

WAREHOUSE RECEIPT FINANCING IN PAKISTAN

UPTAKE STUDY

NOVEMBER 2017



Study on the Uptake of Warehouse Receipt Financing in Pakistan

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APEX Consulting Pakistan (APEX) has been providing policy, research, survey management, consulting and monitoring and evaluation (M&E) services for more than 15 years to the social sector in Pakistan. APEX has provided knowledge-based solutions in nearly all sectors including education, health, livelihood, microfinance, agriculture, emergency relief and disaster risk reduction.

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ABBREVIATIONS

ADB	Agricultural Development Bank (Ghana)
AGD	Ace Global Depositories
CDC	Central Depository Company
CMC	Collateral Management Company
CP	Certifiacte of Pledge
CT	Certificate of Title
ECA	Europe and Central Asia
ERF	Export Refinance Facility
EWR	Electronic Warehouse Receipt
FAO	Food and Agriculture Organization
FIP	Financial Inclusion Programme
HBL	Habib Bank Limited
LTV	Loan to Value
MFB	Microfinance Bank
NBP	National Bank of Pakistan
NFIS	National Financial Inclusion Strategy
NRSP	National Rural Support Programme
PAC	Pakistan Agriculture Coalition
PMEX	Pakistan Mercantile Exchange
PPCBL	Punjab Provincial Cooperative Bank Limited
SBP	State Bank of Pakistan
SECP	Securities and Exchange Commission of Pakistan
SGS	Societe Generale de Surveillance
UBL	United Bank Limited
WDRA	Warehouse Development and Regulatory Authority
WHR	Warehouse Receipt
ZTBL	Zarai Taraqiati Bank Limited

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EXECUTIVE SUMMARY

Commissioned by Karandaaz Pakistan, this study assesses the uptake of Warehouse Receipt (WHR) financing in Pakistan.

WHR financing is institutional credit extended by banks to farmers and traders against physical commodities stored in licensed warehouses as loan security. A well-developed ecosystem with strong institutional linkages between borrowers, banks, warehouses and auxiliary service providers is necessary for WHR financing to operate.¹ WHR financing reduces post-harvest losses of agricultural commodities and enables growers to command better prices for their produce by avoiding distress sales immediately after harvest.

This study assesses the current status of WHR financing in Pakistan through in-depth interviews with current and potential users, suppliers and regulators of the scheme including the State Bank of Pakistan (SBP), provincial food departments in Sindh and Punjab, the Securities and Exchange Commission of Pakistan (SECP), Habib Bank Ltd. (HBL), Zarai Taraqati Bank Ltd. (ZTBL), and the National Bank of Pakistan (NBP), among others. In all, 26 interviews were held in Karachi, Islamabad, and Lahore during May-June 2017.

An analysis of the price trends of major agricultural commodities over the last five years reveals that WHR financing could be a viable source of credit for wheat, rice, cotton and maize farmers in Pakistan. These commodities are storable and their post-harvest price trends over the last four to five years justify delayed marketing. However, small farmers at present would be impeded in their ability to utilize and benefit from WHR financing, mainly due to high storage costs, and their limited scale of production and market knowledge. This study finds that a certain minimum landholding is necessary for WHR financing schemes to result in profits for wheat farmers. This is likely to apply to the other grains referenced in this study. It is worth noting that 72% of farmers in Pakistan hold less than 7.41 acres of land.² With the current landholding structure it is likely to be medium and large sized farmers, traders, and middlemen who will be the immediate beneficiaries of WHR financing. Small farmers will eventually benefit from the system once it is securely established and banks have developed a better understanding of how to mitigate their risks.

Development of the WHR financing ecosystem in Pakistan is still in its very early stages. The Collateral Management Companies (Establishment & Operations) Regulations, 2017 developed by the SECP have been approved by the Federal Cabinet but await implementation. The Regulation enables the formation of Collateral Management Companies (CMC) which forms the institutional nexus for the entire system. Given that there is currently no procedure in place for licensing and operating agricultural warehouses for service provision, licensed warehouses do not exist. A severe shortage of data on existing storage facilities also continues to be one of the most pressing issues in the uptake of WHR financing in Pakistan.

¹ Auxiliary service providers would include quality and grading companies, insurance companies and logistics companies among others.

² Pakistan Bureau of Statistics: Agriculture Census. 2010-11. <http://www.pbs.gov.pk/content/agriculture-statistics-pakistan-2010-11>

Banks, for the most part, possess sufficient in-house technical expertise to develop and launch WHR financing products. Both large commercial and microfinance banks (MFBs) can utilize this model with minor adjustments to fit their existing portfolios. However, smaller banks are looking towards the leading banks such as HBL, ZTBL, and NBP for imitable financial products and to iron out unforeseen operational challenges.

In countries with successful WHR financing operations, three patterns become apparent. In Ghana, which lacks an organized market structure, NGO-assisted farmers' collectives were formed to operate warehouses, the focus being on increasing drought and famine resilience. In Ukraine and South Africa, large corporate interests spearheaded the development - setting up an indemnity fund, managing commodity procurement, warehouse operations as well as international shipping. In India, with a large and diverse commodity production base, government played the key role by establishing a Warehouse Development and Regulatory Authority (WDRA) in 2003 and by developing commodity exchanges. Currently there are three commodity exchanges operating in India, leading to a highly transparent price formation system.

Keeping in view Pakistan's agricultural production profile (crops produced, size of land-holding, etc.), the model adopted by India for the development of WHR financing seems to be the most suitable fit. The steps that Pakistan needs to take for an upsurge in WHR financing include:

- Implementation of specialized WHR financing legislation;
- Establishment of a regulatory authority for warehouse and collateral management;
- Establishment of CMCs; and
- Development of price formation mechanisms and commodity exchanges.

In order to remove the bottleneck of limited storage capacity, the provincial governments need to initiate public-private partnerships to expand storage capacity and technically upgrade warehouse and collateral management services. Involvement of private sector companies is required to meet the demand for standardized warehousing management as a service industry. Commodity grading and storage need to be made available for a wider diversity of crops, shifting the focus away from wheat only. The Near-to-Farm Storage Facility Financing Scheme being implemented by the Punjab Food Department is a good example of recent developments in the right direction.

A strong demonstrative exercise coupled with widespread awareness campaigns by the leading banks in the sector such as ZTBL, HBL, NBP, assisted by institutions like Pakistan Mercantile Exchange (PMEX), Pakistan Agriculture Coalition (PAC), and SBP will greatly aid in establishing WHR financing as a major product of the agriculture portfolio of the banks. This scheme represents a viable long term reform initiative that can lead to reduced post-harvest losses, better returns to growers and increased efficiency and transparency of agriculture commodities distribution and marketing mechanism, benefitting all stakeholders.

1. BACKGROUND & INTRODUCTION

As opposed to traditional modes of agricultural financing, WHR financing allows the use of crops instead of land as loan security and provides post-harvest working capital to the farmer. For banks, WHR financing is advantageous as it allows “lenders to immediately sell off a very liquid asset.”³ The collateral is mostly in the form of wheat, cotton, rice, maize and other grains. When the commodities are stored, the licensed warehouse issues a receipt providing evidence of physical storage of commodities, as well as the grade (quality of goods), quantity and value of the commodities, which then becomes the basis of the financing.⁴

The liquidity of the collateral stored provides banks with increased security,

making short term financing to small and medium landholders easier and less risk laden. Strong links, between the warehouses issuing the receipts and the banks providing loans, are necessary for the system to work, usually provided by an independent CMC.

WHR financing provides farmers a means of gaining access to a formal mode of credit that can break their dependency on informal channels and middlemen, allowing them to purchase input supplies for the next crop cycle. Robust WHR financing regulations provide impetus to develop an efficient network of warehousing and professional services infrastructure, reducing post-harvest losses.

‘WHR financing can break farmers’ dependency on informal channels and middlemen’

The Certificate of Pledge (CP) serves as a legal guarantee against the value of the commodity the farmer has deposited in the warehouse. The warehouse is responsible for ensuring the weight, quality and grade of the commodities stored by the buyer before issuing the CP.

The Certificate of Title (CT) amounts to legal claim of the goods stored in the warehouse. When the farmer sells the commodities either to a buyer or processor, the sale is validated by transferring the CT to the buyer. It is then the buyer’s responsibility to pay back the loan taken against the commodities.

STEPS IN WHR FINANCING

STEP 1: After harvest, a farmer deposits his crop in a licensed warehouse (operated by a centralized collateral management company) and receives two documents: (a) Certificate of Title (CT) and; (b) Certificate of Pledge (CP). The warehouse will only release the crop to the owner of both documents.

STEP 2: The farmer then applies for a loan at a bank, giving the CP to the bank as security. The bank (lender) usually advances funds as a percentage of the value of the goods. In countries with a well-established WHR financing system, this is usually around 80-90%; in countries with higher perceived risk or where the system is not fully established, the percentage loaned by the bank is usually around 50-60%.

STEP 3: Before the loan matures (typically up to nine months), the farmer sells his crop to a processor (or trader) by selling the CT (on consultation with the bank). The loan value is adjusted into the price paid by the processor.

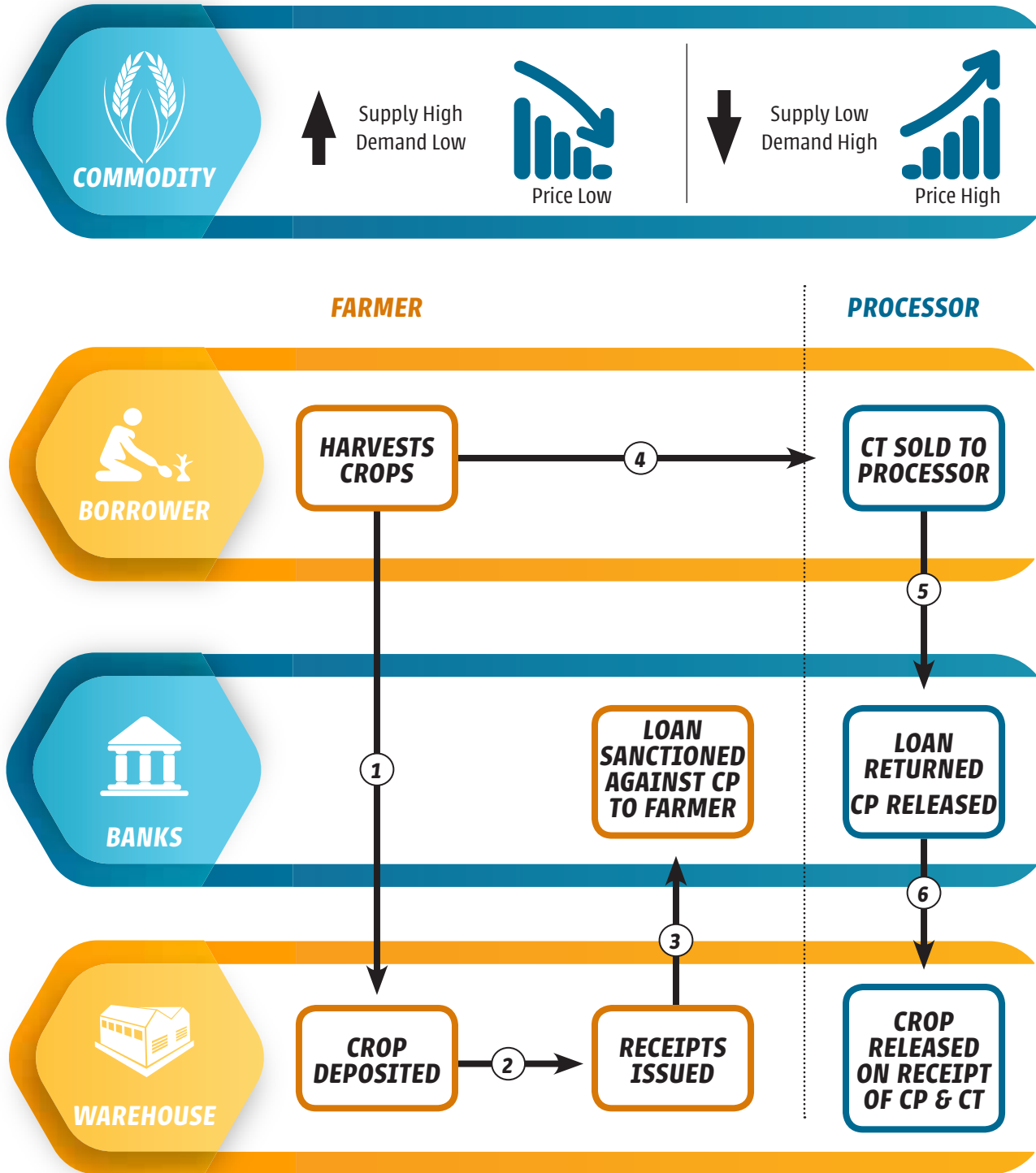
STEP 4: When the loan matures, or when he needs the crop, the processor repays the loan to the bank and in exchange receives the CP.

STEP 5: The processor, now owning both the CT (from the farmer) and the CP (from the bank) can collect the crop from the warehouse.

³ State Bank of Pakistan. Framework for Warehouse Receipt Financing System in Pakistan, P14. 2014. <http://sbp.org.pk/acd/Guidelines/2014/Draft-Frmwork-Warehouse-Receipt-Financing.pdf>

⁴ Ibid

EXHIBIT 1: PROCESS FLOW DIAGRAM FOR WHR FINANCING



Source: Authors

2. HISTORY

The underlying principles of lending against stored commodities date back to ancient times (the first written records come from ancient Mesopotamia).⁵ Since the early 18th century, WHR financing has been used for various commodities pledged as collateral against credit from banks. Each country has tailored the WHR financing model to suit its own needs and prevalent conditions.

First regulated by law in 1913 in the United States, it has become instrumental in integrating the financial and agriculture sectors. For the last 30 years, WHR financing

systems have achieved a considerable level of success and efficiency in Eastern Europe and Central Asian countries. In countries where WHR financing models are in place, performance guarantees, indemnity funds and strong institutional linkages are a common occurrence. The system has been used for different economic models, including heavily mechanized industrial farming in Bulgaria, Yugoslavia and the Ukraine, to large corporate farmers in South Africa and relatively small landholders in Ghana and most recently, India (see box below for details).

UNITED STATES

In the United States of America (USA), banks have extended credit against goods stored in warehouses since the 1800's. The USA introduced the first legislative framework for WHR financing in 1913, allowing the system to become institutionally formalized and enabling it to expand. Since 1992, the United States Warehouse Act (USWA), is being implemented by the United States Department of Agriculture (USDA), which covers regulations regarding storage facility, grading mechanisms, electronic warehouse receipts (EWRs) and dispute resolution.

According to a study carried out in the mid-20th century, there were at least 5,000 near-to-farm warehouses in the United States in 1941, about 3,000 of which were operated by large regional or national companies, and about 2,000 of which were operated by small local concerns. The annual average amount of credit outstanding and secured by warehouse receipts during this period is placed at about USD 150 million. Approximately 60% of credit was allocated to agricultural commodities.⁶

In 1990, the USWA was amended to establish EWRs for the cotton industry. Since the first issuance of EWRs in 1995, the number of banks, cooperatives, gins, merchants and warehouse operators participating in USWA's electronic-based program has more than doubled. The percentage of EWRs issued increased from 45 percent of the 15 million bales in 1995-1996 crop year to more than 95 percent of the 17 million bales in 1999-2000 crop year.

EUROPE AND CENTRAL ASIA

The fall of the Soviet Union in the 1990's, the collapse of communist era regulations and the resultant economic vacuum led financial institutions to explore alternative forms of finance in several European and Central Asian (ECA) countries. These included receivables finance (in which farmers assign the proceeds of their future crops to a bank, which in return finances the farmers' inputs) and varying models of WHR finance, such as near-to-farm warehousing and bonded warehousing. Most of these countries relied on Soviet-era or earlier laws to develop these systems but there has been considerable effort put in by government and donor agencies to formulate proper legislation in order to attract financial institutions, significant focus on the establishment of regulatory agencies, performance guarantees and indemnity funds.⁷

⁵ Hollinger F, Rutten L., Kiriakov K. World Bank, FAO working paper, St. Petersburg. The Use of WHR Financing in Agriculture in Transition Countries. 2009. <http://www.fao.org/3/a-i3339e.pdf>

⁶ Jacoby, Neil H and Saulnier, Raymond J. Financing Inventory on Field Warehouse Receipts. 1944.

⁷ Ibid

INDIA

In 2007, India enacted the Warehousing (Development and Regulation) Act of 2007, which came into force from 2010. This led to the formation of an independent Warehousing Development and Regulatory Authority. The country has since seen an enormous upsurge of almost 800% in the credit given against warehouse receipts.⁸ The portion of lending against warehouse receipts has increased from INR 50 billion in 2010 to INR 400 billion in 2016, within the total outstanding agri sector credit worth INR 8,500 billion.⁹

GHANA

The model used in Ghana serves as a good example of a WHR financing system designed specifically for small farmers. The objectives of the scheme were to reduce food insecurity, increase resilience to climate change and natural disasters while simultaneously providing financial access to farmers. The basic structure of WHR financing in Ghana is the formation of NGO assisted farmers' cooperatives that own and operate the warehouses.¹⁰

Since 1989, the NGO TechnoServe has worked closely with the Department of Co-operatives and the Agricultural Development Bank (ADB) in Ghana to encourage small scale farmers to form cooperatives and use warehouse receipts to store their crops for sale in the lean season. ADB provided loans against the farmers' grain, at 75-80% of current market value, and the grain is stored in cooperatively owned warehouses. The scheme is concentrated in the Brong-Ahafo "maize triangle" of Ghana – the major area of agricultural surplus, where annual price fluctuations are high.

From 1992 to 1996, participating farmers in this region were able to increase their profits on grain sales by an average of 94% per year, despite the high interest rate of 42% on the short-term loans. By 1997/98, more than 130 farmer groups were being assisted and for over eight years, loan repayments were an impressive 100%.

Although this system relied on NGO support in terms of its uptake and repayment record, it contrasts with grain storage that is still under parastatal control and not as vibrant. Some of the benefits resulting from the scheme include: increased food production; better food security for farming families previously forced to accept low prices when selling at the same time (harvest); reduced post-harvest losses and higher rural investment.¹¹

⁸Agarwal A. Warehouse Receipt Finance: A Game Changer in Agri-finance. 2016. <http://www.businesstoday.in/opinion/columns/warehouse-receipt-finance-a-game-changer-in-agri-finance/story/230003.html>

⁹Ibid

¹⁰Gioannucci, Daniele (ed.). A Guide to Developing Agricultural Markets and Agro-enterprises. <http://documents.worldbank.org/curated/en/747241468329432546/pdf/402640Finance11Gioannucci01PUBLIC1.pdf>

¹¹Ebo Onumah, Edward. De-Graft Acquah, Henry. Journal of Agricultural Sciences. Outreach and Sustainability of Inventory Credit Programme in Ghana.2011. <http://www.doiserbia.nb.rs/img/doi/1450-8109/2011/1450-810911021450.pdf>

2.1 DEVELOPMENT OF WHR FINANCING IN PAKISTAN

Agriculture is the largest sector of Pakistan's economy, contributing approximately 24% to GDP.¹² It is also the largest employer, accommodating 45% of the country's labour force.¹³ Pakistan's annual grain production (wheat, rice, maize and others) is estimated at 45 million tonnes; fruit and vegetable production is estimated at around 14 million tonnes.¹⁴ However the sector has been unable to attract significant investment because of lack of storage capacity and post-harvest losses which are "15-18% in case of grains and around 25-40% in fruits and vegetables."¹⁵

Lack of warehousing and storage facilities is a major infrastructural bottleneck in Pakistan's agriculture sector. In 2014, the State Bank of Pakistan (SBP) reviewed the existing system of commodity warehousing in the country, studied international best practices, and formulated a framework for WHR financing system.

In 2014 WHR financing was piloted for the first time in two districts – Khairpur in Sindh and Bahawalpur in Punjab. Along with Ace Global Depositories (AGD) as a collateral management company, the central bank initiated the groundwork for this scheme. However, the AGD pilot did not make significant headway serving the purpose of highlighting critical gaps in the ecosystem.

Operational mechanisms required for WHR financing missing at that point, included an

extensive network of standardized storage facilities in the form of near-to-farm or public warehouses. This infrastructure additionally required a net of accreditation, quality control and insurance mechanisms to be set up to promote confidence among banks to see it as a viable product for the provision of credit.

In 2015, the Federal Minister for Finance stressed the importance of WHR financing as a means to develop the agricultural sector in Pakistan, reducing wastage and improving the economic conditions of small farmers throughout the country. In the same year, the SECP drafted a legislative framework for the establishment of collateral management companies, after enacting regulation to register collateral services as a line of business recognized in law.

After the aborted AGD pilot, the push for the development of WHR financing in Pakistan has been spearheaded by the Pakistan Agriculture Coalition (PAC), a corporate backed non-profit organization aiming to introduce radical innovations to rejuvenate the agriculture sector of Pakistan. PAC has been instrumental in bringing together various stakeholders to discuss the possible avenues for promotion, development and uptake of the scheme.

PAC partnered with Agility Inc., a logistics and warehousing company, and Societe Generale de Surveillance (SGS), a quality

Pakistan produces 45 million tonnes of wheat, rice, maize and others; and around 14 million tonnes of fruits and vegetables annually.

Post-harvest losses are 15-18% in case of grains and around 25-40% in fruits and vegetables.

¹² Federal Bureau of Statistics. Agriculture Statistics. <http://www.pbs.gov.pk/content/agriculture-statistics>

¹³ Ibid

¹⁴ State Bank of Pakistan. Framework for Warehouse Receipt Financing System. P4. 2014. <http://sbp.org.pk/acd/Guidelines/2014/Draft-Frmwork-Warehouse-Receipt-Financing.pdf>

¹⁵ Ibid

Pakistan Agricultural Coalition has been instrumental in bringing together various stakeholders to discuss the possible avenues for promotion, development and uptake of the scheme.

accreditation service, to set up a pilot in Kunri near Umerkot, Sindh to test the viability of warehouse receipts primarily for a trading model.

Red chili was collected from farmers in the region and sold to large corporate processors such as National Foods, Shaan Masala, and Mehran Foods based on EWR issued by Agility. The red chili pilot is still ongoing, broadening its scope with each cycle and attracting considerable interest from banks.

According to the National Financial Inclusion Strategy (NFIS), adopted by the SBP in 2015, the aim is to set up the

WHR financing system in Pakistan by 2018. According to the roadmap set out in the strategy, development of the WHR financing system is progressing on time. With the approval and implementation of the Collateral Management and Warehousing (Establishment & Operations) Regulations 2017, there is adequate legislative definition for establishing a CMC, following which banks and other stakeholders should not take long before launching specifically tailored WHR financing products.

2.2 PROVISION AND UPTAKE OF WHR FINANCING

The development of the architecture needed for WHR financing is being nurtured by the highest levels of government, especially the SBP, in collaboration with a range of stakeholders including well-established financial institutions. After the SBP guidelines were issued in 2014, the SECP came up with the Collateral Management and Warehousing (Establishment & Operations) Regulations, which were approved by the Federal Cabinet in May 2017. At present, most of the focus is on the enactment of secondary regulations and development of the ecosystem, including infrastructure and linkages to enable the provision of WHR financing schemes. Increase in uptake will occur subsequently through awareness exercises amongst potential users, improving operational clarity and infrastructural capabilities through concerted efforts among stakeholders.

2.2.1 VIABILITY OF WHR FINANCING IN PAKISTAN

The main consideration in justifying WHR financing for agricultural commodities is a consistent increase in the price of commodities during the four to six month period after harvest. The study finds WHR financing as a viable source of credit for wheat, rice (paddy basmati), cotton and maize farmers in Pakistan.¹⁶ All these commodities are storable and their post-harvest price trends over the last four to five years justify delayed marketing. On average wheat prices have appreciated 13.4% annually in the six to seven months

after harvest based on data from 2012 to 2016.¹⁷ Similarly rice also registered an average increase of 9.5% in the three months after harvest from 2013 till 2016. Changes in the post-harvest price of maize are more pronounced than wheat and rice, increasing 33%, 14.6%, and 27% respectively in 2012-13, 2013- 14, and 2015-16 between December-April. If stored without loss of usability, cotton can also be considered for WHR financing. Post-harvest cotton prices rose by 29%, 12.7%, 32%, and 11.9% respectively in 2012-13, 2013-14, 2015-16 and 2016- 17 between September-March.

¹⁶ Commodities with more specialized storage requirements and complex value chains were not explored in this study.

¹⁷ Pakistan Bureau of Statistics. Agricultural Market Index Statistics (AMIS). <http://www.amis.pk/Agristatistics/Statistics.aspx>

2.2.2 WHR FINANCING AND THE SMALL FARMER

In Pakistan the majority (85%) of farmers have landholdings ranging from 2.5 to 20 acres.¹⁸ Agriculture in Pakistan still lags behind other countries in adopting modern, mechanized practices that have revolutionized agriculture elsewhere in the world in terms of yield maximization and economic efficiency during the past two decades. Small farmers at present are impeded in their ability to utilize and benefit from WHR financing, mainly due to high cost of input supplies and relatively low profit margins.

An average small farmer with less than 12 acres of land produces around 175 maunds of wheat per cycle (25 maunds is equivalent to one tonne). After setting aside an amount for domestic use and selling a certain amount for meeting immediate financial needs, the remaining volume is usually not viable for long-term storage, as it will incur additional transportation and storage costs. The financing received by the small farmer is through informal channels at extremely high interest rates (upwards of 50%), forcing him into situations of cyclical debt.¹⁹ Currently, the middleman (arhi) plays the role of financier, transporter, warehouse operator, aggregator, and trader simultaneously. Small farmers' dependency on the arhi, reduces his ability to trade in the market and limits profit margins.

As shown in later sections a minimum landholding of 12.3 acres will result in an increase in revenue of approximately 7.6% for the wheat farmer through the use of WHR financing. Revenues increase substantially with larger landholdings. Most probably, large and medium sized farmers, traders, and middlemen will be the immediate beneficiaries of WHR financing, with the benefits eventually reaching small farmer once the system is securely established and operational costs are rationalized.

2.2.3 STORAGE INFRASTRUCTURE

A severe lack of licensed storage infrastructure remains the most pressing shortcoming in the uptake of WHR financing in Pakistan. Along with a shortage of data on storage facilities, there is currently no procedure in place for licensing and operating a warehouse for service provision, a fundamental operational requirement for WHR financing. The storage facilities currently in place are operated by private corporations, such as Agility Inc., that deal primarily in freight and logistics, or traders and aggregators of agricultural and industrial commodities. Players in the agricultural sector who have established storage capacities are able to avail a rudimentary form of WHR financing known as muqaddam or pledge financing. This procedure enables traders to obtain loans against commodities pledged in privately owned warehouses with an appointed person known as a muqaddam to guard the stock. Traders are further facilitated by the SBP's Export Refinance Facility (ERF) through which they can access loans of up to 90% loan to value (LTV) at 3% interest. Currently, the total storage capacity of Pakistan is not sufficient to intake the minimum threshold of 30% of agriculture produce viable for the success of WHR financing.

2.2.4 LENDERS' INTEREST

Banks, for the most part, possess sufficient in-house technical expertise to initiate products on their end. Both large commercial and microfinance banks can utilize the WHR financing model with minor adjustments to fit their existing portfolios. However, smaller banks are looking towards the leading commercial banks such as HBL, ZTBL, and NBP to initiate the product on a real-world basis (scaled up operations with usable products in banks and near-farm storage facility provision for farmers).

Banks understand that the SBP and the Ministry of Law are working on the draft law which would give it legal cover and make electronic warehouse receipts a directly negotiable instrument in legal terms.²⁰

¹⁸ Pakistan Bureau of Statistics. Pakistan Agriculture Statistics: Land Usage Statistics – Punjab (by ownership). 2015-16. <http://www.pbs.gov.pk/agri-stat-tables>

¹⁹ Haq, Aban; et al. Pakistan Microfinance Network, National Institute of Banking and Finance. Who is the 'arhi': Understanding the commission agent's role in the agriculture supply chain. 2013. <https://www.theigc.org/wp-content/uploads/2014/09/Haq-Et-Al-2013-Working-Paper.pdf>

²⁰ Kiriakov, K. Necessary Conditions for an Effective Warehouse Receipts Activity. USAID Concept Paper. October 2007. <https://www.agrifacility.org/resource/necessary-conditions-eff-ective-warehouse-receipts-activity>

2.3 CONSTRAINTS ON THE UPTAKE OF WHR FINANCING IN PAKISTAN

The study gaps several gaps in the infrastructural and institutional landscape that are required for the successful implementation of WHR financing. Since the development of the WHR financing model is still in its early stages in Pakistan, efforts need to be planned to address these shortcomings, which will lead to a comprehensive improvement in the agri-finance sector of the country.

- Majority of farmers have landholding of under 20 acres; leading to reduced efficiency in farming practices, lack of mechanization, high input and labor costs ultimately resulting in reduced financial benefits.
- Commodity prices are not competitive in the international market, hindering application of free market trade for major crops.
- Alternative mechanisms for financing are firmly established in the agricultural sector. Arthis currently provide complete crop cycle financing to smallholder farmers while traders and processors can avail muqaddam financing.
- The warehousing industry as a service provision is severely underdeveloped. No procedures are in place for licensing of agri-storage facilities. WHR financing is impeded by a shortage of data on storage capacity and location of facilities.
- Incomplete legislation and uncertain regulatory framework are major deterrents to substantial investments in WHR financing. The absence of CMCs and warehouse/storage infrastructure, and lack of awareness about the scheme among institutions further compound the slow uptake of the model in Pakistan.

2.4 WAY FORWARD

There is still a great amount of work to be done in terms of defining operational mechanisms, legal standing of the instruments and institutional roles before WHR financing can have a significant impact on agri-finance in Pakistan. This study identifies these functional gaps and discusses the roles of each of the value chain actors in addressing these shortcomings. The following points require crucial attention:

- Pakistan should opt for specialized WHR financing legislation tailored to industry needs in terms of commodities, storage, and marketing.
- Establishing a strong and efficient regulatory authority to take care of warehouse licensing and regulatory and inspection procedures which will result in “overall trust in the system among depositors, warehouse operators, and financial institutions”.²¹
- Public-private partnership to expand storage capacity and technically upgrade operational mechanisms seem to be the optimal path to achieve a viable storage infrastructure for WHR financing. The federal and provincial governments, through their provincial food departments, are best placed to develop a network of warehouses that can cater to the country’s major crop producing areas.
- Further refinements in the legislative cover provided to banks in terms of credit guarantees and the negotiability and transferability of warehouse receipts need to be put in place.
- A strong demonstrative exercise coupled with widespread awareness campaigns is necessary to establish WHR financing as a viable area for development.

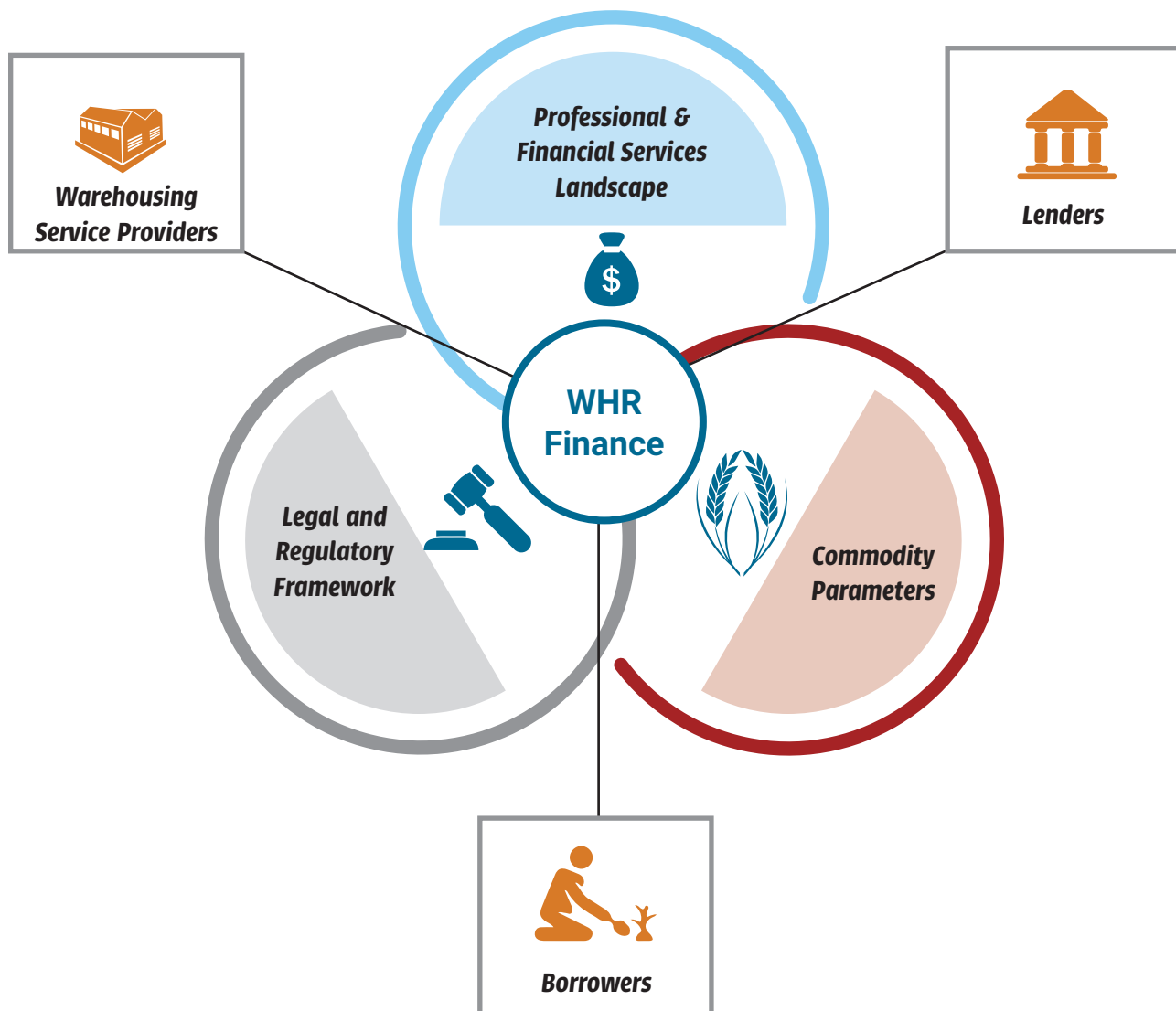
²¹ USAID. Necessary Conditions for an Effective Warehouse Receipts Activity. 2007. <https://www.agrifinfacility.org/resource/necessary-conditions-eff-ective-warehouse-receipts-activity>

3. THE ECOSYSTEM FOR WHR FINANCING IN PAKISTAN

WHR financing requires an enabling landscape that meets specific conditions. The landscape that WHR financing operates in is divided into three broad areas: Commodities, Legal and Regulatory Framework, and a complementary Professional and Financial Services Landscape. Since WHR financing demands strong network linkages between all these areas and the actors operating within them, it is useful to analyze them independently with regards to their status in Pakistan.

This study takes a categorical approach for undertaking a situational analysis of WHR financing and its associated stakeholders. The entire ecosystem has been divided into six total components, composed of three categories of actors and three sets of conditions or parameters in which these actors can operate to enable implementation and uptake of an effective WHR financing system in Pakistan.

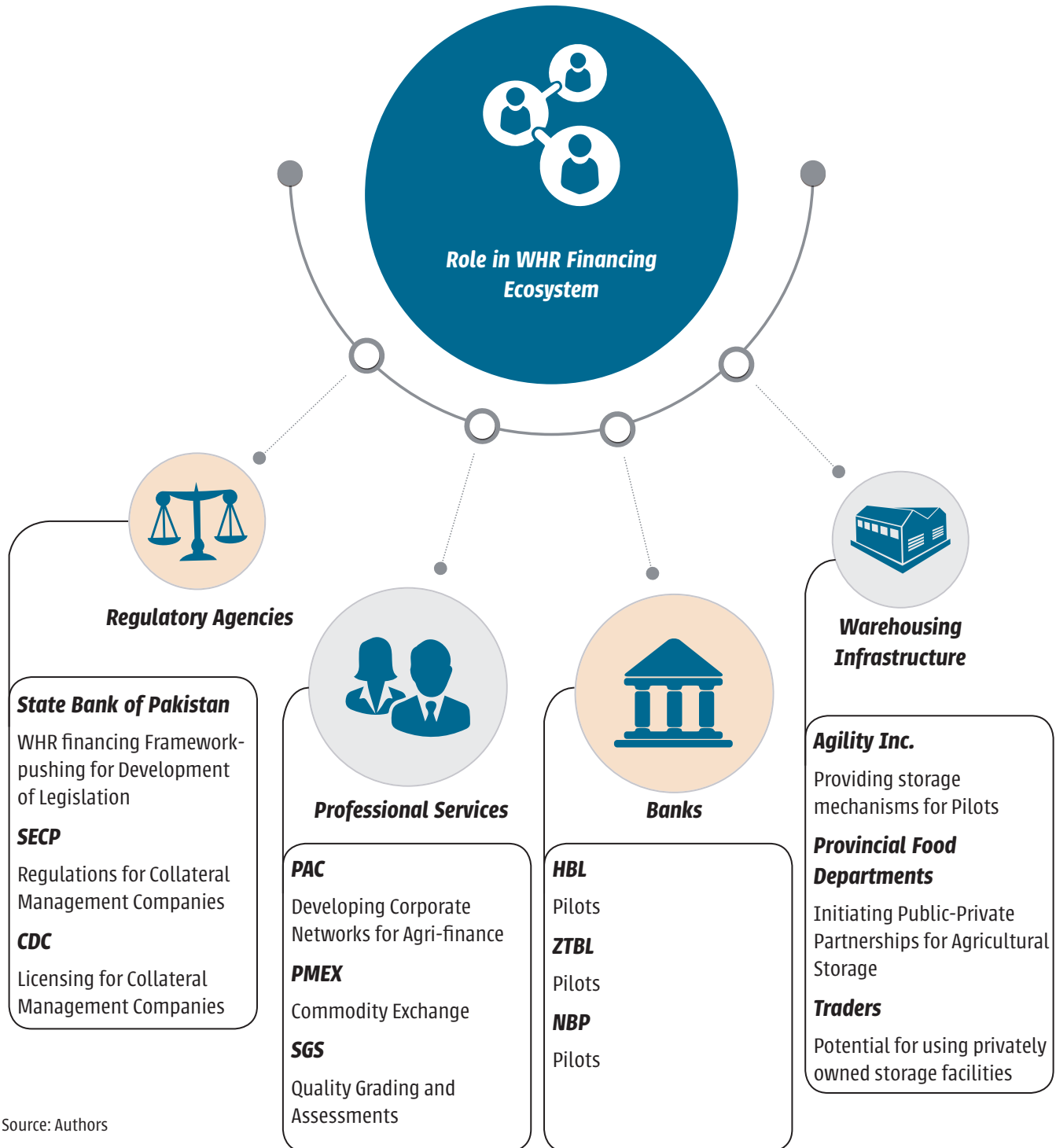
EXHIBIT 2: ACTORS AND CONDITIONAL REQUIREMENTS FOR WHR FINANCING



Source: Authors

The following sections of the report explain each component in detail, elaborating the essential requirements that need to be met for the effective functioning of WHR financing systems. They also discuss the research findings on current situation of these components in Pakistan, analyzing where gaps exist in the ecosystem and what steps can be taken to fill them.

EXHIBIT 3: CURRENT PLAYERS IN THE DEVELOPMENT OF WHR FINANCING IN PAKISTAN



Source: Authors

3.1 PRODUCTION AND STORAGE OF COMMODITIES

The WHR financing model is built around the storage of commodities as collateral for financing. These commodities need to meet certain conditions in order to be viable for WHR financing. Storability, scale of production and a post-harvest price increase that justifies delayed marketing are therefore essential considerations.

3.1.1 PRODUCTION OF IMPORTANT STORABLE CROPS

Pakistan has two crop seasons: kharif and rabi. The sowing in kharif season starts from April-June, whereas harvesting begins during October-December. Rice, sugarcane, cotton, maize, green gram (moong), black gram (mash), millet (bajra) and sorghum (jowar) are kharif crops. The sowing in rabi begins in October-December while harvesting is done in April-May. Rabi crops include wheat, gram, lentil (masoor), tobacco, rapeseed, barley and mustard.

Agricultural statistics published annually

by the Pakistan Bureau of Statistics show that the scale of production for major crops is sufficient in theory to support WHR financing schemes. The five major crops produced in Pakistan have an annual yield in excess of a million tonnes, a hypothetical benchmark used for determining the viability of a commodity for WHR financing.²²

During the last seven years, cotton production remained around 2-3 million tonnes and wheat production has been around 23-25 million tonnes. Rice production stayed at 4-7 million tonnes per annum (See Exhibit 4). In 2015-16, cotton production was estimated at 2.2 million tonnes whereas wheat production in Pakistan was at 25.4 million tonnes. Cotton, wheat, rice and maize can be stored for considerable time without loss of usability. Therefore, these crops are good candidates in the initial stages of launching WHR financing in Pakistan.

Storability, scale of production and a post-harvest price increase that justifies delayed marketing are essential considerations for WHR financing

EXHIBIT 4: PRODUCTION OF IMPORTANT CROPS (X1000 TONNES)

Years	Cotton	Sugarcane	Rice	Maize	Wheat
2009-10	2,811	49,373	6,883	3,261	23,311
2010-11	2,495	55,309	4,823	3,707	25,214
2011-12	2,959	58,397	6,160	4,338	23,473
2012-13	2,837	63,750	5,536	4,220	24,211
2013-14	2,780	67,460	6,798	4,944	25,979
2014-15	3,039	62,826	7,003	4,937	25,086
2015-16	2,193	65,475	6,811	4,920	25,482

Source: Pakistan Bureau of Statistics

²² USAID. Necessary Conditions for an Effective Warehouse Receipts Activity. 2007. <https://www.agrifinfacility.org/resource/necessary-conditions-eff-ective-warehouse-receipts-activity>

SUGARCANE

Sugarcane is the largest commodity being produced in Pakistan in terms of weight (65 million tonnes in 2015-16). That is due to the amount of water stored in the plant and the harvesting of the whole stalk, compared to grains for wheat and rice. The sugar extracted from sugarcane is a highly lucrative product, being used for consumer food products by local as well as multinational companies.

However, the nature of the sugarcane stalk as a commodity is not suitable for WHR financing.

The criteria for WHR financing require that the commodity be storable without significant loss in weight or quality.

The price of the commodity should increase over a four to six months period to justify delayed marketing and meet the storage cost incurred. Sugarcane, on the other hand undergoes rapid loss in weight impacting its high water and sucrose content, leading to a reduction in the value of the commodity. Over extended periods, enzymatic browning deteriorates the crop, affecting the content and quality of the sugar.²³ Thus, the farmer will not be able to benefit from storing sugarcane stalks in WHR financing schemes as there is no post-harvest price increase for unprocessed sugarcane.

3.1.2 POST-HARVEST LOSSES

There are significant losses in the current wheat supply chain. Due to storage under poor conditions in godowns and open storage facilities (gunjies) wheat losses are respectively 3.3% and 7.4% of the amount stored in public facilities.²⁴ Post-harvest losses due to lack of storage facilities are huge when measured in monetary term. Based on the support price for wheat and total wheat production in 2017, losses may be estimated at approximately PKR 123 billion. Aggregate post-harvest grain losses due to lack of adequate storage capacity, are estimated at 15% in Pakistan (see Exhibit 5). According to some estimates about 10 million people can be fed by avoiding these losses. Post-harvest aggregate grain losses can be significantly reduced, if adequate storage capacity is available with the launch of WHR financing.

Annual post-harvest losses in horticultural crops are estimated at PKR 134 billion in 2015.²⁵ In 2014-15, the country produced 7.25 million tonnes of vegetables and 6.80 million tonnes of fruits amounting to a total value of PKR 537 billion.²⁶ Assuming 25% losses of horticultural crops means 3.5 million tonnes are lost. Pakistan needs to have adequate post-harvest treatments along with development of technical competency in areas like preserving quality (especially for exportable commodities), pre-storage treatments, crop storage, pest management, packaging, primary and secondary crop processing, qualitative and quantitative loss assessments, and adoption of international best practices.

EXHIBIT 5: GRAIN LOSSES IN STORAGE (%)

Province	Aggregate Loss	Threshing	Farm level	Market level	Public Sector	Terminal	Consumer level
Punjab	13.78	1.93	1.45	7.35	5.49	---	6.51
Sindh	15.69	1.72	1.30	6.93	6.23	1.91	8.61
KPK	14.70	1.46	2.69	3.39	3.61	---	8.46
Balochistan	15.60	1.49	1.69	4.63	5.19	---	7.07
Pakistan	15.30	1.59	1.47	7.83	6.45	1.91	7.97

SOURCE: State Bank of Pakistan. Framework for Warehouse Receipt Financing System in Pakistan, 2014

²³ Storage of Sugarcane Stalks. Post-Harvest Biology and Technology, V.86. P154-158. December 2013.

²⁴ Sattar, Muhammad; et al. Grain Losses of Wheat as Affected by Different Harvesting and Threshing Technique. International Journal of Research in Agriculture and Forestry. 2015. <http://www.ijraf.org/pdf/v2-i6/4.pdf>

²⁵ Ahmed, Amin. Crop loss management, Dawn, Economic and Business Review. December 2016. <https://www.dawn.com/news/1300444/crop-loss-management>

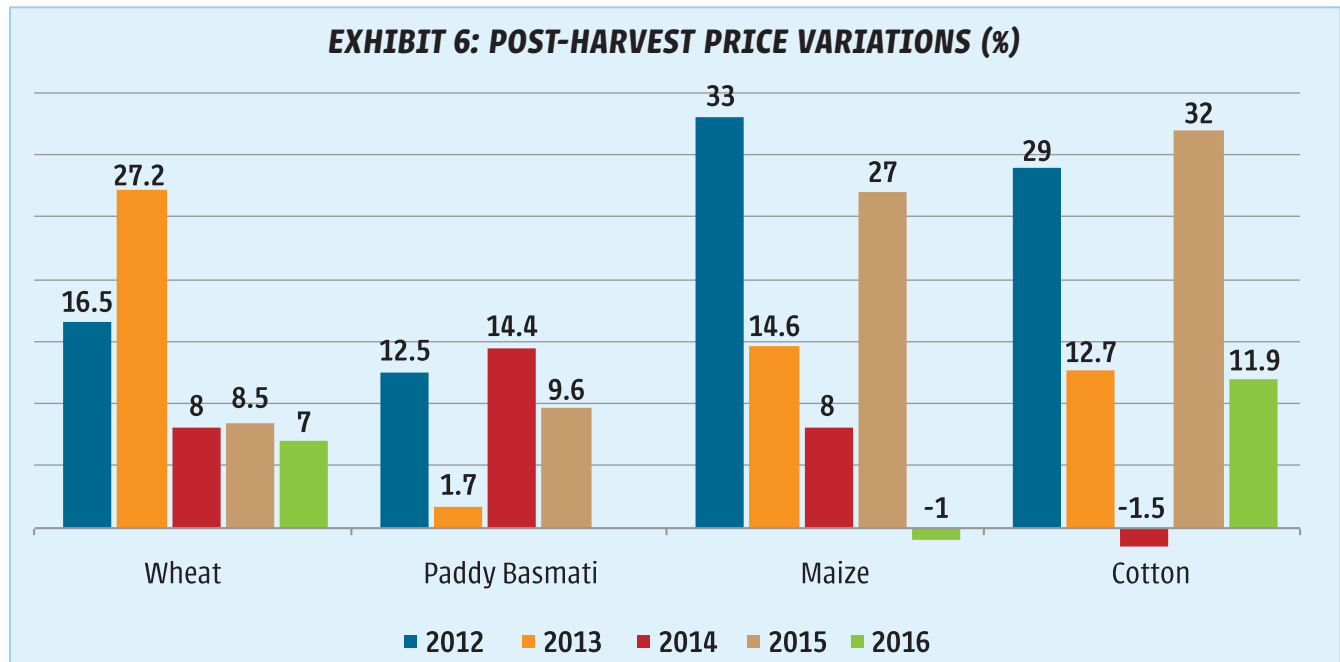
²⁶ Ibid

3.1.3 POST-HARVEST PRICE VARIATIONS

One of the prerequisites for the successful implementation of WHR financing is a significant rise in post-harvest prices of crops. A closer look at the prices for wheat, rice, cotton and maize demonstrate considerable positive volatility over the past five years (see Exhibit 6). Wheat prices increased by as much as 16.5% and 27.2%, respectively in 2012 and 2013 between May-December, indicating potential increments in revenue for farmers had there been a WHR financing system in place. Similarly, post-harvest prices of paddy basmati increased by 12.5%, 14.4% and 9.6% respectively in 2012-13, 2014-15 and 2015-16 between December-March. Changes in the post-harvest price of maize have been more pronounced than for wheat and paddy basmati. With price variation

being as high as 33%, 14.6%, and 27%, respectively in 2012-13, 2013-14 and 2015-16 between December-April. Cotton is also a suitable candidate for WHR financing as it may be stored without loss of usability. The post-harvest price of cotton rose by 29%, 12.7%, 32% and 11.9%, respectively in 2012-13, 2013-14, 2015-16 and 2016-17 between September-March.

Overall, price variations for wheat (13.4%), rice (9.6%), maize (16.3%) and cotton (16.8%) have been well in excess of 5% based on data for the last five years. Only in two instances, one for maize and one for cotton, have price variations been negative in the post-harvest season.



Source: Government of Punjab. Data obtained from AMIS in May, 2017.

3.1.4 THE ECONOMICS OF WHR FINANCING

This section develops a model examining the gain or loss to farmers if WHR financing is made available (see Exhibit 7). The model is based on wheat, a staple and widely cultivated crop in Pakistan, and its actual post-harvest price volatility between May-Dec 2012. In 2012, the government's wheat procurement price was PKR 994 per maund. The market price is usually less than the support price and in turn, the purchase price paid by arthis is around 20% less than the market price.

The model represents a typical farm in the Punjab, Pakistan's largest province. The model evaluates a farmer's potential gain and is based on the following assumptions:

- The average yield of wheat is 30 maunds per acre.
- As per market practice 2.5% of the sale value is deducted for storage losses.
- The collateral manager charge for rent, insurance etc. is 4.3% of initial sale value.
- The support price is PKR 994 per maund and the post-harvest market price is PKR 1,158.
- The loan to commodity value is assumed at 70%.
- The mark-up on the loan is assumed to be 10% per annum.

In case of selling his produce at the support price of PKR 994, which as mentioned above, is generally higher than the market price, the net payment to a farmer would be PKR 29,075 after deduction of 2.5% charged at the mandi.

Instead, if the WHR financing system had been in place, the net payment to the farmer would have been PKR 31,279, i.e., a gain of 7.6% in income or PKR 2,205 per acre because of delayed sale. The gain in income to a small farmer with 12.35 acres of land in one cropping cycle (about 6 months) would have been PKR 27,231 in 2012. As expected, the gain in income to medium (24.7 acres) and large (49.4 acres) farmers would have been much larger: PKR 54,462 and PKR 108,924 respectively.

Since changes in the post-harvest price of paddy basmati are not robust, the model will predict a lower revenue gain for rice farmers. Changes in the post-harvest price of maize are more pronounced than wheat and paddy basmati; the model will thus predict higher revenue gain for farmers. Variations in the post-harvest price of cotton also predict good potential of gain. However, the prices of paddy basmati rice, maize and cotton appear to have been much more volatile than wheat in the past five years. Prices of these commodities are determined in a free market mechanism as opposed to wheat prices which are primarily impacted by the government support price. Thus, price volatility can expose farmers to a significant profit or loss scenario depending upon the extent of increase or decrease in post-harvest prices. It should also be kept in mind that multiple factors can impact agricultural profitability of individual farmers, including input prices, yields and climatic factors.

The net payment to the farmer would have been at PKR 31,279/- with a gain of 7.6% in income

²⁷ Based on discussion with Pakistan Agriculture Coalition, Karachi

EXHIBIT 7: BUSINESS MODEL BASED ON 16.5% WHEAT PRICE INCREASE BETWEEN MAY-DEC 2012

Assumptions	
Wheat yield	30 maunds per acre
Deduction at <i>mandi</i>	2.5% of sale price
Agri-collateral manager charge	4.3% of sale value
Loan as % of commodity value	70%
Mark-up on loan	10% per annum

Without WHR	
Price May 2012 (PKR)	994
Per acre yield (<i>maund</i>)	30
Value of wheat (PKR)	29,820
2.5% deduction at <i>mandi</i> (PKR)	-745.5
Net payment to farmer (PKR)	29,075

With WHR	
Price Dec 2012 (PKR)	1,158
per acre yield (<i>maund</i>)	30
Value of wheat (PKR)	34,740
Mark up on loans (PKR)	-1,419
4.3% Agri-collateral manager charge (PKR)	-1,297
2.5% deduction at warehouse (PKR)	-7,45.5
Net payment to farmer (PKR)	31,279
Gain to farmer (PKR/acre)	2,205
Gain to farmer in % terms	7.6%

Overall Gain to Small, Medium and Large Farmer			
	Per Acre Gain (PKR)	Acres	Total Gain to Farmer (PKR)
Small farmer	2,205	12.35	27,231
Medium farmer		24.7	54,462
Large farmer		49.4	108,924

Source: Authors

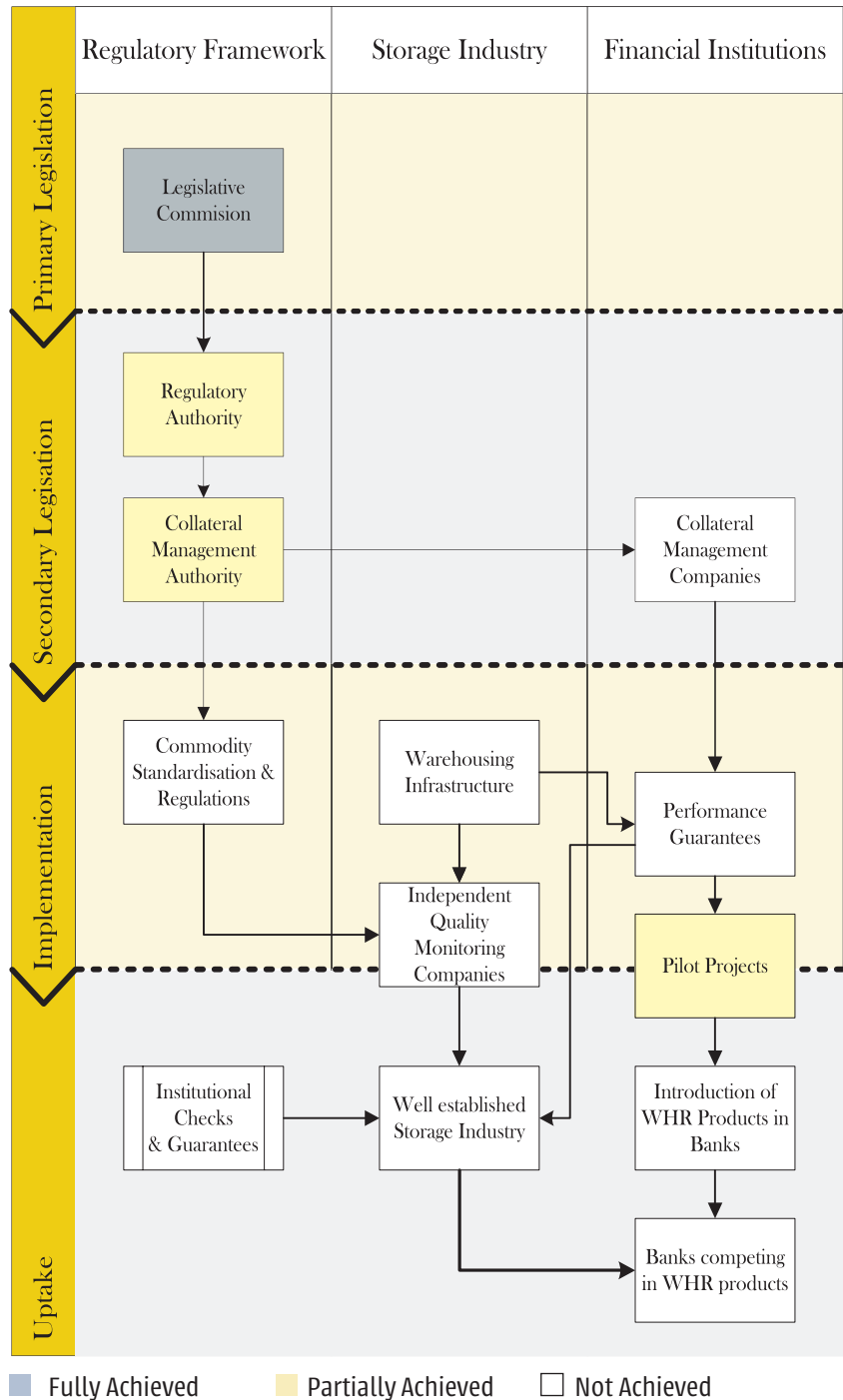
3.2 LEGAL AND REGULATORY FRAMEWORK

A strong legislative and regulatory framework is a must for the proper functioning of WHR system. According to the Food and Agriculture Organisation of the United Nations (FAO), “a supportive legal framework is a common precondition for confidence in and acceptance of warehouse receipts for producers, credit providers, and market participants.” The framework for establishing a WHR system focuses on structural components, including legislation, registration, licensing and inspection of warehouses. Development can occur along two lines, adapting existing legislation, or developing a specialized WHR finance legislative framework.

The first approach’s direction is usually broad-based encompassing various commodities and various commercial practices (e.g. Poland, Ukraine and Indonesia). Specialized WHR legislation focuses on main commodities to be used as collateral (e.g. Hungary, Slovakia, Bulgaria and Kazakhstan).

Specialized WHR legislation is preferred because it better reflects specifics in terms of commodities, storage, and marketing. Majority of countries, according to FAO, opt for “a comprehensive specific law governing the overall warehouse receipt system.” Specialized WHR legislation is usually developed in two phases. The primary legislation vis-à-vis WHR system is simple and clear providing the structural framework. The secondary legislation is detailed, dealing with technical specifics of WHR system and commodities.

EXHIBIT 8: ESSENTIAL FRAMEWORK FOR EFFECTIVE WHR FINANCING



Source: Authors

3.2.1 REGULATORY FRAMEWORK

A robust regulatory framework requires that a government regulatory agency be in place. Such an agency would be responsible for the licensing, regulatory and inspection procedures of warehouses. This agency would also be seen as one of the principal levels of the system's security, becoming a reliable source of information for banks for due diligence of warehouses and providing market information for negotiating credit conditions. A well-structured and efficient government regulatory agency contributes to overall trust in the system among depositors, warehouse operators, and financial institutions.

The other regulatory approach of collateral management is used in countries where

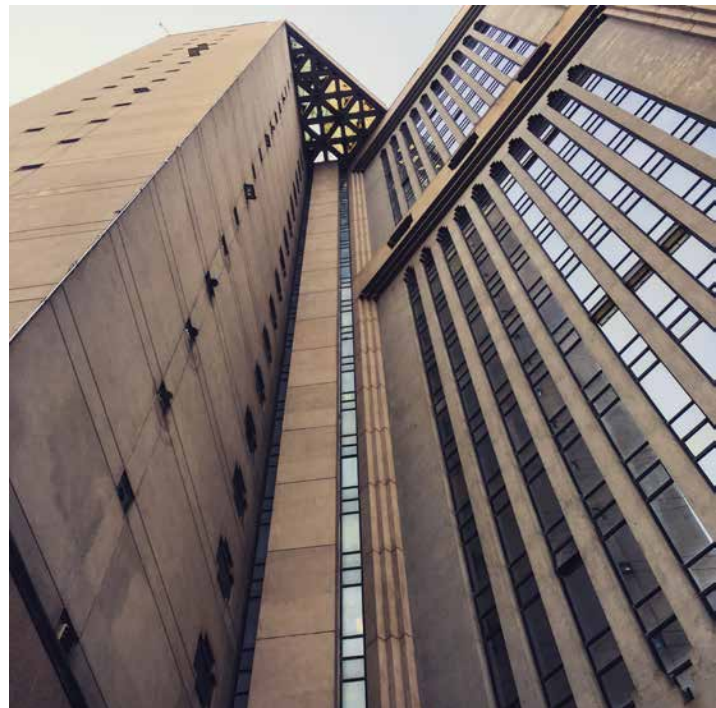
financial institutions see potential in commodity-based financing despite the lack of proper legal framework. The model of private surveying companies has been used in countries with insufficient political will for creating enabling legislation or/ and where the marketing infrastructure is insufficient.

Going beyond “private” agreements, a reliable government regulatory agency for WHR is more attractive for financial institutions as the system attracts a large number of participants and protects the interests of all parties involved. It also creates an environment for implementing the WHR system countrywide.

3.2.2 SECP REGULATIONS FOR COLLATERAL MANAGEMENT

A major gap preventing uptake of WHR schemes in Pakistan is the absence of a central agency to serve as a registry for all the collateral deposited in the warehouses, licensing and accreditation of these warehouses and issuance of the actual warehouse receipt, electronic or otherwise. This institution, usually referred to as a collateral management company (CMC), is responsible for the implementation of secondary legislation concerning transfers of WHRs as a negotiable instrument, establishing transactional and operational procedures for WHRs such as storage facility charges, commodity quality parameters and monitoring protocols as well as ensuring technical competency of storage facilities.

The SECP, responsible for the classification and regulation of all corporate bodies operating in Pakistan, had previously forwarded a recommendation to the Federal Government to notify that collateral management companies are recognized within the Companies Ordinance.



○

ZTBL has drafted the new law which has been approved by the Ministry of Finance and is being examined by the Ministry of Law

○

ROLE OF CMC AS DEFINED BY SECP REGULATIONS

The role of this regulation will be to operationalize the CMC's roles and responsibilities, and place the CMC into the existing institutional framework. The main functions of a CMC are:

- Organizing and implementing licensing processes
- Maintaining database of warehouses
- Executing initial, periodical and special exams of the financial, operational and technical condition of warehouses as well as quality and quantity of the stored grain; and collecting orders for printing of warehouse receipts
- Collecting orders for printing of warehouse receipts.

The CMC will connect the service related infrastructure to the information management systems and provide the basis necessary for banks and borrowers to participate in WHR financing. The ultimate goal which policy level agencies are working towards is the enabling of futures trading of commodities based on WHRs issued by the CMC, with Pakistan Mercantile Exchange (PMEX) playing the role of an online trading platform for agricultural commodities..

3.2.3 LEGISLATIVE DEVELOPMENTS

The current 1881 Act for Negotiable Instruments does not recognize electronic warehouse receipts as a directly negotiable instrument such as a cheque, pay order, bill of exchange, bill of lading, etc. As it is an Act, changes in the law will have to be passed by the legislature. As for the other law in which changes are being drafted by the Federal Government, Loans for Agricultural Commercial and Industrial Produce (LACIP) Act 1973 is being replaced by a new law which will change agricultural passbook with an e-passbook as a lending instrument. With electronic receipts being recognized as collateral under the SBP framework, electronic receipts will also need to be mentioned in the new law as a collateral class. ZTBL has drafted the new law which has been approved by the Ministry of Finance and is being examined by the Ministry of Law before it is sent to the legislature for promulgation as a new Act.²⁸

Bankers also referred to the need to make changes in current laws and regulations which, due to hoarding concerns,²⁹ impose restrictions that are in conflict with provisions of the new law on CMCS.³⁰

²⁸ Interview with Mr. Abdul Qadeer Javaid, SVP, ZTBL.

²⁹ Price Control and Prevention of Profiteering and Hoarding Act. 1977

³⁰ Interview with Mr. Ali Raza. Head of Agri-credit, Faysal Bank.

3.3 PROFESSIONAL & FINANCIAL SERVICES LANDSCAPE

WHR financing requires a complementary network of professional and financial services, such as insurance mechanisms, performance guarantees, and quality verification services. These fields are specialized areas in their own right that enable the smooth functioning of WHR financing.

3.3.1 INSURANCE MECHANISMS

One of the core elements of a well-developed warehouse receipt system includes insurance and financial performance guarantees. A warehouse operator must insure not only its premises and the goods therein, but also the risks related to its staff. Each entity issuing warehouse receipts must have professional indemnity, insurance, protecting the depositor and bank against risks such as theft, fraud or negligence by the warehouse operator's staff. Banks need to verify that the limits of the insurance cover provided by the warehouse operator give them an adequate level of coverage.

If warehouse receipts are not issued by reputed, international warehousing companies or collateral managers, the credit quality of the local warehouse operator can be upgraded by using insurance bonds or letters of guarantee, or by developing indemnity funds. The choice of the most appropriate method should be based on analysis of the local market infrastructure, evaluation of the risks, and the availability of financial and insurance services and products.

SECP has drafted regulations which require collateral management companies to accredit warehouses which are insured and warehouse operators to insure depositors' produce. In the Collateral Management and Warehousing (Establishment & Operations) Regulations 2017, according to provision

5(j)(viii) a collateral management company will accredit a warehouse only when "the warehouse is comprehensively insured for incidents including but not limited to natural disaster, fire, and theft." Similarly, in provision 16 of the regulations, related to duties of a warehouse operator, it is stated that a warehouse operator "shall be responsible to maintain the quality, quantity and weight of the produce of the depositor and shall obtain necessary insurance for the produce stored in his warehouse".

Moreover, according to provision 24(2) (k) of the aforementioned regulations, concerning standardization and issuance of Warehouse Receipts, the warehouse receipt issued by a CMC will contain, among other particulars, name of the "insurance company indemnifying for fire, flood, theft, burglary, misappropriation, riots, strikes or terrorism".

Apart from commodity and warehouse insurance, internationally, it is considered critical to have insurance against potential fraud by the staff of collateral management companies. If the losses are not too high, the collateral manager will compensate the depositor or the bank from its own capital; if the losses are high, the collateral manager's insurance will cover them. The insurance cover carried by international collateral managers is much higher than the amounts that could feasibly be stolen

Insurance mechanisms are well developed in the country and one does not foresee any problem in adopting insurance mechanism in the warehouse receipt system in Pakistan.



from each warehouse or by each fraudulent staff member (banks make sure that this is so), so clients are well protected. However, CMCs themselves are highly vulnerable; if they are the victim of a large fraud and have to call on their insurance, as their insurance premiums will rise so much that they are effectively priced out of the market.

There are two possible approaches to improving this aspect of the warehousing system: setting up an indemnity fund that guarantees the warehouse receipts issued by (certain) warehouses; or insisting that warehouse operators put their own bonding and insurance arrangements in place.

Insurance mechanisms are well developed in Pakistan and one does not foresee any problem in adopting insurance mechanism in the warehouse receipt

system. However, this can only take place if adequate infrastructure is in place. Some of the well known and well reputed insurance companies in the country include Adamjee Insurance, Jubilee Life Insurance, Allianz EFU, State Life Insurance, Askari Insurance Company. There are more than fifty insurance companies operating in Pakistan. According to the SBP's Framework for WHR Financing System, all banks, insurance companies and warehouse owners are encouraged to participate in their individual capacities. Insurance companies are encouraged to develop products to help beneficiaries including farmers, aggregators, traders and arthis in hedging price, commodity and other associated risks, and structure indemnity products for warehouses and collateral management companies to add a layer of safety for the participants.

Raising the start-up capital for an indemnity fund is often a challenge

3.3.2 PERFORMANCE GUARANTEES AND INDEMNITY FUNDS

For warehouse receipts to be accepted by traders and banks there must be a performance guarantee mechanism in place for warehouses. This guarantee will provide compensation if stored goods do not match what is specified by the receipt, either due to negligence or fraud by the warehouse. Without such guarantees farmers and traders will be reluctant to store crops and banks will be unwilling to accept receipts as collateral for financing.

In Pakistan, there is no example or culture of indemnity funds. Performance guarantees issued by insurance companies are also not widely accepted. Instead of performance guarantees issued by the insurance companies, bank guarantees are the most acceptable form of guarantees in the country.

Performance guarantees are usually in

the form of insurance bonds or letters of credit. These are sometimes supplemented with an indemnity fund, created through contributions from private warehouses, and collected as part of the fee charged to customers. Indemnity funds reduce the cost of insurance bonds or letters of credit by spreading the risks and making guarantees accessible to smaller warehouses. This broadens the market for warehouse service providers and increases competition in storage.

Raising the start-up capital for an indemnity fund is often a challenge and as a result in some countries, governments provide the funds. The indemnity fund has to be carefully designed so that it does not result in good warehouse operators paying for the mismanagement and fraud of competitors.

Some countries use a model where strong warehousing corporations form co-operative partnerships to establish a well-developed warehousing network. There are also examples of countries where the implementation of an indemnity fund poses many problems and therefore it is considered more practical and far less risky by institutions such as EBRD (World Bank) to use collateral managers in the selection and monitoring of warehouses, irrespective of their certification by a government agency. For example, Kazakhstan's 15 largest grain elevators have created an indemnity fund. On the other hand, Bulgaria's system is guaranteed by a combination of bank letter of guarantee and an indemnity fund. The public grain warehouses in Bulgaria are required to participate in the indemnity fund which ensures performance security to the depositors.

3.3.3 INDEPENDENT MONITORING AND STANDARDS VERIFICATION SERVICES

WHR financing is based on the value of a commodity placed as collateral in a warehouse. Since most agricultural commodities on which WHR financing is usually provided are perishable if not stored properly, there is an obligation on the warehouse owner to ensure the quality of stored goods.

A secondary service industry to WHR financing includes quality standardization and verification services for both the commodity and storage facilities. While the storage facilities are monitored as a responsibility of the CMC that accredits and licenses these facilities, the commodity verification is usually done by independent companies who provide third party services to warehouse owners.

One example which is quite instructive to study is Ukraine where WHR financing was introduced without any performance guarantees. Initially in the first two years, WHR financing attracted massive capital but when severe cases of default emerged, in a system without performance guarantees, the whole integrity of the system was challenged. This crisis promoted Ukraine to undertake serious efforts to introduce indemnity funds in the country.

Although creating a sound indemnity fund can be difficult, there may be no easier alternative in the case of Pakistan, where there are no institutions that are able to issue performance bonds at an acceptable cost, and because such bonds are simply not covered under national laws and regulations.

In Pakistan, international companies such as SGS, Bureau Veritas and Cotechna are already operating in this space, providing services to exporters and traders of commodities, especially rice traders for third party verification of the quality of their product.

Quality parameters are specific to each kind of commodity, with a large degree of variation existing between different types and grades. It is necessary for verification purposes that standards and grades be predetermined and established on the international commodity exchanges in order to align domestic and international parameters.

A secondary service industry to WHR includes quality standardization and verification services for both the commodity and storage facilities

4. VALUE CHAIN ACTORS

4.1 BORROWERS

This section provides an overview of the users who will be the potential beneficiaries of WHR schemes in Pakistan, using warehouse receipts to obtain financing from banks. It discusses types of users according to their place in the agricultural value chains, their current situations and impact of WHR financing.

4.1.1 GROWER

Low yields, labor intensive production methods, and high cost of input supplies, including fertilizers, pesticides, and machinery have placed the average farmer into a tight financial space. In Pakistan the average landholding has decreased from 5.3 ha (2.5 acres are equivalent to a hectare) in the 1970s to 3.1 ha in the 2000s,³¹ which is not able to sustain modern, mechanized practices that have revolutionized agriculture elsewhere in the world in

terms of yield maximization and economic efficiency (refer to Exhibit 9). There are a handful of influential agricultural families who have consolidated large swathes of agricultural land (above 60 acres), and are able to utilize these practices and gain an advantage in agricultural production.

Although small farmers (12.3-2.5 acres) are the major portion of the growers in the country, their financial conditions prevent them from forming effective bodies

Farmer's cooperatives are one answer to achieving a platform for institutionalizing the farming population of Pakistan

EXHIBIT 9: LAND OWNERSHIP STATISTICS³²

Hectares	Acres	No. of Farms (in Millions)	%	Cumulative %
Under 0.5	1.2	12.9	19.5	19.5
0.5 -1.0	2.5	11.0	16.6	36.1
1.0 - 2.0	4.9	14.2	21.5	57.6
2.0 - 3.0	7.4	9.7	14.6	72.2
3.0 - 5.0	12.4	8.9	13.5	85.7
5.0 - 10	24.7	5.8	8.8	94.4
10.0 - 20.0	49.0	2.6	3.9	98.4
20.0 - 40.0	99.0	0.8	1.2	99.6
40.0- 60.0	148.0	0.2	0.23	99.8
>60		0.1	0.21	100.0
Total		66.2	100.00	

Source: Pakistan Agriculture Census 2010-11: exhibit 65 available at http://www.pbs.gov.pk/sites/default/files/agriculture_statistics/publications/Agricultural_Statistics_of_Pakistan_201011/tables/exhibit65.pdf

³¹ S Lauder, J. Skoet & T. Raney, World Development Vol. 87, P16-29. 2016. <http://www.sciencedirect.com/science/article/pii/S0305750X15002703>

³² Pakistan Agriculture Census 2010-11: exhibit 65 available at http://www.pbs.gov.pk/sites/default/files/agriculture_statistics/publications/Agricultural_Statistics_of_Pakistan_201011/tables/exhibit65.pdf

for advocating their collective concerns. Farmer's cooperatives are one answer to achieving a platform for institutionalizing the farming population of Pakistan. However, earlier attempts at such endeavors have not met with great success.

4.1.2 MIDDLEMAN

The middleman or arthi is undeniably a key player in the agricultural sector in Pakistan. Functionally, the arthi serves as a bridge between the grower (farmer) and the processor (miller or trader). Reflective of a lack of a formal services industry for agricultural value chains in Pakistan, the middleman negotiates market risks and price volatility on behalf of the farmer, as well as providing transport and storage services for his produce. These costs are incorporated as a reduction in the 'farm gate' price. Therefore, complete crop cycle financing and credit extensions offered by the arthi are perceived as being the only option available to small farmers.

Middlemen have developed their own expertise and mechanisms for price discovery and control. Arthis have the potential to dictate the spot market price, using both infrastructural and psychological leverage as a means of control. In fact, the arthis' extensive knowledge of production trends and market conditions has played a major role in his success in the agriculture sector of Pakistan.

WHR financing is expected to come into direct competition with the arthi's operational space, and as such needs to be able to provide a comprehensive alternative to his services. If any successful attempt at implementing WHR financing is to be made, private sector corporations will need

to develop basic infrastructural capacity keeping the small farmers' situation in mind. In all likelihood, government will have to play an enabling role in the development of this infrastructural capacity.

4.1.3 TRADERS

Trade in agricultural commodities is a vital component of the economic sphere in Pakistan. Although limited in terms of export and confined mainly to rice and cotton, agricultural commodities are a necessary part of domestic trade. Where markets are deemed profitable, as is the case with rice, traders have incentives to develop private storage facilities. Anecdotal evidence suggests that there is sufficient storage capacity available in the private sector to prevent significant wastage of agricultural produce. However, absence of sound data on private storage facilities prevents concrete calculations to be made. Traders who deal in sufficiently large volumes for export of agricultural commodities are able to avail government sponsored schemes for getting access to finance. One such scheme is the ERF Scheme initiated by the SBP, under which traders are able to get up to 90% loan to value (LTV) at 3% interest. Traders are also currently involved in obtaining finance from banks through muqaddam financing, a rudimentary form of WHR financing wherein banks provide loans against pledged commodities kept in warehouses. Such traders use privately developed storage facilities, circumventing the need for licensed warehouses and electronic receipts. Traders deal primarily with arthis for procurement of goods, due to the comprehensive nature of the services they provide. The arthis collect, bag, and deliver the commodity from farm gate to the

Where markets are deemed profitable, as is the case with rice, traders have incentives to develop private storage facilities

Traders deal primarily with 'arthi's' for procurement of goods, due to the comprehensive nature of the services they provide. The 'arthi's' collect, bag, and deliver the commodity from farmgate to the trader's storage facility

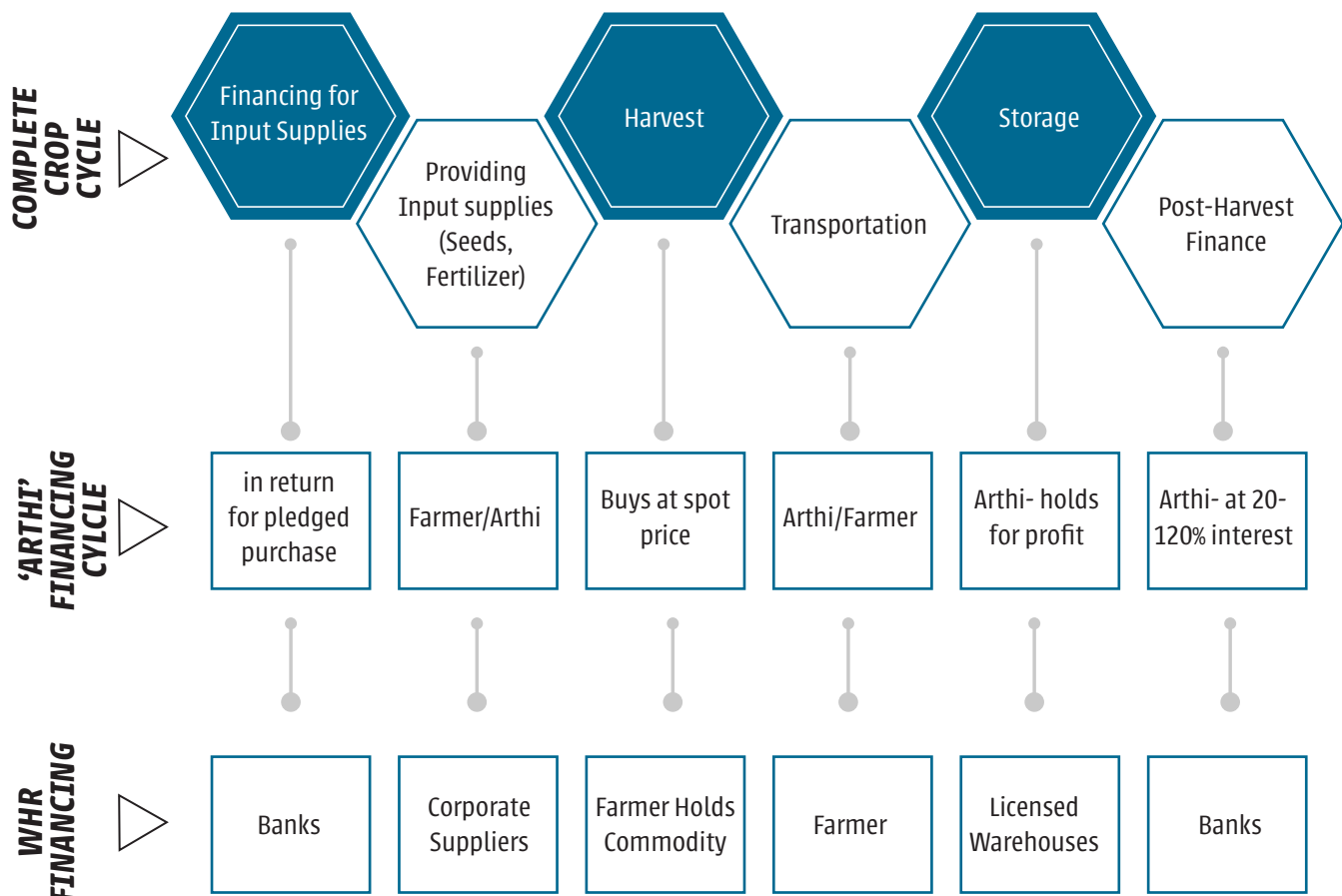
³⁰ MATCo Foods representative.

trader's storage facility, providing the trader with a 'one-window' operational platform for procurement which would otherwise entail a lot of effort and coordination between the trader and farmer.³³

Traders, by the nature of their involvement in the sector, have to develop sound business models for trading of agricultural

commodities. Their storage and procurement trends follow sector trends, and involve careful consideration of international and domestic price volatility curves. Traders are well equipped to understand the nuances of the scheme, given their experience with warehousing and commodity financing through muqaddams.

EXHIBIT 10: A COMPARISON OF ARTHI FINANCING AND WHR FINANCING



Source: Authors

³³ As per the MATCo Foods representative, the arthi, protecting his own interests, discourages direct contact between farmer and trader.

4.1.4 UPTAKE REQUIREMENTS AND POTENTIAL UTILITY

For most of the actors involved in the sector, especially among borrowers and end users of WHR financing, a strong demonstrative effect is needed to increase awareness and understanding of its mechanisms and benefits. These could be in the form of pilot projects or NGO and government assisted awareness campaigns that provide comprehensive assistance to farmers in using WHR financing. For growers, the primary requirement would be the provision of storage facilities at a convenient distance from the fields (10-30 km) as longer distances would mean incurring additional transport costs. In the early stages, small farmers would not be willing to pay for the additional system costs involved in the scheme such as transportation of produce,

quality grading and certification, and storage rents. These costs have traditionally been borne by the buyer.

In conclusion, WHR financing has great potential as a means of catalyzing reform in the agriculture sector of Pakistan. By increasing the small farmers holding power over his produce while simultaneously providing access to post-harvest finance, the farmer can avoid making distress sales immediately after harvest. Although the elimination of the middleman's role cannot be expected from a single scheme, a rationalization of margins is a realistic outcome.

FINANCIAL LITERACY OF THE SMALL FARMER

In terms of financial literacy, the farmers still lag behind other players in the industry. Apart from the handful of large farming families that have been obtaining finance from banks and now hold extensive credit history along with sound financial backing, small farmers have very little awareness of the operational mechanisms of banks. Most of their financial dealing is through *arhtis*, who do not require detailed paperwork and make do with very rudimentary forms of record keeping, often using thumb impressions as a way to record transactions. The average farmer is currently not financially literate enough to be able to utilize WHR financing to its maximum potential by anticipating price increases after three to four months and using that profit to cover storage and transaction costs.

NGO and government assisted awareness campaigns that provide comprehensive assistance to farmers in using WHR financing

**Penetration
of cellular
communication
technologies
as per Pakistan
Telecommunication
Authority is 141
million subscribers
compared to only
three million
subscribers for
landlines.**

4.2 FORMAL LENDERS

Formal sector lenders will play a definitive role in WHR financing as the primary financiers of the scheme. Most banks concentrate their physical presence in urban centers; which the small farmer cannot access easily. Studies show that the level of financial penetration is very low: only 13% of the total adult population has access to financial services.³⁴

According to the SBP the unmet need for agricultural financing is greater than 70%.³⁵ To encourage banks to lend to the agri sector, the SBP announces annual lending targets which although not mandatory are reported on by all banks. For FY 2016-17, banks met the annual target of PKR 700 billion.³⁶

Increasing access to farmers requires innovations in the banking industry. Penetration of cellular communication technologies as per Pakistan Telecommunication Authority (PTA) is 141 million subscribers compared to only three million subscribers for landlines.³⁷ Mobile

network operators in Pakistan have been developing financial technology platforms, which over the last five years have made a significant impact on the nature and outlook of the banking industry.³⁸ This scenario provides great potential for leveraging technology to scale up financial services, including to farming communities that have been excluded from the formal financial system.

4.2.1 PROFILE AND STANDING IN AGRICULTURE FINANCING

Most banks in Pakistan have financial exposure to the agriculture sector. Banks can be divided into three sub-segments: commercial banks, specialized banks and microfinance banks. For the purpose of this study selected banks from all the above categories were consulted (for detailed stakeholder consultation list refer to annex).

ZTBL is the market leader with PKR145 billion in outstanding credit and 20% of the market share in agri credit. About 76%

KISSAN FARMER'S PACKAGE

Karandaaz Pakistan partnered with the Agricultural Department of Punjab and its financial partners to launch the *Kisaan* Farmer's Package in 2016. Under this programme, PKR 70 billion in agriculture loans to 500,000 farmers will be disbursed over a period of five years. The programme will provide access to farmers to formal and affordable agricultural finances through mobile wallets.

As of August 2017, 315,000 farmers have been registered under this scheme and over 162,000 loans have been disbursed. Under the programme, loan processing time for banks has been reduced by over 40%.

³⁴ The World Bank. Global Findex 2014. <http://datatopics.worldbank.org/financialinclusion/country/pakistan>

³⁵ State Bank of Pakistan

³⁶ ProPakistani. Bank surpass agricultural target of Rs. 700 billion in FY 17. 2017. <https://propakistani.pk/2017/07/26/banks-surpasses-agricultural-credit-target-rs-700-billion-fy17/>

³⁷ Pakistan Telecommunication Authority. Telecom Indicators. 2017. <http://www.pta.gov.pk/index.php/en/telecom-indicators>. Accessed on 3rd November, 2017.

³⁸ Vijay Govindanarjan. Harvard Business Review: Developing Countries are Revolutionising Mobile Banking. 2014

of its loan portfolio consists of production loans while the remaining 24% is in the form of development loans. From the recovery perspective, short term loans have a tenor of up to eighteen months, medium term up to five years, and long term loans longer than five years. Average loan size is PKR 210,000 and the maximum credit limit per client is PKR 1.5 million.

Among government owned institutions, NBP is the second largest player in the agri credit space. NBP focuses on the small farmer, defined as individuals owning less than 2.5 hectares (11 acres) of land or being engaged as a tenant or sharecropper.

HBL is the largest player in the private sector. Under the management of the Aga Khan Fund for Economic Development (AKFED), it has prioritized the agri credit sector and also intends to be the top player in this space. Among commercial banks, both HBL and NBP compete for the top slot in the domain of agri credit.

HBL's agri credit portfolio, during the fiscal year 2106-17, amounted to PKR 37 billion in outstanding credit and PKR 85 billion in total disbursements. Agri credit constituted around 16-17% of the overall credit portfolio of NBP as its outstanding agri credit stood at PKR 50 billion and total disbursements were around PKR 76 billion.

After HBL, smaller private banks like Faysal Bank, Bank Alfalah, Askari Bank and JS Bank have also set aggressive agri financing targets and are building up their portfolio in this particular sector. In this category, Faysal Bank (PKR 11.5 billion), Bank Alfalah (PKR 5.5 billion) and Askari Bank (PKR 4.5 billion)

are the main players in terms of outstanding loans.

The PPCBL, compared to commercial banks, is a small player in the agri credit segment but its loan ticket size is bigger than those of MFBS. There are few cooperative banks left in the country and their outreach is limited as their focus is regional. For example PPCBL operates only in Punjab. PPCBL has a total credit portfolio of around PKR 11.5 billion out of which nearly 99% is focused on agri lending. Average loan size is around PKR 200,000 and the credit limit per person is around PKR 1 million.

Compared to commercial banks, MFBS are not significant players in agriculture financing due to a lower mandated threshold on their loan size. In this segment Khushhali Bank, Telenor Bank (formerly Tameer Bank), National Rural Support Programme (NRSP) Bank and the First MicroFinance Bank are major players in agri financing.

Khushhali Bank is one of the largest MFBS with 600,000 borrowers and disbursement close to PKR 30 billion. Despite loan sizes ranging from PKR 25,000 to PKR 500,000, Khushhali Bank's rural outreach numbers are noteworthy. As per the Pakistan Microfinance Network (PMN), approximately 20% of the total 5.2 million active borrowers fall in the agri credit category.³⁹

³⁹ Pakistan Microfinance Network. Micro Watch Quarter II. 2017. <http://www.microfinanceconnect.info/assets/articles/b0937186ef48d5be36387ed0a61d8992.pdf>

PILOT PROJECTS

Since the launch of the SBP's Framework for WHR financing in Pakistan, a few pilot projects have been undertaken. Although tentative in terms of scope and scale, these pilots have helped to improve understanding of the operational mechanisms required to successfully launch WHR financing initiatives including clarifying the role of each stakeholder in the proposed system.

ACE GLOBAL DEPOSITORY

AGD is the parent company of AGD Pakistan. AGDs Professional Liability Insurance (PLI) indemnifies the insured against legal liability, costs or expenses arising out of AGDs operations worldwide including all AGDs affiliates, subsidiaries and associates offices and agents worldwide up to USD 100 million on a per event per occurrence basis.

In 2014, AGD Pakistan was poised to form the first CMC in Pakistan, proposing the implementation of an electronic WHR system to facilitate financing from banks. Pilots were planned in 20 locations in two districts of Khairpur and Bahawalpur.

During our consultations with various stakeholders, it became apparent that these pilots did not proceed beyond the paperwork phase. The reasons cited by different respondents were that there was a high amount of ambiguity as to the role each stakeholder would be playing in the system. There was a need for greater clarification of AGDs operational mechanisms, including the management of storage facilities, burden of transaction and storage costs and provision of quality verification and performance guarantees. The AGD pilot was one of the possible catalysts that led to SECP getting involved in the drafting of a regulatory framework for collateral management services in Pakistan. These regulations have enabled the achievement of operational clarity for all stakeholders, facilitating uptake and reducing risks for private sector institutions.

Lessons: The AGD pilot clarified to all stakeholders that the development of WHR financing cannot proceed single handedly. Market potential and corporate interest alone is not sufficient to meet the institutional requirement of the model, which requires well developed and fully functional linkages across the storage, financial and professional industries. It also demonstrated that a strong legislative foundation is necessary for WHR financing to be implemented successfully in Pakistan. The requisite transparency to reduce risk perceptions among the users cannot be achieved without strong regulatory infrastructure in place.

KUNRI PILOT: RED CHILI TRADING

Initiated in 2015, the Kunri pilot involved several stakeholders. The primary objective of the pilot was to test and demonstrate the economics of warehousing as a vital component in the WHR financing initiative. PAC spearheaded the effort, building strategic linkages among stakeholders in the agriculture sector, the food processing industry and service providers. Pakistan Mercantile Exchange (PMEX) provided an online trading platform for commodities stored in warehouses at Kunri which were operated by Agility Inc., a large freight forwarding, logistics management and warehousing service provider in Pakistan. Quality testing and verification services were provided by Société Générale de Surveillance (SGS), a leading inspection, verification, testing and certification company. The commodity used for the pilot was red chilies. The chili was categorized into three quality standards: RC1- being the best quality, followed by RC2- and RC3-. Major buyers included Shaan Foods, National Foods and Mehran Foods. The buyers used the receipts provided by

Agility for trading on the PMEX platform. The financing portion of the pilot was limited to a single loan of PKR 0.4 million provided by ZTBL against 100 tonnes of the pledged commodity stored by a farmer. The objective was to simply test the processes for viability, scale not being deemed a necessary factor at this early stage of the product's development.

Lessons: The Kunri pilot project in 2016 was limited to the use of WHRs for trading purposes. It removed the direct involvement of buyers from the procurement process, enabling them to rely instead on receipts issued by Agility Inc. As mentioned above, the financing aspect of the model was tested on a very limited scale. In order to make WHR financing work, careful synchronization of the financing product with the associated crop cycle is required. Thus a comprehensive model for WHR financing will need to be based on a detailed analysis of market price trends for several commodities. One of the major lessons extracted from this pilot is that the cost of operating a quality storage facility poses a challenge for WHR financing. In order to bring the cost down, a specialized model is required that increases its efficiency through scaling up the storage networks and centralizing warehouse management, possibly through the establishment of multiple CMCs. However, relevant industry players are not willing to invest resources and effort without legislative cover and a strong regulatory mechanism in place.

Following the notification of the CMC regulations this year, there is optimism in the industry, and a larger number of pilots are expected, with greater volumes and transactions forecasted. PAC has initiated work on a second round of pilots, developing greater linkages with banks and service providers. With PAC's involvement, Bank Alfalah is planning to provide financing against pledged wheat in Muridke, while ZTBL intends to provide financing to paddy basmati farmers in Gujranwala.

CENTRAL DEPOSITORY COMPANY

An important pilot project that is planned for the following year is that of the CDC, which will test its business models and complete the feasibility to operate the first CMC in Pakistan.

4.3 STORAGE PROVIDERS

4.3.1 EXISTING STORAGE INDUSTRY CAPACITY

Currently, the government procures, stores and distributes wheat to ensure a minimum guaranteed price to farmers and supply of flour at affordable price to the public. Pakistan Agricultural Storage & Supplies Corporation (PASSCO) and the provincial governments hold stocks (mainly wheat) in their own warehouses or godowns. Millers and private companies have their godown or silos in order to ensure continuous supply of wheat. Exhibit 11 provides data on government storage capacities. Overall government capacity of wheat storage is 4.28 million tonnes including PASSCO of 0.43 million tonnes. Punjab Food Department had the largest wheat storage capacity of 2.4 million tonnes followed

by Sindh with 0.69 million tonnes, Khyber Pakhtunkhwa (KP) with 0.37 million tonnes and Balochistan with 0.21 million tonnes.

Earlier in 2013-14, the government had fixed the wheat procurement target of 8 million tonnes out of which 6.13 million tonnes had been procured. Out of the total, Punjab procured 3.74 million tonnes, Sindh 1.22 million tonnes, KP purchased 0.07 million tonnes, Balochistan 0.09 million tonnes and PASSCO 1.01 million tonnes. However, a part of wheat stocks of the previous year's procurement has also to be carried forward. As a result, the Punjab Food Department had a very high food stock of 5.2 million tonnes in 2016 part of which there was a carryover of 2 million tonnes from the previous year.⁴⁰

○

Overall government capacity of wheat storage is 4.28 million tonnes including PASSCO of 0.43 million tonnes.

○

EXHIBIT 11: PUBLIC SECTOR STORAGE CAPACITY (MILLION TONNES)

	House-type	Silos	Bins	Bin shells	Total
PASSCO	0.334	0.097	-	-	0.431
Punjab	1.835	0.094	0.199	0.350	2.479
Sindh	0.565	0.050	0.034	0.101	0.699
Khyber Pakhtunkhwa	0.350	-	0.020	-	0.370
Balochistan	0.152	0.060	-	-	0.212
Azad Kashmir	0.023	-	-	-	0.023
Northern Areas	0.013	-	-	-	0.013
Federal Government at Karachi	0.020	-	-	-	0.002
Defense	0.034	-	-	-	0.034
Total	3.326	0.251	0.254	0.451	4.281

Source: PASSCO and Punjab Food Department.

⁴⁰ Punjab Food Department. Near-to-Farm Wheat Storage Silos Project, Project Information Memorandum. 2017

4.3.2 PUBLIC- PRIVATE PARTNERSHIP FOR STORAGE CAPACITY

The Government of Pakistan intervenes in the market to smooth out major fluctuations in wheat prices. The government procures wheat at its announced support price which is higher than the market price. Between 2013 and 2017, wheat production in Pakistan has been around 25.4 million tonnes. This is slightly higher than the domestic consumption of 24.5 million tonnes. Due to higher support prices, the domestic wheat price in Pakistan has remained significantly above the international price over the last few years. In May 2017, the domestic wheat price in Pakistan was 82% higher than in the USA, 73% higher than in Australia, although it was 21% and 9% lower than in India and Afghanistan, respectively.⁴¹

However, there remains shortage of wheat storage due to which the government stores large volumes of wheat stock under the open sky in the form of gunjies which leads to the loss of wheat quantity and quality. The storage gap in Punjab has been equivalent to an average of 1.85 million tonnes over the past five years. Keeping in view the shortage of storage capacity, the Punjab Food Department has designed a Near-to-Farm Wheat Storage Silos Project aiming at the construction of 200 silos in 40 locations, with each silo having a capacity of 10,000 tonnes. The silos are to be established under the public private partnership model with a 10 year Build Own Operate (BOO) arrangement. The Punjab government has completed the process of invitation of bids with kickoff expected within the year.

UPTAKE OF FINANCING FACILITY FOR STORAGE OF AGRICULTURAL PRODUCE (FFSAP)

To address the shortage of storage capacity, SBP has taken measures to encourage construction of silos, warehouses, and cold storages by introducing a concessional refinance scheme.⁴² The financing has been made available on a long term basis for the establishment, expansion and balancing, modernization and replacement (BMR) of steel/ metal/concrete silos, warehouses and cold storage facilities for storing agricultural produce. The financing can be provided for a maximum period of seven years with a ceiling of PKR 500 million to a single project. Initially the interest rate to be charged to the end user was 8% per annum which was reduced to 6% per annum in 2015.

The uptake of financing under the scheme has been low, with some decrease observed between 2013 and 2015. The outstanding financing under this facility was PKR 1.1 billion at the end of June 30, 2011 which rose substantially by 81% to PKR 2 billion in 2012. The growth in financing was modest in 2013. However, financing declined by 22.7% to PKR 1.7 billion in 2014 and finally stood at PKR 1.9 billion at the end of June 30, 2015.⁴³

⁴¹ See, WFP, Pakistan Market Price Bulletin, June 2017.

⁴² SBP Framework for Warehouse Receipt System in Pakistan, 2014

⁴³ The data on geographical spread of loans in different cities/town has not been provided by SBP.

5. CONCLUSIONS

The study finds that the development of WHR financing in Pakistan is still in its infancy. Even though concrete measures have been taken towards the implementation of WHR financing, there are several gaps in the regulatory, institutional and infrastructural frameworks that are required for the effective operation of the model in Pakistan.

At the same time, however the potential benefit to the users of the scheme is considerable. WHR financing can be advantageous for farmers, traders and agri credit banks. To the farmers, especially, WHR financing can become an alternative to the credit which is currently being provided by arthis. The data for agricultural production and price trends of major crops show sufficient scale and price increase in four to six months after harvest which is essential for WHR financing to be economically lucrative. Farmers with landholdings above a certain minimum threshold will be able to profit from WHR financing. Eventually small farmers which comprise the majority of the sector can participate through some formal organization and external assistance. Banks foresee immense potential in WHR financing, as it taps a new market segment for extending their agri credit portfolios. The provision of commodities as liquid collateral further reduces default risk, provided that sufficient safeguards are put in place in the frameworks.

In terms of the legal and regulatory framework for WHR financing, rules and regulations for CMCs need to be enforced. Warehouse receipts need to be given legal cover through legislation, enabling their use as directly negotiable instruments similar to cheques, allowing WHR financing to be used to its full potential. Amendments to the 1881 Act for Negotiable Instruments will need to be fast tracked. The Price Control and Prevention of Profiteering and Hoarding Act, 1977 also needs to be amended to make provisions for WHR financing.

Institutionally, operational mechanisms still need to be put in place for WHR financing. Relevant institutions in the sector include CMCs, warehouses and warehousing service providers, market makers, quality verification companies, transaction data and price discovery mechanisms. Where they exist, adaptations need to be made to meet the requirements of WHR financing. There is a severe and immediate need for establishing an extensive, documented and well-coordinated storage infrastructure in the agricultural production areas of Pakistan. This includes warehousing as a service provision, along with auxiliary professional services such as quality control, maintenance, grading and assessment, etc.

There is very limited awareness of WHR financing among the value chain actors, primarily confined to stakeholders who have been directly involved in the development of the scheme for Pakistan through SBP's roundtable seminars and workshops.

From a comparative analysis of global practices regarding WHR financing, it is evident that insurance mechanisms and performance guarantees for warehouses are an essential step in the development of banks' trust in the system. Currently, there are no performance guarantees in terms of insurance bonds or letters of credit or indemnity funds. These risk mitigation instruments will develop with time, once trust in the system has been formed among warehouse operators, traders and banks.

Banks will adopt WHR financing gradually and are currently awaiting the formation of streamlined processes before initiating the product on their own. Most of the banks are looking towards major private commercial or public sector banks to take the lead and provide a successful model for WHR financing. Successful pilot projects will clarify ambiguities that are currently deterring banks from investing resources into new products.

6. RECOMMENDATIONS

Through extensive stakeholder consultations, this study identified several key areas that need further development for the implementation of a successful and effective WHR financing system in Pakistan. In this section, the recommendations of various respondents have been grouped into short, near and long term goals that can be accomplished by various actors in Pakistan for the facilitation of the system's development.

6.1 SHORT-TERM

6.1.1 ESTABLISHMENT OF COLLATERAL MANAGEMENT COMPANIES

Following the implementation of the SRO 302 (I)/2017 Collateral Management Companies (Establishment & Operations) Regulations by the SECP in May 2017, the formation of a CMC has been made possible. A functioning CMC is essential if the WHR financing model in Pakistan is to progress beyond the pilot stage and achieve critical mass required for sustainability. Given the geographical and agricultural diversity of Pakistan, it is possible for the formation of more than one CMC. The CDC currently possesses sufficient technical capacity and trust in the financial sector to undertake the initial responsibility for this task.

6.1.2 ESTABLISHING A WAREHOUSING AND STORAGE NETWORK

A strategic plan for implementing public-private partnerships to expand and upgrade the warehousing industry is required. This will enable the formation of a strong network of storage facilities licensed by a CMC. The storage facilities developed by the agriculture departments of provincial governments in Punjab and Sindh may also be incorporated into the system, being upgraded and maintained by private warehouse operators.

6.1.3 FILLING INFORMATION GAPS

Any plan for the development of WHR financing in Pakistan needs a strong database of storage facilities in the country, with detailed information regarding capacity, type, distance from nearby farms, catchment areas and important crops growing in the vicinity. A scoping survey should be immediately carried out covering both government and privately owned storage facilities.

A strong price discovery mechanism also needs to be put in place. Currently, the only such service is being provided by the Pakistan Bureau of Statistics through the Agricultural Market Index Statistics (AMIS). An online digital platform with real time update on regional, provincial and international commodity prices, linked through the commodity exchange to all participants involved in WHR financing will enable efficient and effective operation of the system.

6.2 NEAR-TERM

6.1.2 ESTABLISHING A WAREHOUSING AND STORAGE NETWORK

Once the CMCs are fully operational, secondary legislation covering the WHR financing processes in detail should be implemented and enforced by a government agency such as the Ministry of Finance or Law in collaboration with the SECP and SBP, who have already done considerable work on the subject. The secondary legislation should address the warehousing requirements, commodity parameters, financing terms and conditions, as well as insurance and quality requirements for WHR financing.

6.2.2 DEVELOPING A COMMODITY EXCHANGE MARKET

The development of a formal commodity exchange market is essential. Ideally, it should be able to capture 50-70% of the volumes currently being traded in the informal sector. PMEX has developed a commodity exchange mechanism which can be adapted to the requirements of WHR financing with some refinement and expansion.

6.2.3 AWARENESS RAISING OF FARMERS

A widespread advocacy and capacity building campaign for farmers across the country is required for raising awareness about the advantages of WHR financing and how to use the system. Farmers' needs have to be carefully studied in order to tailor WHR financing products for their advantage, which can break the arthi's monopoly on smallholders across the country. Initially, NGO-assisted farmer's cooperatives can be a good model for raising financial literacy and technical capacities of small and medium farmers.

6.3 LONG TERM SECTORAL REFORMS

WHR financing is ultimately dependent on a robust and competitive agriculture sector. Reforms in the agriculture sector, aimed to increase profitability and efficiency, are required in Pakistan with serious attention from state institutions. Agriculture in Pakistan lags behind the international market in terms of scale of production, input costs and per acre yields of important commodities. Currently wheat production is being subsidized by the government, which is severely undermining the export capability of one of the major crops in the country. Innovations are required to stall soil degradation that is affecting crop yields and increasing input costs for agriculture, pushing the whole sector into an unsustainable cycle. WHR financing can only succeed if the commodities involved are competitive in international markets.

ANNEXURE

LIST OF STAKEHOLDERS CONSULTED

Respondent	Organization
Kamran Akram Bakhshi	State Bank of Pakistan
Nauman Lakhani	Pakistan Mercantile Exchange
Aftab Ahmad Divan	Central Depository Company
Shariq Naseem	Central Depository Company
Kashif Thanavi	Habib Bank Limited
Zubair Mirza	National Bank Pakistan
Ahmer Liaquat	National Bank Pakistan
Abdul Samad Khan	Askari Bank
Ihsan Ul Haq Khan	SME Bank
Behram Bashir Khan	SME Bank
Ghalib Nishtar	Khushhali Bank
Waqarullah Yameen	Khushhali Bank
Ayesha Baig	First MicroFinance Bank
Yahya Hameedwallah	Bank Alfalah
Ali Raza	Faysal Bank
Zaheer masood	JS Bank
Muhammad Ayub	Punjab Provincial Cooperative Bank Limited
Abdul Qadir	Zarai Taraqiati Bank Limited
Hamid Raza	ACP
Iftikhar Butt	Agility Pakistan
Ramzan Awan	Agility Pakistan
Jawed Ghouri	MATCO Foods
Mahmood Moulvi	MM Group
Naeem Qaimkhani	Sindh Food Department



Karandaaz Pakistan, a Section 42 company established in August 2014, promotes access to finance for small businesses through a commercially directed investment platform, and financial inclusion for individuals by employing technology enabled digital solutions. The Company has financial and institutional support from leading international development finance institutions; principally the United Kingdom's Department for International Development (DFID) and the Bill & Melinda Gates Foundation (BMGF).

The Company has four verticals:

- **Karandaaz Capital (KC):** The KC line of business provides wholesale structured credit and equity-linked direct growth capital investments in micro, small and mid-size enterprises (MSMEs) with compelling prospects for sustainable growth and employment generation in Pakistan
- **Karandaaz Digital (KD):** The KD line of business focuses on expanding the poor's access to digital financial services in Pakistan by working across the ecosystem with all stakeholders including regulators, policy-makers, government departments, businesses and researchers and academics with activities arranged in four key work areas—Policy and Regulation, Seeding Innovation, Experimentation and Solutions Development, and Scale and Outreach.
- **Karandaaz Innovation (KI):** The KI line of business manages the Innovation Challenge Fund, providing risk capital and grants to partners with an aim to generate innovative solutions to complex problems in areas of financial inclusion and entrepreneurship.
- **Knowledge Management and Communications (KMC):** The KMC line of business supports the company's core financial inclusion goal by developing and disseminating evidence based insights and solutions to influence markets and the financial ecosystem.

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