 Potential WRF Framework Parameters for Pakistan
- 3.4 Recommendations
- 3.5 Potential Partners
ANNEXES

Annex 1:
Interviews Held and Number of Respondents .............................................. 37

Annex 2:
Meeting and Contact List ............................................................................. 38

Annex 3:
Regional Practices in WRF ........................................................................ 39
# ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2F</td>
<td>Access to Finance</td>
</tr>
<tr>
<td>CDC</td>
<td>Central Depository Company</td>
</tr>
<tr>
<td>CMC</td>
<td>Collateral Management Company</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>FI</td>
<td>Financial Institution</td>
</tr>
<tr>
<td>FSP</td>
<td>Financial Service Provider</td>
</tr>
<tr>
<td>FY</td>
<td>Financial Year</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GLP</td>
<td>Gross Loan Portfolio</td>
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<td>GNI</td>
<td>Gross National Income</td>
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<td>GoP</td>
<td>Government of Pakistan</td>
</tr>
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<td>HBL</td>
<td>Habib Bank Limited</td>
</tr>
<tr>
<td>KBL</td>
<td>Khushhali Bank Limited</td>
</tr>
<tr>
<td>MEDA</td>
<td>Mennonite Economic Development Associates</td>
</tr>
<tr>
<td>MENA</td>
<td>Middle East &amp; North Africa</td>
</tr>
<tr>
<td>MFB</td>
<td>Microfinance Bank</td>
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<td>MFCG</td>
<td>Microfinance Consultative Group</td>
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<td>MF-CIB</td>
<td>Microfinance Credit Information Bureau</td>
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<td>MFI</td>
<td>Microfinance Institution</td>
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<td>MFP</td>
<td>Microfinance Provider</td>
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<td>MFT</td>
<td>Microfinance Transparency</td>
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<td>MIV</td>
<td>Microfinance Investment Vehicle</td>
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<td>MIX</td>
<td>Microfinance Information Exchange</td>
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<td>MMFB</td>
<td>Mobilink Microfinance Bank Ltd</td>
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<td>MSE</td>
<td>Micro &amp; Small Enterprise</td>
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<tr>
<td>MSME</td>
<td>Micro, Small &amp; Medium Enterprise</td>
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<td>NBFI</td>
<td>Non-Bank Financial Institution</td>
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<td>NBMFI</td>
<td>Non-Bank Microfinance Institution</td>
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<td>NGO</td>
<td>Non-Government Organization</td>
</tr>
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<td>NMBL</td>
<td>Network Microfinance Bank Limited</td>
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<tr>
<td>NRDPA</td>
<td>National Rural Development Program</td>
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<td>NRSP</td>
<td>National Rural Support Programme</td>
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<td>PAC</td>
<td>Pakistan Agriculture Council</td>
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<td>PKR</td>
<td>Pakistan Rupee</td>
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<td>PMN</td>
<td>Pakistan Microfinance Network</td>
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<td>PRSP</td>
<td>Punjab Rural Support Programme</td>
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<tr>
<td>RSP</td>
<td>Rural Support Programme</td>
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<tr>
<td>SDPI</td>
<td>Sustainable Development Policy Institute</td>
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<tr>
<td>SECP</td>
<td>Securities &amp; Exchange Commission of Pakistan</td>
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<td>SBP</td>
<td>State Bank of Pakistan</td>
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<td>SHF</td>
<td>Small Holder Farmers</td>
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<td>SME</td>
<td>Small &amp; Medium Enterprise</td>
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<td>TMFB</td>
<td>Telenor Microfinance Bank Ltd.</td>
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<tr>
<td>USD</td>
<td>United States Dollar</td>
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<td>WRF</td>
<td>Warehouse Receipt Financing</td>
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The aim of this research activity is to investigate the potential of Warehouse Receipt Financing (WRF) for Smallholder Farmers (SHFs) in Pakistan and provide key information on current landscape in this regard. The study focuses on four non-perishable crops: wheat, maize, cotton and rice. A literature review was conducted prior to fieldwork, based on documents available from Karandaaz Pakistan, Agriculture Census, Pakistan Economic Survey, Sustainable Development Policy Institute, the World Bank and Food and Agriculture Organization (FAO) as well as reports from other relevant stakeholders. Various investigative research methods were used, such as a quantitative survey, focus group discussions and in-depth interviews. Due to the overall low statistical sample, the key findings are not representative of SHFs in Pakistan. Hence the findings cannot be generalized and the results of the quantitative survey should only be considered indicative.

During the research, some clear characteristics and trends of WRF, especially in the context of SHFs, are revealed. The main risks faced by SHF include climatic, non-climatic, market and institutional barriers, while the lack of availability and access to warehouse infrastructure hinder its adoption. Additionally, the role of the Arthi, that is financiers in the informal rural economy, which is embedded within the agricultural value chains, is strengthened by the lack of monetary resources of SHFs. In order for WRF to move forward, there is need for the development of an institutional framework for collateral management and a mapping of existing storage facilities.

Upon further analysis, key high-level barriers to SHF’s increased participation in WRF were revealed:

- **Barrier #1**: Lack of Local, Easily Accessible Warehouses: Currently, storage infrastructure is grossly inadequate and SHFs prefer to sell their produce almost immediately;
- **Barrier #2**: Limited use of Formal Financing by SHFs: Formal financing is low amongst SHF, only 21% of respondents said they use formal sources of finance. This is attributed to the product design and structure of formal microfinance loans, including stringent collateral requirements and high interest rates that farmers who own smaller areas of land are unable to manage;
- **Barrier #3**: Inadequate Regulatory Framework: The warehousing industry as a service provider in Pakistan is severely underdeveloped. No procedures are in place for licensing of agri-storage facilities. Furthermore, incomplete legislation and uncertain regulatory framework are major deterrents to substantial investments in WRF financing. The absence of collateral management companies and warehouse/storage infrastructure, and lack of awareness about such WRF schemes among institutions, further compounds the slow uptake of the model amongst SHF;
- **Barrier #4**: Unpredictable Market Conditions and Lack of Crop Grading: Prices of crops in Pakistan do not follow a predictable indicator. This is exacerbated by the lack of grading and quality checks of crops, which can be used for estimating a pricing spread between the spot rates and future rates of any target crop. Additionally, commodity prices are not competitive in the international market, hindering
application of free market trade for major crops. For instance, for wheat, the price is kept higher than the open market price by the government after which there is not enough space in the market for a further price increase. For other crops, unpredictable pricing creates a risk of default by the crop depositor, thereby leaving the banks responsible for disposing off the crops at a loss;

- **Barrier #5**: Entrenchment of the Arthi System: The lack of literacy, training and entrepreneurial capacity of SHFs is also a challenge that impedes the success of WRF in Pakistan. Due to the lack of scale and volume, SHFs prefer to use the services of Arthis or middlemen, who serve them at their doorstep and provide lifecycle financing without the burden of any documentation. This leaves little room for WRF to be considered as a viable option by SHFs;

- **Barrier #6**: Lack of Collateral Management Companies: The newly issued regulations by the Securities and Exchange Commission of Pakistan (SECP) for Collateral Management Companies (CMC) have yet to be adopted by any entity in both the private and public sectors by registration as a formal collateral management company;

- **Barrier #7**: Low Level of Government and Private Sector Involvement: There is a lack of interest from the private sector to invest in this space and limited government involvement. The disinterest by public sector entities is mainly due to costly infrastructural investment required in this business. Further, the lack of focus of relevant governmental departments in developing new laws and regulations that could assist SHFs to adopt WRF contributes to the private sector detachment.

When assessed, the demand for WRF by SHFs was very low. SHFs explained that they did not have access to WRF or did not require financing. Respondents to the survey highlighted the key reasons for their lack of involvement in storing products in warehouses and receiving WRF loans below:

- **Lack of Awareness of WRF**: Ninety-seven percent (97%) of SHFs had never used WRF, the major reasons for this being the lack of WRF facilities in the vicinity, the costs associated with WRF (insurance, transport etc.), and immediate need of liquidity so that SHFs sell crops at the time of harvest;

- **Limited Technical Knowledge of WRF**: The FGDs revealed that while the SHFs were already storing some crops in their homes, they were unaware of WRF and require trainings on the WRF model, as well as a crop standardization;

- **High Use of Informal Financing**: There is an overall reluctance by SHF respondents to move from the Arthi model of financing to more formalized financing channels; 33% of surveyed SHFs rely on the Arthi because of the holistic services provided by the Arthi. Additionally, the lack of affordable and appropriate formal financial products ensures that the SHFs stay rooted in the Arthi system. Moreover, WRF has not been formally launched by banks and financial institutions and consequently warehouse receipts are not accepted as collateral;

- **Risk Profile**: The risk profile of the SHFs is such that the likelihood of default is high. Typically, the value of the crops available with SHFs for storage is approximately PKR 100,000 while the average loan requirement of the small farmer is also near PKR 100,000 as per the research findings. In case the value of the stored crop drops, borrowers are better-off defaulting rather than making payments;

- **Low Yields**: Seventy-eight percent (78%) of SHFs, engaged for the study, have limited knowledge of where to source agricultural technologies or resources from. The respondents were of the view that they receive no support from the government as
most of the trainings and services are for larger farmers only. There is a clear gap in the ability of smallholder farmers to get the maximum yield possible from their landholding due to their inability to procure appropriate input supplies. Their abilities to source appropriate technologies and inputs are impacted by their lack of financial access, landholding size and capabilities. The unavailability and paucity of water supply was identified as a major impediment for SHFs which contributes to lower yields. With low yields, WRF becomes a less viable option for SHF.

Despite the lack of existing WRF structure to engage SHFs, the Government of Pakistan, MFPs, other FSPs and relevant stakeholders could stimulate WRF development and use through several activities:

- **Increase Technical Assistance Offerings to SHFs, especially women:** The field survey results identified the need for trainings for farmers to increase crop yields as well as awareness about eco-agriculture farming practices to help combat risks associated with climate change. Participation of women in the rural economy and agriculture process can be increased with the provision of skill-enhancing trainings and extension services which are designed specifically keeping women farmers in mind (especially with relation to time and location of trainings). Enhanced training and skill sets may increase women’s agency over how microfinance loans are used. This can be done through the provision of value-added services from FSPs, which can include trainings on improving agricultural yield, money management, saving, life-cycle financing, et cetera.

- **Improve Financial Inclusion for improved access to WRF:** Access to microfinance for SHFs can be increased by employing less stringent requirements and less complex application procedures for taking out a loan, in addition to customized loan products, such as WRF for SHFs. Timely and affordable credit can aid farmers in investing in high quality inputs necessary for crop sowing. Specialized loan products can be introduced for SHFs, in view of their uses of the loan. WRF loans should be complemented with farmer education regarding resource utilization, latest farming practices and trainings to allow farmers to invest in preferred inputs which improve quality and yield;

- **Develop Warehouses with Affordable Pricing Schemes:** More warehouses in target districts with affordable pricing schemes will positively affect the uptake of WRF with SHFs. For WRF to benefit SHFs, the price received for the grain stored in the warehouse must earn a premium over grain stored on the farm or sold after harvest in order to offset the costs associated with storage and processing the grain to meet the established high standards required for the issue of a warehouse receipt;

- **Conduct Advocacy Campaigns:** With advocacy campaigns against exploitative roles of informal creditors as well as the benefits of microfinancing, WRF can be a viable option for farmers complemented with initial trainings on WRF usage. Value added services should be introduced alongside WRF, for example crop insurance, farmer to farmer learning, commodity tests, evaluations and advisory services;

- **Improved Access to Market:** The field survey results identified the need for trainings for farmers to increase crop yields as well as awareness about eco-agriculture farming practices to help combat risks associated with climate change. This can be addressed through focused interventions by relevant government departments in creating opportunities for SHFs, enhancing availability of warehousing infrastructure and utilizing financing for enhancing crop yields through mechanization will further strengthen the structure and value chain of major crops. Farmer’s access to market can be further improved through organized agriculture trade and updated marketing.
Executive Summary

Increase Technical Assistance Offerings to SHFs, especially women:
The field survey results identified the need for trainings for farmers to increase crop yields as well as awareness about eco-agriculture farming practices to help combat risks associated with climate change. Participation of women in the rural economy and agriculture process can be increased with the provision of skill-enhancing trainings and extension services which are designed specifically keeping women farmers in mind (especially with relation to time and location of trainings). Enhanced training and skill sets may increase women's agency over how microfinance loans are used. This can be done through the provision of value-added services from FSPs, which can include trainings on improving agricultural yield, money management, saving, life-cycle financing, et cetera.

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INTRODUCTION
1.1 Research Objectives

The Pakistan Microfinance Network (PMN) conducted research, funded by an INNOVATE grant from MEDA, to review Warehouse Receipt Financing (WRF) in Pakistan as related to smallholder farmers’ (SHF) needs. SHFs that have surplus production in excess of their subsistence needs are constrained to accept minimum rates for their produce, on account of their small size and lack of accessibility to market networks for maximizing revenue. PMN initially proposed that the Habib Bank Limited (HBL) WRF Pilot, conducted in 2017, which focused on medium and large famers, would be studied to identify opportunities for implementing the model for SHFs and ascertaining the role of microfinance providers in this model. Subsequently, PMN found that the National Rural Support Programme (NRSP), which is a grassroots NGO with a microfinance bank, also piloted a similar initiative in 2015. As a result, the NRSP pilot was chosen for review instead of the initially proposed pilot due to its focus on SHFs which connected it more closely to the goals of this study.

The main goal of this case study was to test the following hypothesis:

If WRF is made available to SHFs based on current ecosystem and regulations by microfinance providers, will it be adopted?

In order to answer this question, PMN reviewed the benefits of WRF by evaluating the abovementioned NRSP pilot project and conducting Key Informant Interviews (KII) and Focus Group Discussions (FGDs) with key stakeholders and SHFs. In addition, the research aimed to 1) develop an understanding of how Microfinance Providers (MFPs) can enter this landscape and provide financing to SHFs; and 2) determine the appropriate regulatory framework for MFIs and other Financial Service Providers (FSPs) to enter the landscape of WRF for SHFs.

Due to the limited scope of the research, this report does not provide specific details on types of WRF loan products Financial Service Providers (FSPs) could potentially offer. These details will need to be determined by any FSPs interested in providing WRF.

1.2 Research Process

In mid-2018, consultants conducted research on Warehouse Receipt Financing (WRF) in 10 districts in the province of Punjab. The overall goal of the research was to understand and quantify the demand and supply sides for WRF, ensuring that all perspectives of the financial services sector, SHFs and other stakeholders were captured. In addition, the research aimed to capture an inventory list of existing and available warehouse facilities and determining the pre-requisite to converting them into acceptable infrastructure for Collateral Management Companies (CMC). These CMC would then provide accreditation of the warehouses under their management.

This research was conducted over a 90-day period, focused on Key Informant Interviews (KII) with select stakeholders, complemented by quantitative field surveys with 400 SHFs as well as four Focus Group Discussions (FGDs) with selected SHFs. (See Annex 1: Interviews Held and Number of Respondents.)

The four major crops chosen for this review included: wheat, rice, cotton and maize. The SHF respondents interviewed were growing one or more of these crops. The KII SHF sample was stratified based on districts and
crops. At least 20 farmers from each district and at least 50 farmers from each of the identified four crops were included in the sample.

District selection was based on concentration of farmers of one category of crop and similar size of landholding, done in consultation and cooperation with the Local Support Organizations (LSOs) working in the selected districts in Punjab.

The KIIs were conducted with warehouse managers, government stakeholders, regulators, potential CMCs, appropriate Financial Service Providers (FSPs), LSOs, wholesalers, input suppliers and other potential partners. The main aim was to determine the relationship modalities between various stakeholders and the regulatory framework. (See Annex 2: Meeting and Contact List.)

1.3 Research Limitations

The objectives of the case study research were mostly achieved; however, several limitations prevented more in-depth analysis:

- **Limited Role of Women Farmers:** Engagement with women farmers proved to be a challenge during research due to patriarchal cultural norms prevalent in the target areas.\(^1\) Engaging women in the survey required multiple field visits and receiving permission from the men of the family. Both KIIs and FGD respondents revealed that the role of women in farming was limited to a few key activities: land preparation, seeding, irrigation, taking care of crops and harvesting. Most of the women, over 80%, interviewed did not have a role in the selling or storage of crops or any post-harvest decisions.

- **Lack of Understanding and Awareness of Warehouse Receipt Financing:** There was a general lack of awareness of the concept and the benefits of WRF amongst respondents, including stakeholders such as FSPs. There were also low levels of technical knowledge related to WRF and innovative farming technologies.

- **Low Statistical Sample of KIIs and FGDs:** Due to the small number of FGDs, a lack of solid statistical samples for each crop was an issue. Consequently, the quantitative research is not representative of SHFs in Pakistan, and hence the result findings cannot be generalized. The quantitative survey results may be viewed as indicative only.

\(^1\) FAO, *Women in Agriculture in Pakistan, Islamabad, 2015*
Introduction

Warehouse Receipt Financing
Tackling the Financial Needs of Smallholder Farmers in Pakistan
2

BACKGROUND
BACKGROUND

2.1 Economic Context

Pakistan is primarily an agriculture-based economy where the agriculture sector plays a central role, contributing 19% to GDP and employing 42% of the labor force. There are efforts being made at the government level to focus on developing this sector, through the introduction of initiatives on crop diversification, water conservation, promotion of high-value crops, innovative technologies and subsidies for energy and fuel. The top 5 crops: wheat, rice, sugarcane, maize and cotton, make up about 23% in value addition to this sector; while other crops, such as barley, onions, chilis and rapeseed, make up 10%. In terms of landholding sizes, only two percent (2%) of the total private holdings are 50 acres or more, while ownership of five acres and below makes up 61%. These smaller sized landholdings are owned by smallholder farmers (SHFs) according to the State Bank of Pakistan (SBP).

Some of the risks faced by SHFs include climatic risks, such as untimely rains, windstorms, shortage of irrigation water, and non-climatic risks, including non-availability and non-affordability of quality inputs, market risks, such as hegemony of middleman, and institutional risks, such as lack of advisory services from public sector departments. Based on the 2018 study, Risk Management Practices of SHF, by the Sustainable Development Policy Institute (SDPI) and Government of Punjab (GoP), natural disasters plunge SHFs deeper into poverty and vulnerability. In some cases, it takes several years to recover from these losses.

Due to these vulnerabilities, SHFs believe they cannot achieve their optimum yields or withstand crop losses. For them, a poor growing season is when per acre yield is six to ten mounds less than the average yield.

Research shows that there is a direct relation between landholding size and the ability to purchase farming inputs.

Women face considerable obstacles to their potential role as major contributors in the economic and social force in Pakistan. This includes the lack of access to factors of production, including, but not limited to, finance, land, and water. Almost 93% of women in Punjab do not own land, and 75% receive no compensation for their work in the fields, despite working for 12-15 hours a day on the farm. In addition, women require trainings and technical assistance to improve their role in farming. Traditionally, agricultural extension schemes have been traditionally focused on increasing production of cash crops by providing men with training, skills, and access to inputs and services.

The field research conducted revealed that of the 60% of respondents that owned land, only 21% of women own land, compared to 77% of men. This highlights the patriarchal undertones and structure of land ownership in rural areas of Pakistan that limit women’s involvement in agriculture. On a similar note, only 10% of women interviewed stated they make decisions about crops and farming independently. More than half of the women interviewed (58%) said decisions are made jointly with spouses/family members, while only 19% of men responded the same.

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2. Agriculture Census, Government of Pakistan, 2000
3. Sustainable Development Policy Institute (SDPI), Risk Management Practices of SHF, Islamabad, 2018
5. mound is a unit of measurement in Urdu wherein 1 Mound = 40 Kilograms.
7. FAO, Women in Agriculture in Pakistan, 2015
2.2 General Features and Trends: Financial Services for SHF

Smallholder Farmers (SHFs) in Pakistan face many challenges to growth that include output prices, natural disasters, power shortages, and natural resource depletion. Additionally, the limited access to finance by SHFs is a major barrier as most formal credit is skewed towards large landowners.

The requirement of collateral as an explicit guarantee against risk, and easier access to informal credit forces SHFs to turn to Arthis for financing; 23% of survey respondents accessed credit from informal sources. As a result, they face difficulties in accessing loans from financial institutions on these grounds.

- SHF: land of up to 12.5 acres of land;
- Large Landowners: 25+ acres of land;
- Aarthi Urdu word for Middleman;
- Maund: Urdu word for measure of 1 maund = 40 kilograms

While Microfinance Providers (MFPs) do offer collateral-free lending, many consider the agriculture sector to be too risky to lend to. For example, in Pakistan, less than five percent of the amount borrowed by poor rural households was obtained from formal lenders, including banks and microfinance institutions.9 This is because it is difficult to enforce repayment, there is lack of crop insurance and it is an undocumented sector. There is also a lack of legal recourse in executing default cases, in addition to high incidence and impact of natural disasters. The SHFs are traditionally disinclined to formalize dealings, are unable to provide collateral and do not have a credit history based on which commercial banks or MFPs can make a decision regarding lending.

Additionally, there is presently no adequate risk mitigation strategy for a commercial bank or MFP in the event of a price drop in the market.

Unable to meet the stringent requirements of financial institutions, SHFs often resort to borrowing from Arthi, or middlemen, to meet the cost of cultivation or to cover household consumption requirements in the interim between cultivation and sale. Dependency on these middlemen for inputs or cash is historically deep-rooted and perpetuates the severely entrenched poverty of SHFs, through highly imbalanced cost sharing and repayment arrangements. The middleman plays the role of financier, transporter, warehouse operator, aggregator, and trader simultaneously. Smallholder farmers’ dependency on the Arthi, reduces his ability to trade in the market and limits profit margins.10 Despite the Arthi charging interest rates between 70-100% compared to bank rates of 12-18%, the Arthi remains the dominant source of credit in the agriculture landscape.11 This system of dependencies has locked SHFs into the cycle of subsistence farming, aggravated their fragility and compounded their vulnerability to climatic and market risks.12

The key impediments SHFs face in Pakistan in accessing WRF include:

- **Lack of Collateral**: Commercial banks and MFI s generally require collateral for agriculture loans, in the form of the ‘agriculture passbook’13 or land titles. SHFs rarely possess land titles, leading them to rely on Arthis to fulfill their credit needs, as they provide loans to SHF without collateral;

- **Lack of Volume of Crops**: After setting aside an amount for household use for either consumption or sale, the remaining volume of crops does not leave the SHFs with enough produce to be viable for long-term storage while incurring the costs associated with WRF;

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10 Karandaaz, Warehouse Receipt Financing in Pakistan, 2017
11 Pakistan Microfinance Network, Who is the Arthi?, 2013
12 Sustainable Development Policy Institute (SDPI), Risk Management Practices of SHF, Islamabad, Pakistan, 2018
13 An Agriculture Passbook is deemed to be a title deed and accepted as such by FSPs for granting a loan or advance to a land-owner on the security of the mentioned land.
Lack of Storage Infrastructure: Professionally managed warehouses are not available for storage, and government warehouses are located in areas inaccessible or difficult to reach by transport and do not accept low volumes;

Lack of Documentation and Stringent Loan Requirements: The lengthy process of documentation associated with securing a loan, as well as practices of bribing the loan officers, high interest rates, short-term nature of credit and other institutional constraints make accessing formal credit difficult for SHFs. Additionally, since the warehousing infrastructure is not formalized, a warehouse receipt is not acceptable to banks and other financing institutions as an acceptable security for the loan;

Unfavorable Financing Terms: For WRF, financing is available as a percentage of value of goods stored, since SHFs have low volumes of crop due to smaller landholding sizes their average loan size is low. This in turn increases the cost per loan for FSPs resulting in higher mark-up rates.

2.3 General Features and Trends: Warehouse Receipt Financing (WRF)

Warehouse Receipt Financing (WRF) is essentially financing for the after-production and post-harvest phases of farming. Within the operating cycle of the farmer, it finances the inventory holding period, but has no impact on the yield and farming practices. However, it provides the producer with financing against the harvest to meet the input financing needs for the next crop and other expenses till the time the farmer can get an attractive price for the crop. Warehousing can be viable for non-perishable major crops, such as wheat, rice, cotton and maize. These crops can be held for longer periods of time and can sustain their quality, given that storage facilities are properly designed with moisture and temperature controls for each crop.14

![Figure 1: Warehouse Receipt Financing Actors](image)

Basic warehousing, collateral management, and stock monitoring services are widely available worldwide, and supported by legal frameworks, in Australia, India, Europe, and North America, although warehousing practices can vary.15 Transferable warehouse receipts are commonly used as delivery instruments on commodity exchanges, such as the Chicago Mercantile Exchange and the London International Financial Futures Exchange. Some countries have made much greater use than others of transferable warehouse receipts in support of agricultural trade and trade financing, notably the United States and South Africa.16

Regionally, both India and Sri Lanka have operating WRF systems with varying results. In India, WRF has been adopted through public sector-led legislation, a Central Warehousing Corporation and 17 state corporations. Encouraged by government subsidies, the private sector has also entered this space and provide 20 million tons of warehousing for their own use. In Sri Lanka, the government, along with the World Bank and Regional Development Bank, launched a WRF system as a pilot project in 2015. Though the project outcomes showed that warehouse receipts can be a viable financial instrument for

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13 Pakistan Agriculture Council
SHFs, it also exposed that land acquisition for warehouses can be tricky, especially pertaining to clearances required by the government. (See Annex 3: Regional Practices of WRF.)

In 2014, the State Bank of Pakistan (SBP) laid down the framework for WRF for FSPs, including banks and MFIs. The financial regulatory agency, the Securities and Exchange Commission of Pakistan (SECP), has also promulgated the regulations for collateral management companies (CMC). Even so, the concept of WRF is a relatively new one in Pakistan and has not yet come to fruition owing to various reasons: delay in issuance of guidelines, lack of infrastructure, lack of awareness among farmers, augmented role of middlemen, and an overall reluctance of the private sector to invest in agriculture related activities.

Due to low yield and unavailability of warehousing infrastructure in Pakistan, SHFs sell their crops immediately after cultivation. Reasons for low yields are a lack of trainings and financial ability to adopt technology-based solutions, scarcity of water, low levels of technical knowledge, and poor infrastructure.
WAREHOUSES & WAREHOUSE RECEIPT FINANCING
WAREHOUSES & WAREHOUSE RECEIPT FINANCING

WRF is essentially financing for the after-production and post-harvest phase and includes a warehousing infrastructure to store crops. Within the operating cycle of the farmer, it finances the inventory holding period but has no impact on the yield and farming practices. However, it provides the producer with financing against the harvest to meet the input financing needs for the next crop and other expenses till the time the farmer can get an attractive price for the crop.

3.1 ENABLING ENVIRONMENT

3.1.1 Government Interventions

Government Regulatory Framework: CMC

The Securities and Exchange Commission of Pakistan (SECP) established the Collateral Management Company (CMC) Establishment & Operations Regulations in 2017. These regulations outline the requirements for setting up Collateral Management Companies, conditions for grant of license as well as the duties and responsibilities of such a companies. In addition, these rules also include conditions for accreditation of warehouses, duties of warehouse operators, issuance of warehouse receipts and financing against those receipts.

The SECP regulation comprehensively addresses the WRF process and is focused on the role of the CMC within it. CMCs are empowered to provide approvals and licenses to warehouse operators and managers. These regulations also ascribe the authority to CMCs to cancel licenses of warehouse operators in case of non-compliance.

HBL Pilot WRF Project

In 2017, Habib Bank Limited (HBL) carried out an 6-month pilot project with wheat farmers in Muridke, Punjab. The project was in partnership with the Pakistan Agriculture Council (PAC) and Agility, a logistics company, that managed the project’s warehouse.

HBL’s initial target market for the pilot WRF project were farmers producing 420 to 500 mounds of surplus wheat crops on more than 15 acres of land. These farmers, who were approached through HBL’s branch network, were invited to utilize a warehouse that was situated within 50 km of four to five HBL branches.

HBL offered agriculture credit at the time to those farmers that were operating in the proximity of the warehouse to ensure accessibility and transportation was not an issue for the farmers. Initial response of the pilot farmers showed reluctance towards adopting this model as compared with the routine deep-rooted practice of dealing with Arthis.

Key Findings:

- Farmers perceived the process as complicated when compared with their usual practice of selling the produce to the Arthi;
- Crop grading was not available;
- Testing and grading of crops, a pre-requisite for WRF, was considered as an additional burden;
- Wheat has a relatively stable price due to the Government’s support price and is more viable for WRF when compared with rice;
- Market prices are not structured which increases price volatility risk;
- A detailed crop study needs to be conducted to assess the pricing and marketability of crops;
- HBL was able to provide WRF to only three (3) borrowers.
The key barriers for the WRF regulations for CMCs are:

- **Need for Institutional Framework:** Incomplete legislation, an uncertain regulatory environment and quality standards majorly impede investment in WRF;

- **Lack of Implementation of Regulations:** Although SECP developed regulations for establishment and operation of CMCs for WRF in 2017, as of 2019 there has not been any further development;

- **Lack of Collateral Management Companies:** There are no collateral management companies currently operating in Pakistan.

- **Low levels of Investment in Warehouse Infrastructure:** Disinterest by public sector entities and government mainly due to costly infrastructural investment required in this business.

**Government Regulatory Framework: Financial Service Providers**

- Regulations for supervision of warehouses, cold storage and silos;

- Regulations for accepting of warehouse receipts by banks and financial institutions;

- Collateral accreditation of warehouses with collateral management companies;

- Development of centralized database of borrowers/farmers;

- Inventory monitoring and management; and

- Development of a secondary market for trading of warehouse receipts by Pakistan Mercantile Exchange.

The key barriers for the WRF regulations regarding financing/investments are:

- **Need for Investment:** Incomplete legislation, an uncertain regulatory environment and quality standards majorly impede investment in WRF; and

- **Absence of Financing Safeguards:** High need for guarantee arrangements to safeguard the banks and the depositors involved in WRF.

### 3.1.2 Role of Private Sector: Arthis & Collateral Management Companies

#### Overall Trends

According to the Securities and Exchange Commission Pakistan (SECP) debt servicing is completed through the sale of the crop; therefore, it remains affordable for the farmer if the product is being sold easily with the help of the Arthi system. The Arthi accepts the repayment of their loans from the farmers when their cashflow is the most liquid during harvest season, thus, the high cost of financing does not feel burdensome to the farmer. Instead, it is a charge from the revenue and is not perceived as a cost added to the overall cost of the farmer. This is unlike the case of conventional loans that require monthly repayments, irrespective of the crop lifecycle. While the terms of this informal loan are unfavorable due to its high cost, it is a twenty-four-hour service which embeds the Arthi into the financial lifecycle of the SHFs. Key stakeholders, such as Central Depository Company, revealed that the Arthi role will not be easily substituted, until the services are replicated at more favorable terms for the SHFs.

Generally, it was revealed through key informant interviews with FSPs, specifically Zarai Taraqiati Bank (ZTBL), that the perception within the financial industry and regulators is that SHFs are more comfortable with the terms being provided by the Arthi. Focus group discussions with SHFs held in Bahawalpur and Sialkot brought to light the fact that Arthis were presently charging them approximately 180% mark up on their loans. Even so, it was highlighted that SHF consider the

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1 Central Depository Company Definition: Established as a securities depository, CDC is the sole entity handling the electronic (paperless) settlement of transactions carried out at the Pakistan Stock Exchange. The CDC is ultimate custodian of the Pakistan Capital Market.
terms of the banks more exploitative than those of the Arthi. In an interview with an SECP representative, it was stated that SHFs trust the Arthi more than banks, as a result they also do not default in paying the liability of the Arthi. However, according to ZTBL, there is a tendency of default in the case of bank loans.

Interviews with FSP stakeholders and FGDS with SHFs revealed that the Arthi provides an end-to-end solution to the farmer which presently no bank is providing. Typically, the Arthi buys the entire product from farmers at the time of harvest. This model will continue till such a time when warehousing and related financing facilities are offered with affordable pricing schemes. Additionally, Arthis are typically more educated and organized compared to SHFs and have a deeper understanding of market conditions. They also usually have ties with the political elite in rural areas, which gives them an advantage in being able to sell the crops to the government warehouses, before any SHFs can get such a permit.

During an interview with the Rural Community Development Program (RCDP), it was revealed that there have been cases where the produce is wasted due to unavailability of a proper warehouse. In contrast, during the interview with ZTBL, it was revealed that the Arthi is willing to buy the entire product directly from the farm, with no extra marketing effort required by SHF. Hence, the Arthi informally underwrites the risk of the farmers in the event of unfavorable market conditions.

As a response to the Arthi hold on SHF produce, the Government of Pakistan envisions the establishment of Collateral Management Companies (CMC) that will provide collateral management services. CMCS will be responsible for the following:

- **Establish Warehouses:** Provide quality, storage and preservation services for a range of agriculture produce;
- **Financing:** Offer arrangements for collateral commodity financing;
- **Issue Receipts:** Issuance of credible warehouse receipts for agricultural commodity financing that can be used as a tool for securing or negotiating credit requirements with formal institutions of MFIs; and
- **Audit Services:** Provide stock audits, evaluation of inventory held by warehouses, including standardization, crop grading and verifications services.

**Key Findings**

The private sector has undertaken two pilot projects on WRF in Pakistan, however, these projects were not fruitful since the WRF infrastructure including the proper legal framework is not fully developed. Further, the level of investment required for providing accessible warehouses to SHF renders the projects unfeasible. Many of the MFIs interviewed revealed that the storage infrastructure is grossly inadequate, which is why SHFs prefer to sell their produce almost immediately. Additionally, through all the FGDS with SHFs, it was discovered that they have very little knowledge on the uptake potential or the readiness of the farmer to work in this space as a substitute to the Arthi model. In addition to this, it was revealed that different institutions, including a specialized agriculture bank, a logistics company and an MFB, were working in isolation in this space, with little to no coordination between them.

Perception within the microfinance industry is that SHFs are more comfortable with the terms being provided by the Arthi. According to interviews with MFIs, SHFs trust the Arthi more than banks, and as a result they also do not default in paying the liability of the Arthi. This is also because the Arthi provides an end to end solution to the farmer and informally underwrites the risk of the farmers in the event of unfavorable market conditions.
The KIIIs with stakeholders of FSPs, which included the government regulatory bodies, a specialized bank, MFBs, NBMFCs, commercial banks and logistics companies, also revealed their lack of interest in engaging with SHFs in WRF. This creates major difficulties for SHFs seeking to break ties with Arthi and accessing private sector warehouses run by CMCs. Additionally, many SHFs indicated during their interviews that they experienced difficulties accessing funding from banks and MFIs and often had to bribe loan officers. Moreover, SHFs are generally not the target market for commercial banks due to the high risk and inconsistent nature of their businesses, including climatic risks, market risks and institutional risks.

The Central Depository Company (CDC) is currently developing a CMC, however, the target market for the CMC is primarily mid-sized farmers owning at least 50 acres of land or above, leaving out SHFs. The KIIIs with the SECP, ZTBL and two logistics companies revealed that the CMC service provision will eventually extend to SHFs, however, that is dependent on attaining the desired quantities needed for achieving the scale to meet operational costs.

### 3.1.3 Role of Financial Service Providers (FSP)

Financial inclusion across Pakistan varies per geographic region. There were differences in opinion on appropriate use of financing by research respondents which varied geographically. The research uncovered that only 22% of SHFs surveyed said they use formal sources of finance and 23% said they use informal sources. Women SHF respondents utilized family and friends as well as MFIs equally at 44%. This is partly because microfinance providers often lend more to women than men as part of their quotas.

When talking to SHFs during a discussion in Sialkot, all participants voiced unanimous support for obtaining loans on easy terms as they require financing throughout the year, especially at the time of sowing. However, they also noted that it is difficult for them to avail loans from MFIs as they are asked to provide at least three guarantors for the entire loan amount, in addition to loan officers asking for bribes for processing the loan.

**External Financing**

During a FGD held in Faisalabad, respondents said that they were not using external financing for any of their financial needs. This was because they viewed taking loans negatively and consider paying back loans an extra burden on the family. If there was any shortfall in their income due to emergencies/lifecycle events, they would resort to selling milk from their own buffaloes which they would otherwise keep for self-consumption.

Further, those SHFs who owned land between 10.1 to 12.5 acres used more formal financing (26%) and a third (32%) of the SHFs who owned land between 5.1 to 10 acres used more informal financing. With reference to the loan amount, majority of SHF KII respondents across all areas took a loan between PKR 76-100K, for buying fertilizers (22.3%), for input materials (19.9%) and for land preparation (18.9%) as the most popular uses. The highest frequency (42%) of this loan amount was reported from SHFs owning between 10.1 to 12.5 acres of land and lowest (35%) from farmers who owned between one to five acres of land. Half of the SHF respondents sell their crop immediately after harvest, while the rest keep some portion, up to 10%, for self-consumption and sell the rest.

### Formal Financial Providers

The most common source of current formal finance is MFIs and 52% of SHFs who own between 10.1 to 12.5 acres of land use MFIs as sources of finance given their larger loan requirements. Commercial banks do not lend to SHFs because of the high risk
associated with this segment and the level of supervision and monitoring required.

There are four major Financial Service Providers (FSPs) that are serving the agriculture sector in Pakistan. These FSPs comprise of a specialized agriculture bank owned by Government of Pakistan, the premier commercial bank of Pakistan in terms of asset base and two MFIs. Of the four, only two have engaged in WRF in some capacity. The chart below outlines more information about these FSPs and their WRF offerings:

**Informal Financial Providers**
Currently, the lack of monetary resources and limited access to formal finance by SHF

<table>
<thead>
<tr>
<th>FSP</th>
<th>Description</th>
<th>WRF Offerings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zarai Tarqiat Bank Ltd. (ZTBL)</td>
<td>ZTBL is the largest public sector specialized financial development institution in Pakistan, and is one of the largest lenders to the agriculture sector of Pakistan, in terms of number of customers (400,000 farmers per year) and portfolio size of PKR 45 billion. It lends tailored agriculture loans to farmers for crop production, poultry, seed, fertilizer, pesticides, etc. ZTBL has been part of the WRF pilot project of red chilies that was undertaken in Kunri, Sindh.</td>
<td>As a pilot project, the WRF scheme has been launched for Kunri area under ZTBL Samaro Branch of Mirpurkhas Zone. Farmers who possess warehouse receipts issued by Pakistan Mercantile Exchange (PMEX) after meeting all its requirements, are creditworthy, have clear CWR and an ORR rating of up to 4 are eligible. The maximum loan amount is PKR 1 million. The collateral includes Electronic Warehouse Receipt (EWR) issued by PMEX, Pledge of Stock and Personal Guarantee of the depositor/borrower up to the marked-up amount. The loan product was offered for a period of 1 year with the bank accepting electronic warehouse receipts and personal guarantees of farmers.</td>
</tr>
<tr>
<td>Khushial Bank Ltd. (KBL)</td>
<td>Has the second largest portfolio of lending to the agriculture sector in Pakistan with 323,122 agri-clients as of 2019. The overall GLP is PKR 45 billion.</td>
<td>Do not see WRF product as appropriate for KBL customers as they would prefer to dispose the product as soon as possible to liquidate their holding. To hold the receipt till the price recovers or get it discounted from a bank is something that will be relatively premature for the kind of clients KBL has, therefore this option was not pursued any further.</td>
</tr>
<tr>
<td>Telenor Microfinance Bank (TMB)</td>
<td>TMB has a portfolio size of PKR 34 billion overall, with 92,805 agri-clients. It is working with the agriculture sector through various programs, including e-Kissan with the Punjab Government. These programs are based on group collateral, e-pass books as collateral, or are gold backed, and any of the credit programs can also be used for agriculture purposes by the customer.</td>
<td>TMB is not engaged in WRF as the price differential in the off-season is a concern as prices may remain unfavorable even after storing the commodity for 3-4 months. TMB is of the view that WRF model should be propagated by the Government and then MFIs will then line up for availing this opportunity if the entire value chain is developed for banks to lend to this sector. TMB provides farm production loans which are meant for crop production, and mainly for purchase of inputs and other working capital/short term requirements. These loans are taken against agri-pass books.</td>
</tr>
<tr>
<td>HBL</td>
<td>HBL is a commercial bank with a portfolio size of PKR 50 billion, with 14 million clients. HBL provides specific range of financing products designed for the farming community under HBL Rural Banking. These are available for crop and non-crop products with flexible payment options. Some products include Rural Finance Farm Production, Dairy and Livestock Finance, Poultry Finance and Tractor Finance.</td>
<td>Piloted a WRF project with partners, Pakistan Agriculture Council (PAC), and Agility, in April 2017 with the wheat growers in Muridke producing 420 to 500 maunds. Farmers were approached via 4 to 5 HBL branches and warehouses were situated within 50 km of these branches. Initial response of the farmers showed reluctance towards adopting this model as compared with the routine deep-rooted practice of dealing with Arthis. Farmers found the process of warehouse financing complicated and cumbersome, they had to grade their crops, bear transportation, loading and un-loading costs and warehousing costs. Only 3 borrowers participated in the project, of which only 1 was a farmer, the other two were aggregators.</td>
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</table>
Warehouse Receipt Financing

Tackling the Financial Needs of Smallholder Farmers in Pakistan

is managed mostly through informal credit sources, like Arthis, on exploitative terms. Focus group discussions held in Sialkot with SHFs brought to light the fact that Arthils were presently charging them approximately 180% mark up on their loans, in addition to charging premium pricing on input supplies. Some participants claimed that Arthils in Sialkot also play a facilitative role by providing financing to SHFs when necessary and by paying them for their crops within a mutually agreed time. Additionally, these middlemen offer credit without a cumbersome documentation process and without any collateral.

However, SHFs felt that the Arthi system will never take them out of poverty. They rely on these middlemen for cash advances to cope with food shortages arising from poor harvests, lifecycle events or disasters. These debts are then settled upon harvest when the middleman deducts the loan payment upfront and offers the remaining amount to the farmer. Additionally, if the yields are low, debt servicing often leaves SHFs with little or nothing for the entire season. It was revealed during a FGD held in Bahawalpur, that SHFs have no choice other than to obtain further loans against the next harvest, thus compounding debt from one season to the other.

FGD respondents in Sialkot stated that the Arthi pays them on time, without any hidden charges and the rate is also according to market price. The SHFs discussed that when the Arthi provides loans to the farmers, they charge their interest rate on the loan amount by reducing the rate of purchase of the crop from the farmers and pays for the purchased crops after adjusting the loan amount. Since this amount is not pre-determined, it can vary exponentially on a case by case basis, and the financial needs of the farmer. Therefore, as revealed during an FGD held with SHFs in Sialkot, the real markup rate depends on the extent and nature of the urgency the farmer has to liquidate the crop, to fulfill household and other lifecycle needs.

Similar arguments were highlighted in SDPI’s Risk Management Practices of SHF 2018 paper: middlemen consider their dealing with SHFs is according to basic market principles. They provide a service to farmers and in doing so, they bear labor and transport costs as well as other grain markets charges. Since the middlemen share the risk with farmers until the crop is harvested, they see it as their right to charge a higher price for service provision and risk sharing.18

3.1.4 Role of Business Support Providers

Overall Trends

Discussions on trainings for innovative methods to improve yields with SHFs revealed that they were not aware of any technological advancements in their respective cropping habits, especially those which could increase yield or otherwise help them in improving their quality of life. They said extension services are being offered by the provincial government but are only limited to large farmers situated close to the main roads, away from the small farms. The respondents participating in the FGDs held in Bahawalpur believed that they receive no support from the government as most of the trainings and services are only for farmers with larger landholdings, above 50 acres.

With regards to use of agricultural technology, almost half the women (37%) said they do not use innovative agricultural technologies, compared with only 2% of men. The most common ‘technology’ used by farmers is tractors (27%), followed by machinery for seeding (17%) and machinery for spraying pesticides (16%). Yet, the majority (78%) of SHFs interviewed during the field survey from all districts said they did not know where to source innovative agricultural technologies from or where to get trainings.

While 72% of the SHFs surveyed overall in field surveys are interested in trainings, an overwhelming number of women respondents (85%) also expressed interest in receiving trainings. The responses were undisputed about the time of training, with 98.1% of all respondents saying they would prefer trainings at the time of sowing. Regarding the procurement of agricultural technologies to improve yield it was uncovered that there is a clear gap in the ability of SHFs to get the maximum yield possible in their area. This was due to their inability to procure appropriate input supplies, mainly due to their lack of financial access and capabilities; 78% of SHFs said they do not know where to procure agriculture technologies from. They also voiced that they would like to learn more about other technology solutions for increasing yield in order to reduce the time spent in harvesting.

Key Findings

The quantitative field survey results highlighted the following needs as related to training and other value added services:

- **Relevant topics**: Increase crop yields/production levels, eco-agriculture farming practices, and risk mitigation, especially those associated with climate change;

- **Length of Training**: SHFs stated that the ideal time of training is 1-5 days, as cited by 31% of SHF participating in the field survey;

- **Low Cost or Free**: Overwhelmingly, 92% of respondents said the training should be free;

- **Easily Accessible**: All of women KII respondents (100%) said they would prefer trainings near their homes/farms, 86% stating within the local area/nearby village, and 98% preferred trainings at the time of sowing; while 84% of men said they would prefer trainings near their homes/farms, and 100% would prefer trainings at the time of sowing.

- **Inclusion of Value-Added Services**: Additional programs and services should be introduced alongside WRF, for example crop insurance, farmer to farmer learning, commodity tests, evaluations of quality, and advisory services.

### 3.2 SUPPLY SIDE: WRF SERVICES

#### Types of Warehouses:

- **House-type**: House-type warehouses are located in homes, usually in a spare room where farmers can store their produce for brief periods of time.

- **Silos**: A silo is a tall round metal tower on a farm, in which grass, grain, or some other substance is stored.

- **Bins**: These are the smallest available unit of space in a warehouse and describes the position in the warehouse where the goods are or can be stored.

- **Bin Shells**: Bin-shells are used for harvesting, storage, cooling, and transportation of produce from the farm.

#### 3.2.1 Warehouse Infrastructure

**Overall Trends**

In Pakistan, the warehousing industry is severely underdeveloped. Currently, storage infrastructure is grossly inadequate, and data on number of storage facilities and their locations is also limited. Additionally, there are no governmental procedures in place for licensing of storage facilities. The high cost of operating a standardized warehouse, with quality and performance standards, is not justifiable in the present market. The dynamics influencing Pakistan’s agriculture sector hinder growth instead of supporting it: yields are low, landholding is small with majority of farms under five acres, and the overall regulatory framework is non-existent.

The five major crops produced in Pakistan: wheat, cotton, rice, maize and sugarcane, have an annual yield in excess of a million tons. This is a hypothetical benchmark used for determining the viability of a commodity for WRF in Pakistan.  

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wheat, which is a major crop across Pakistan is about 25 million tons, whereas the average consumption of wheat is estimated at 50 million tons. Further, commodity prices in Pakistan are not competitive in the international market, hindering application of free market trade for these major crops. For the active trading of commodities in an exchange, it is important to have an active market that controls the price of commodities whereby banks who hold the receipts can off-load the stored harvest when they get the best rates, or at least have the opportunity of selling the product in a spot or futures market in case the market plunges and the farmer decides to not honor his commitment to the bank.

For future action, the Pakistan government should invest in the required warehouse infrastructure as it is a low return investment. Further, the private sector will not see the benefit in such large infrastructure investment in the short to medium term. Additionally, for warehouses to function effectively, there is a need for regulatory guidelines to get the issued warehouse receipts accepted by banks provide products legal protection. The existing captive model like that of the National Rural Support Programme (NRSP), where one warehouse is being used and one bank is financing a handful of borrowers, is not sustainable.

Lastly, insurance providers will need to step in because warehouse and collateral managers will only be able to provide storage and not bear the risk of crop damage or loss of quality, which is also an essential requirement of the WRF product. This research did not investigate the type of insurance needed or the type of offering as this looks at the overall landscape of WRF from a macro perspective. Further research is needed to understand the types of insurance required for warehousing of crops and to minimize other risks.

The Key Informant Interviews (KII) revealed that most of the SHFs preferred to store wheat, maize and rice. Overall, 41% of KII respondents said they would store wheat in the warehouse, followed by maize (30%) and rice (17%). This was also reflected across landholding sizes. The farmers explained that it is best to sell maize at the time of harvest given the loss of moisture in the crop that happens over time, leading to a substantial decrease in price.

Currently, many SHFs are already storing crops in their own houses by dedicating a small room for that purpose, especially maize. This is a common practice due to its practicality with regards to the quantity of crop that SHFs produce. During the focus group discussion in Faisalabad, respondents were asked if they would be willing to store their crop in a managed warehouse for three to four months, at a potential cost of PKR 200. They responded that this is the entire margin that is there in the rate they are selling to the Arthi in their community. This was an interesting finding, as ideally The addition of the cost of the warehousing facility must leave the SHF with more profit that the margin offered by the Arthi, while factoring in the additional transaction costs of engaging with a service provider as opposed to the middleman providing end-to-end services. Otherwise there is no incentive to switch.

KII respondents also believed in improved price perceptions, with 46% stating they thought the price of crop would increase less than 10% after storage in a warehouse. This response was uniform across landholding sizes. Although this was true, almost 100% of the SHFs said they had never used warehouses for storage, with the most common reason for never using one being that they were unaware of any warehouse storage facility (28%). Other reasons included: there is no warehouse within a five-kilometer radius (22%) and that the farmers sell their crops immediately after harvest (17%), as they require finances immediately. Landholding size did not have a demonstrable impact.

on the SHFs decision of selling crops immediately or not, as an average 50% did so; with those owning 5.1 to 10 acres taking the lead at 55%, followed by 54% of those owning 10.1 to 12.5 acres and lastly 49%, owning one to five acres of land.

Informant Interviews with stakeholders, including FSPs, Pakistan Agriculture Council, Pakistan Mercantile Exchange, Pakistan Agriculture Council and CMCs, revealed that warehousing is also being undertaken by Arthis. They provide an end-to-end solution for SHFs surveyed in Punjab. In most cases, in addition to buying the produce, they also provide a warehousing facility to the SHFs if needed. Additionally, they facilitate the purchasing of inputs on credit, holding savings, acting as the sales agent for harvested crop in the market, as well as meeting other lifecycle related needs, such as emergency financing for paying for funerals, weddings or hospital bills.

Key Findings

- **Increase Number of Accessible Warehouses:** More warehouses in target districts with affordable pricing schemes will positively affect the uptake of WRF with SHFs; and

- **Higher price for Stored Grain:** The price received for the grain stored in the warehouse must earn a premium over grain stored on the farm or sold after harvest in order to offset the costs associated with storage and processing the grain to meet the established high standards required for the issue of a warehouse receipt.

3.2.2 Major Trends

The following high-level trends were uncovered during the research:

- **Lack of Technical Assistance and Training Services:** SHFs do not have access to trainings and technical assistance to aid them in implementing best practice agriculture. The trainings are usually targeted at larger landholding sizes, above 50 acres, who are located close to main roads. As a result, smallholder farmers miss out on trainings which can assist them in making better decisions regarding crops and crop management, based on individual levels of finance, labor, land endowments and risk appetite;

Presently the entire agricultural economic system relies on the role of the Arthi. Key predictors indicate that a shift towards a more integrated and inclusive approach, such as the development of a centralized database of SHFs, is necessary. This will enable more efficient monitoring and management of crop storage and preservation services for a longer period but has no impact on the yield and is completed through the sale of the crop; thus, it remains affordable for the farmer. Generally, it was revealed through key stakeholders, such as the Central Depository Company, Women SHF respondents utilized family and informal sources, like Arthis, on exploitative terms. Yet, the majority (78%) of SHFs interviewed were generally not familiar with the concept of WRF and Usage:

**NRSP Pilot WRF Project**

**National Rural Support Programme (NRSP)** has been working on warehousing in Hafizabad through a silo-based storage for rice from 2017 to date.

NRSP is presently working with approximately 2,200 SHFs with landholding below 15 acres due to the fixed capacity of the warehouse. Presently there have been no loans against the warehouse receipts of these crops since the Punjab Government has introduced Kissan Card project for 5 years, which is an interest free loan facility at PKR 40,000 per acre without any collateral. Therefore, only the NRSP warehousing facility is being used by the farmers at this stage. The financing part of the project will be feasible only after these subsidized loan products are removed from the market.

For scaling up and reaching more SHFs, NRSP has established a profit subsidiary by name of NRSP Agriculture Processing Company Limited with current capital base of PKR 1.5(B). Kanandaaz (an impact investor) has joined NRSP as equity partner for enhancing the storage capacity of the facility and establishing two more such facilities at other locations.

NRSP also facilitates by linking the farmers to the markets where an appropriate offer or opportunity is received for disposing the commodity at the desired rates.

**Key Takeaways:**

- The productivity enhancement through social mobilization, provision of technical inputs, Micro Credit, Storage facilities and market linkages increases SHF productivity;

- This model enables SHFs to gain the inputs at control price and earn higher monetary benefits from sale of their crops.

**Source:** NRSP
Minimal Levels of WRF Knowledge, Access and Usage: Survey respondents overall had low levels of knowledge about WRF. They were generally not familiar with the concept of WRF and its benefits, owing to the lack of storage facilities nearby and low levels of financial literacy. Generally, SHFs are involved in informal markets, which limits the use of WRF as a financial instrument; and

Role of the Arthi: The Arthi currently provides SHFs with holistic services, including lifecycle financing and guaranteed purchase of harvest that formal financial institutions and current WRFs are not providing, leading the SHFs to continue relying on the Arthi for their financing needs.

3.2.3 Major Barriers and Bottlenecks

The following high-level barriers and bottlenecks were uncovered during the research, referencing the table below:

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Women Involved in Post-Harvest Production</td>
<td>Women participate in most aspects of farming and crop raising, yet they do not actively participate in post-harvest activities that require interaction with market players. Those responsibilities are being handled mainly by men in the household. The decisions pertaining to warehousing, transportation, financing, and other commercial variables are primarily being taken by the men in the farm household.</td>
</tr>
<tr>
<td>Role of Arthi within Agriculture System</td>
<td>Entrenchment of the Arthi system is also a challenge that will impede the success of warehouse receipt financing in Pakistan. The Arthi’s role is embedded within the agricultural value chain due to lack of monetary resources by SHFs. The Arthi also provides SHFs with lifecycle financing which competes with offerings from formal FSPs. Additionally, they often absorb the risks associated with dealing with SHFs and guarantees selling of the harvest, this encourages the SHFs to continue relying on them. The Arthi employs predatory lending practices and use their influence to purchase crops at lower than market rates from SHFs.</td>
</tr>
<tr>
<td>Unpredictable Pricing</td>
<td>Unpredictable market conditions also play a vital role in the warehousing business. The prices of crops in Pakistan do not follow a predictable indicator which can be used for estimating a pricing spread between the spot rates and future rates of any target crop. The largest traded crop in Pakistan is wheat, the price of which is kept higher by the government than the open market price. Major wheat producers sell their crops directly to the government, after which there is not enough space in the market for a further price increase. For other crops, unpredictable pricing creates a risk of default by the crop depositor, thereby leaving the banks responsible for disposing of the crops at a loss. The price variability in target crops (cotton, wheat, maize and rice) within the period of storage should be substantial enough to cover all costs and render a profit to the SHFs that is sizeable and attractive enough for them to explore the warehousing concept. Price volatility of crops, which is an added risk to the farmer, may not justify the model for storing the crops before selling them.</td>
</tr>
<tr>
<td>High Costs</td>
<td>Cost is another major influencer of WRF, with the main cost components including transportation, grading and standardization, warehouse rent, insurance of crops and interest on loan. The cost of transportation is a critical factor in terms of proximity of the farm to the warehouse, as well as the cost of transportation for selling the product, and to transport the product to the market after the desired price is available from the market. Further, the cost of grading and evaluation will also have to be borne by the farmer and the cost of financing will also be considerable in this case. All these costs will be in addition to the cost of living of the farmer and his household, in the period during which the crop remains unsold and is held at the warehouse.</td>
</tr>
<tr>
<td>Lack of Pilot Project Models</td>
<td>Another deterrent towards implementation of WRF is past programs which have not yielded optimal results. In all of these pilot projects, there were a number of a number of problems that were identified; financing was obtained only by a small proportion of depositors, transportation to warehouses was perceived as a risk and an additional cost, crop grading being viewed as an excessive obligation, in addition to risks associated with having no insurance on these crops. The overall perception was that the cost outweighs the benefits. Moreover, none of the pilot projects were carried out for small farmers as a target segment due to the lack of scale and the transaction costs associated with dealing with SHFs.</td>
</tr>
</tbody>
</table>
3.3 WAREHOUSE RECEIPT FINANCING

Warehouse Receipt Financing (WRF) was formally introduced in Pakistan in 2014 by the State Bank of Pakistan (SBP) to address credit issues within the agriculture sector. The idea behind this initiative was to standardize warehouse and commodity related crop management systems to offer risk mitigation mechanisms to banks and systematic and reliable access to credit facilities from financial institutions. Against the receipt collected for the harvest deposited in the warehouse, a pathway was created for farmers to obtain credit for their immediate financing needs and to reduce the risks associated with price fluctuations. The overarching objective was to reduce leakages from the system in the form of crop losses due to poor storage and provide a steady stream of income for small landowners, especially SHFs.

3.3.1 Demand Side: WRF Clients

The overall demand for a WRF product from respondents was quite high (70%) from SHFs owning larger tracts of land (10-12.5 acres) and very low (35%) from those with one to five acres. An FGD in Sheikhupura with 20 SHFs, with less than 12 acres, revealed that all participants were unanimously supportive of the concept of warehousing. They all wanted to be rid of the exploitative Arthi.

The larger landholding SHFs are willing to pay for storage for their crops and receive financing against their crops, with the ideal length of storage being one to three months for wheat, maize and cotton. The main benefit perceived from WRF by respondents is the size of the loan that will be available, calculated at 70% of the crop value stored.

The key SHF demand findings of the research include the following:

- **Lack of Knowledge of WRF:** Ninety-seven percent of SHF had never used WRF, and 50% were unaware of any storage facilities or stated that no warehouse was available within a 5km radius of their farms;

**Cost of Warehousing Might be Prohibitive:** SHFs participating in the FGD held in Faisalabad revealed that if they were to store their crops in a warehouse at a potential cost of PKR 200 that is the entire margin present in the rate that they are selling to the Arthi. SHFs were overall apprehensive of the cost of warehousing as they believed that market prices might not always give them a positive price variability; and

**Lack of crop grading and standardization:** SHFs were not aware of any crop grading or standardization practices being implemented by the Government, which is a vital component of WRF, and said that all grades were being sold in the market.

3.3.2 Supply Side: WRF Loan Products

Currently there are no MFIs or banks that have a warehouse receipt loan product for SHFs. HBL piloted a WRF project and loan product for larger scale farmers in Muridke, Punjab in 2017. NSRP also piloted a WRF project in the same year, yet there have been no loans given against warehouse receipts due to other feasible subsidized loan products in the market offered by

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**Best Practice WRF Mechanism:**

- **Step 1:** The farmer harvests their crop and brings it to a licensed warehouse.
- **Step 2:** The warehouse takes the produce and provides the farmer with 2 documents a) certificate of title and b) certificate of pledge
- **Step 3:** The farmer applies for a loan at the bank, with the certificate of pledge as security.
- **Step 4:** Before the loan matures, the farmer sells his crop to a processor or trader by selling the certificate of title. The loan value is adjusted into the price paid by the processor.
- **Step 5:** When the loan matures, or when he needs the crop, the processor repays the loan to the bank and in exchange receives the certificate of pledge.
- **Step 6:** The processor now has both the documents and can collect the crop stored at the warehouse.

*Source: Warehouse Receipt Financing in Pakistan Uptake Study. Karandaaz Pakistan, November 2017*
Government of Punjab, specifically the Kissan card. (See more on NSRP project on pg. 26 above.)

Microfinance may be the key to the development of this sector, since the SHFs are not a target segment for commercial banks due to the level of supervision, monitoring and management requirement for an average low loan size which adds to overall costs.

Further, although respondents stated that they need financial loans for WRF, this research did not acquire specific data such as details of potential loan sizes, loan terms, loan uses, collateral, et cetera, to determine types of loan products that would be suitable. Loan product development will fall into the ambit of respective FSPs depending on their risk appetite, interest and experience.

Table 3 - Summary of Barriers Faced by SHFs

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Access to Warehouses/MARKets</td>
<td>SHFs that have surplus production in excess of their subsistence level in Wheat, Rice, Cotton, and Maize crops and are constrained to accept minimum rates for their produce, on account of their small size and lack of access to market networks for maximizing revenue.</td>
</tr>
<tr>
<td>Domination of Arthi on SHF market</td>
<td>Due to the lack of scale and volume, SHFs prefer to use the services of Arthi middlemen, who serve them at the farm gates, without the burden of any documentation. The downside of this system is the high premium paid by farmers for this service, leading to lower net incomes for the farmers, eventually causing a downward spiral effect in each crop cycle, since cost of farming and lifecycle needs are very high in proportion to the net income of SHFs.</td>
</tr>
<tr>
<td>Business Constraints</td>
<td>The lack of security, crop gradation, standardization and transportation facilities all add extra costs, transferred to the SHFs making WRF less attractive. Additionally, low yield of crops due to scarcity of water and non-adoption of modern farming techniques such as farm mechanization and drip irrigation also contribute to this.</td>
</tr>
<tr>
<td>Absence of Collateral</td>
<td>Most SHFs lack the required collateral needed to borrow from banks or MFIs, especially for larger loan amounts as they do not own land or properties which can be leveraged. The types, quality and amounts of collateral that SHFs can provide, including agri passbooks, often do not meet banks’ criteria, except in the case of specialized loan products for farming community.</td>
</tr>
<tr>
<td>High Demand for “Easy” Loans</td>
<td>SHFs stated repeatedly the need for easy loan processes and limited collateral requirements. These are not currently available in the market except with informal financial service providers. Easy/Informal loans are available from Arthis. These do not require processing and documentation and are quickly available to the farmer when needed.</td>
</tr>
<tr>
<td>Information Asymmetry</td>
<td>Research showed that there are multiple stakeholders involved in the WRF process and not enough knowledge sharing. Additionally, FIs are not aware of credit history of farmers, farmers are not aware of available warehouses.</td>
</tr>
</tbody>
</table>

3.3.3 Barriers

WRF could assist SHFs grow their businesses by providing an alternative option to store their product to receive the best price. Best practice research of WRF for SHFs states that this product can be adapted with appropriate infrastructure and

How does WRF work in Pakistan?

WRF, irrespective of the landholding size of a farmer, is based on the crop value rather than the credit profile of the borrower. Compared to the average loan size of MFIs in Pakistan, which is approximately PKR 30-50 thousand per borrower, the crop value per acre is usually higher. For example, wheat has a yield of 40 maunds per acre, so 40 x PKR 1,000 is 40,000 per acre. If the loan amount is calculated at 70% of that, the average loan size for a farmer with 5 acres of land will be estimated at PKR 140,000 which makes it attractive for the farmers as otherwise microfinance institutions limit loan sizes for them as mentioned above.
support, including the availability of licensed and supervised public warehouses, appropriate financial packages and enabling government policies to foster the WRF environment. The following chart outlines additional barriers for SHFs:

### 3.3.4 Potential WRF Framework Parameters for Pakistan

The development of viable WRF loan products would require the following:

- **1. Assessment of the target market:** This includes target areas, size of land holdings and crops which are feasible for WRF;
- **2. Quality standards:** an independent grading structure of crops which will enable both lenders and borrowers to properly assess value of the crops stored;
- **3. Markets:** Formalized primary and secondary markets for crops;
- **4. Established customer eligibility criteria;**
- **5. Pricing based on crop and assessed risk profile of farmers;**
- **6. Evaluation and incorporation of insurance costs;**
- **7. Establishment of repayment terms and options;**
- **8. Loan sizes and safety margin; and**
- **9. Underwriting in case of market failure.**

### 3.4 Recommendations

As per research findings, the conclusion to be drawn is that WRF, as currently offered and within the current eco-system, is not appropriate for SHFs at this time. This is due to the key findings that the existing eco-system lacks available warehouses, appropriate financing products and MFI partners. Additional missing links include: a lack of regulatory support for warehouse standards, quality assurance measures, unstructured warehouse inventory held by public and private sector entities, lack of grading standards of crops/grains or agriculture commodities causing inconsistent pricing, and lack of interest of farmers to move away from easy credit without collateral provided by the ‘Arthi’ middlemen.

Further, the NSRP pilot project is not a testable, viable model of WRF being extended to SHFs. Upon review, it has only revealed information about the warehouse infrastructure, as no loans are currently being provided due to a competing financing program. Specifically, the Punjab Government has introduced the Kissan Card project in 2018, which is an interest free loan facility for SHF at PKR 40,000 per acre without any collateral. As a result, the pilot has no information on loan products through WRF. Yet, a key takeaway from the NSRP model is the need for SHFs to be connected to markets, incorporating the needs of the SHFs in the value chain and relevant technical assistance through the WRF structure.

Additionally, for MFIs to enter this landscape and develop and provide WRF financing to SHFs there is a need for creating awareness regarding the concept and benefits of WRF among SHFs. In addition, the government should develop an appropriate regulatory framework for MFIs and other Financial Service Providers (FSPs) to enter the landscape of WRF. Specifically, an environment which enables and supports the use of receipts as collateral. Further, the following also must be created: warehouses to grade and store commodities, licensed and professionally managed warehouses and transport and supporting facilities at affordable costs.

However, there are several activities that could be completed in order to move towards SHFs accessing WRF:

- **Offer Technical Assistance/Training to SHFs in WRF:** There is still very little knowledge on the uptake potential or the readiness of the SHFs to work in this space as a substitute to the Arthi model. Most SHFs face issues that include lack of water
and lack of opportunities for relevant trainings. There is a need for pre-WRF and post-WRF trainings on increasing crop yields, eco-agriculture practices, benefits of WRF as a substitute for the Arthi model and how to use the WRF model. Ideally, the trainings should be government-led and sponsored, and target specifically the SHFs who otherwise would not have access to these trainings. Farmers with larger landholding sizes can access markets through other organizations working in the agri-space, such as Engro, however SHFs also need assistance with market linkages.

- **Increase Numbers of Available Warehouses:** Cost of operating a standardized warehouse with quality and performance standards is not justifiable in the present market dynamics influencing the agriculture sector of Pakistan. This is due to low yields, small landholdings - with majority of farms under five acres, and overall obsolete regulatory frameworks. The availability of warehouses with proximity to crops is one of the most important factors in WRF. Since development of these warehouses is capital-intensive, there are substantial cost implications and low rental yields in rural areas of Pakistan make them commercially unviable for private sector developers. While the public sector has worked towards developing warehouses in the country, these are largely for storage of wheat, and do not meet the more stringent requirements for other crops, such as proper temperature and moisture control;

- **Establish Warehouse Quality Standards:** For WRF to have improved uptake, there is a need to create demand and streamline supply by improving the quality of warehouses. At a minimum, warehouses should ensure ventilation to ensure quality of agri-produce stored meets the quality specifications, establish infestation monitoring and control, and a facility for weighing/assessing quantity of crops stored;

- **Create Standard Grades of Commodity:** The aim and desired objectives of this system should include development of standard grades of commodities that can be easily traded in the market due to the consistent supply of benchmark qualities that will create their space in the local markets as well as the potential for exporting to neighboring countries;

- **Increase Numbers of Collateral Management Companies (CMC):** In order to provide managed warehousing of crops in the country, CMCs need to be established. The newly issued regulations by the SECP for these CMCs have yet to be adopted by any entity, in both the private and public sectors. Further, there is a lack of registration by any formal collateral management company. Therefore, unless a formal nexus of online managed warehousing facilities is developed by registered collateral management companies, it will be a challenge for commercial banks and microfinance providers to lend against receipts from informal warehouses;

- **Increase SHF linkage to Markets via Warehouses:** SHF access to markets can be further improved through organized agriculture trade and updated marketing infrastructure, supported by the public sector, private sector or potential public-private partnerships. SHF linkages to retail and wholesale markets and access to market information should be facilitated as part of the WRF model and service;

- **Development of WRF Eco-system:** After development of warehouses, an entire eco-system can be developed with stalls of input supplies, technology solutions, technical assistance. In addition, the State Bank of Pakistan can create the legal infrastructure needed for MFIs and other relevant FSPs to accept warehouse receipts issued by registered warehouses as acceptable collateral. To date, the SBP has introduced a concessional refinance scheme to encourage construction of silos, warehouses, and cold storages, etcetera. Additionally, a working group has been formed for the development and
implementation of the WRF model and to encourage its adoption amongst banks, farmers, Arthis and traders, et cetera;

- **Government Support of MFIs to Expand into WRF:** Microfinance may be the key to development of this sector, since the SHFs are not a target segment for commercial banks. MFIs have a lot of potential in Pakistan, aided by proper government intervention which understands the importance and urgency of the situation and creates a conducive environment. For MFIs to enter this market and be successful, there is a need for customized financial products with value added services, including trainings on usage of WRF, and advisory services;

- **Review Current MFI Agriculture Loan Products for adaptation for WRF:** MFIs can create customized loan products, to facilitate SHFs. MFIs would need to conduct further research to determine what these loan products would look like since this research does not have specific data points to address the type of loans required. These products should be dependent on repayments at time of harvest, rather than monthly or weekly. Additionally, MFIs will have to engage with farmers’ groups, input suppliers, CMCs, etc. and incorporate measures of risk management specific to farmers;

- **Investigate the Inclusion of Crop Insurance into the WRF Structure:** Crop Insurance should be included in the WRF financial product and process. It will help control the risk of loss or damage to the crop while held at the warehouse of a third-party collateral management company or warehouse operator acting on behalf of the farmer or banker. Specifically, it will assist in safekeeping of the commodities against which warehouse receipts have been issued for financing and/or trading in the market.

### 3.5 Potential Partners

To support WRF in becoming a viable offering for SHFs, partnerships will need to be established with various organizations. With the understanding that one organization cannot offer all the items required to establish a sufficient WRF infrastructure, the recommendation for MFIs and other FSPs looking to offer WRF products is to work with appropriate partners in build the WRF eco-system. Below is an outline of potential partners, each with a specialty that would assist in addressing the needs of SHFs:

<table>
<thead>
<tr>
<th>Potential Partners</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE Global Depository</td>
<td>Collateral control company of commodities and manufactured products.</td>
</tr>
<tr>
<td>Agility</td>
<td>Logistics and freight management company.</td>
</tr>
<tr>
<td>Central Depository Company</td>
<td>CDC is the sole entity handling the electronic settlement of transactions carried out at the Pakistan Stock Exchange. The CDC is ultimate custodian of the Pakistan Capital Market.</td>
</tr>
<tr>
<td>Karandaaz Pakistan</td>
<td>A not-for-profit company promoting access to finance for SMEs through commercially directed investments &amp; financial inclusion.</td>
</tr>
<tr>
<td>Public private partnerships</td>
<td>Similar to the IFC funded wheat silo.</td>
</tr>
<tr>
<td>PASSCO</td>
<td>Pakistan Agricultural Storage and Services Corporation is a Pakistani government agency working in the storage sector of Pakistan.</td>
</tr>
<tr>
<td>NRSP</td>
<td>NRSP is the largest Rural Support Programme in the country in terms of outreach, staff and development activities.</td>
</tr>
</tbody>
</table>
Conclusions

Warehouse Receipt Financing can become a viable product in Pakistan as the crop yields for cotton, wheat, rice and maize in Pakistan are 50% of those in comparable economies, such as Bangladesh and India. This opens a substantial space for increasing the quantity and quality of the farm products of Pakistan. The review of the agriculture and financial sectors regarding warehouses and related WRF reveals substantial opportunities for SHFs to improve their crop yields, increase earnings and enter new markets. However, the research exposes the limited existence of required warehouse infrastructure, government regulations and quality assurance measures as well as limited collaboration among key sector actors to decrease the role of Arthis and profitable solution for replacing it. A more structured system which underwrites the risks borne by the farmers and provides financing and value-added services on feasible terms is required.

To diminish these barriers to entry, the following potential steps should be taken by appropriate stakeholders:

- **Create Advocacy Campaigns:** With advocacy campaigns against exploitative roles of informal creditors as well as the benefits of warehousing, including awareness raising, concept promotion, and advocacy among the various stakeholders (such as banks, the bank regulator, the government, producer organizations, and agribusinesses) in favor of WRF can improve uptake, complemented with initial trainings on WRF usage.

- **Develop and Provide Government Incentives for WRF:** Multiple organizations, such as SBP, SECP, PMEX and CDC, need to be incentivized for the provision of managed warehousing and making it suitable for target crops: wheat, rice, cotton and maize. Additionally, the government should develop a system of warehouse licensing and inspection of warehouse facilities so that they meet basic standards, both financial and physical. Inspection of warehouses and stored commodities can be performed by the private sector through licenses provided by the government.

- **Establish Value-Added Services:** Additional services should be introduced alongside WRF, for example crop Insurance, farmer to farmer learning, commodity tests, evaluations and advisory services. These would enable grading and evaluation of crops stored at warehouses and give assurance to banks and MFIs on the quality of collateral provided for obtaining finance by SHFs.
REFERENCES

  https://ageconsearch.umn.edu/bitstream/162144/2/1-Arora.pdf
References

### ANNEX 1: TYPES INTERVIEWS HELD AND NUMBER OF RESPONDENTS

<table>
<thead>
<tr>
<th>WRF Actors</th>
<th>Interview Tools</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Support Orgs</td>
<td>Key informant interviews</td>
<td>2</td>
</tr>
<tr>
<td>Government Orgs</td>
<td>KII</td>
<td>4</td>
</tr>
<tr>
<td>Small Holder Farmers</td>
<td>Quantitative Survey</td>
<td>400</td>
</tr>
<tr>
<td>Small Holder Farmers</td>
<td>Focus Group Discussions</td>
<td>70</td>
</tr>
<tr>
<td>Local NGOs</td>
<td>KII</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>KII</td>
<td>9</td>
</tr>
</tbody>
</table>
## ANNEX 2: MEETING AND CONTACT LIST

<table>
<thead>
<tr>
<th>Date</th>
<th>Key Informant Interviews (Org Name)</th>
<th>Location</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 7th, 2018</td>
<td>Amir Khan, Executive Director, Securities &amp; Exchange Commission</td>
<td>Islamabad</td>
<td>051-9207019 <a href="mailto:amir.khan@secp.gov.pk">amir.khan@secp.gov.pk</a></td>
</tr>
<tr>
<td>May 2nd, 2018</td>
<td>Farhat Hashmi, EVP Planning Research &amp; Technology, Zarai Taraqiati Bank Limited</td>
<td>Islamabad</td>
<td>051-9207019 <a href="mailto:amir.khan@secp.gov.pk">amir.khan@secp.gov.pk</a></td>
</tr>
<tr>
<td>May 8th, 2018</td>
<td>Ghalib Nishtar, CEO, Khushali Bank</td>
<td>Islamabad</td>
<td>(051) 111 092 092 <a href="mailto:ghalib.nishtar@kb.com.pk">ghalib.nishtar@kb.com.pk</a></td>
</tr>
<tr>
<td>June 5th, 2018</td>
<td>Sara Saeed Khan, Head of Lending Products, Telenor Microfinance Bank</td>
<td>Islamabad</td>
<td>+92 021 111 111 004 <a href="mailto:info@telenorbank.pk">info@telenorbank.pk</a></td>
</tr>
<tr>
<td>May 24th, 2018</td>
<td>Ibrar Anjum, Programme Manager, National Rural Support Programme</td>
<td>Islamabad</td>
<td>(051) 2822319 <a href="mailto:info@nrsf.org.pk">info@nrsf.org.pk</a></td>
</tr>
<tr>
<td>June 6th, 2018</td>
<td>Sharif Naseem, Head of Product Development &amp; Marketing, Central Depository Company</td>
<td>Karachi</td>
<td>0800 232 75 <a href="mailto:info@cdcpak.com">info@cdcpak.com</a></td>
</tr>
<tr>
<td>May 16th, 2018</td>
<td>Muhammad Imran, Product Manager Rural Banking, Habib Bank Limited</td>
<td>Karachi</td>
<td>(021) 35155007 <a href="mailto:mehmood@pmex.com.pk">mehmood@pmex.com.pk</a></td>
</tr>
<tr>
<td>June 13th, 2018</td>
<td>Hassan Mehmood, Head of Marketing and Business Development, Pakistan Mercantile Exchange</td>
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<td>051-2828480 <a href="mailto:contact@hbl.com">contact@hbl.com</a></td>
</tr>
<tr>
<td>June 7th, 2018</td>
<td>Huma Khalid, Financial Institution Advisory, International Finance Corporation</td>
<td>Islamabad</td>
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</tr>
<tr>
<td>May 29th, 2018</td>
<td>Zainab Saeed, Head of Research and Development, Kashf Foundation</td>
<td>Lahore</td>
<td>(051) 5124385 <a href="mailto:Zainab.saeed@kashf.org.pk">Zainab.saeed@kashf.org.pk</a></td>
</tr>
<tr>
<td>June 8th, 2018</td>
<td>Arif Nadeem, CEO, Pakistan Agriculture Coalition</td>
<td>Lahore</td>
<td>042 35776810</td>
</tr>
<tr>
<td>May 8th, 2018</td>
<td>Khalil Tetlay, CEO, Rural Support Programmes Network</td>
<td>Islamabad</td>
<td>(051) 8491270 <a href="mailto:info@rspn.pk">info@rspn.pk</a></td>
</tr>
<tr>
<td>June 8th, 2018</td>
<td>Asif Hassan, Quality Assurance &amp; Compliance, Rural Community Development Programmes</td>
<td>Lahore</td>
<td>(042) 37170280 <a href="mailto:rcdpk@gmail.com">rcdpk@gmail.com</a></td>
</tr>
<tr>
<td>May 17th, 2018</td>
<td>Atif Siddique, Country Manager, ACE Global Depository</td>
<td>Skype</td>
<td>051-2828480 <a href="mailto:contact@hbl.com">contact@hbl.com</a></td>
</tr>
<tr>
<td>May 16th, 2018</td>
<td>Ramzan Awan, Product Manager, Agility Logistics</td>
<td>Karachi</td>
<td>(021) 2810236</td>
</tr>
</tbody>
</table>
ANNEX 3: REGIONAL PRACTICES IN WRF

WRF in India: India is the world’s third largest agricultural producer, with overall production at around 600 million tons, of which food grains account for up to 40 percent, and fruits and vegetables for a sixth. However, the Indian economy is suffering from significant storage losses owing to the shortage of warehousing infrastructure (including cold storage), coupled with inefficient storage practices. After independence, federal and state Governments treated third-party warehousing as a public sector role and legislated accordingly.

The Central Warehousing Corporation (CWC) and 17 state corporations were set up to provide warehousing services to the public and issued transferable receipts for this purpose. Another parastatal enterprise, the Food Corporation of India, which dominates the supply of wheat and rice for public distribution, not only built its own warehousing infrastructure but is the main client of the public warehousing companies. To this day, most warehousing capacity is still in the hands of the public sector.

Since 2010, the CWC operated at 10.6 million tons of capacity, including bonded facilities; the state warehousing corporations operated 20.9 million tons; and the Food Corporation of India operated 28.8 million tons. These state companies together operate 60 million tons of India’s 91 million tons of agricultural warehousing capacity (excluding cold storage warehouses); they own 37 million tons of this capacity and rent the remainder. However, the management of stock in these public warehouses is not of satisfactory quality. In the late 1990s, there was a significant change in government policy toward agricultural marketing, and the Indian Government began to encourage the development of exchange trading and private sector warehousing.

Encouraged by government subsidies, different private sector parties have invested in warehouses, known locally as godowns. Today, private sector players provide 20 million tons of warehousing for their own use and about 10 million tons of public warehousing. Warehouse lending is now estimated at $3–$3.5 billion, with most stocks collaterally managed. Lending against receipts issued by government warehousing companies is a long-standing practice but has become less popular over time. Financing is mostly limited to that by public entities, which are only permitted to store in CWC and state warehousing corporation warehouses.

WRF in Sri Lanka: The Sri Lankan government, along with the World Bank and the Regional Development Bank, has launched a negotiable WRF system in 2015, initially being tested as a pilot project. This system allows farmers to store their agricultural produce at the rate of Rupees 1 for 4 months. Negotiable warehouse receipts allow transfer of ownership of any agriculture commodity stored in a warehouse without having to deliver the physical commodity. These receipts are issued in negotiable form, to be used as collateral for bank loans.

This system is still in its nascent stage and has not been implemented in any area other than the district of Galendindunuwewa, but there are plans to expand it further in the future. Project outcomes from Sri Lanka show that warehouse receipts can be a viable financial instrument for SHFs in areas with surplus production. Learnings and takeaways from this project show that land acquisition is usually a tricky issue, project sites for construction of
warehouses should be identified and all necessary clearances, especially those required from the government, for construction received during project preparation. Better project management and greater proactivity regarding the timing and depth of the restructuring will have contributed to better project performance. A more simplified design can lead to better results and achieved broader outcomes. 

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23 Ibid.
29 PWC, Building Warehousing Competitiveness, 2011.
33 Ibid.