MACRO/FINANCE GROUP

Report on warehousing in India Study commissioned by the Warehousing Development and Regulatory Authority

NATIONAL INSTITUTE OF PUBLIC FINANCE AND POLICY

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Contents

Acronyms

APMC	Agricultural Produce Marketing Committee.
CCI	The Cotton Corporation of India.
CMC	Collateral Management Company.
CMS	Capital Markets Services.
CUG	Closed User Group.
CWC	Central Warehousing Corporation.
FCI	Food Corporation of India.
FMC	Forward Markets Commission.
FPO	Farmer Producer Organisation.
HAFED	The Haryana State Cooperative Supply and Marketing Federation Limited.
NABARD	National Bank for Agricultural and Rural Development.
NBHC	National Bulk Handling Corporation Ltd..
NCDEX	National Commodity and Derivatives Exchange.
NCMSL	National Collateral Management Services Ltd..
NFL	National Fertilizers Limited.

NIPFP	National Institute of Public Finance and Policy.
NWR	Negotiable Warehouse Receipt.
PACS	Primary Agriculture Co-operative Society.
PDS	Public Distribution System.
RBI	Reserve Bank of India.
SAP	Systems, Applications and Products data management solutions.
SSL	Shree Shubham Logistics Pvt. Ltd..
SWC	State Warehousing Corporation.
WDRA	Warehousing Development and Regulatory Authority.
WhO	Warehouse Owner.
WR	Warehouse Receipt.
WSP	Warehouse Service Provider.

Executive Summary

Warehousing in India has been linked to food security and agricultural growth. The Central Government established state owned and controlled warehousing corporations to enable better storage of agricultural commodities in the 1950s. Over the last two decades, the need for warehousing has also been felt in non-agricultural sectors such as retail commerce. Warehousing is now seen as an integral part of the supply chain where goods are not only stored for safekeeping, but also where other value processes are implemented, thereby minimising wastage and costs.

Warehousing is regulated by state governments and most states have warehousing laws under which they license warehouses. In 2007, the Parliament passed the Warehousing (Development and Regulation) Act, 2007, which came into force on October 25, 2010. This created the Warehousing Development and Regulatory Authority, a central regulator for Negotiable Warehouse Receipts (NWRs).

The *WDR Act* is an:

"*Act to make provisions for the development and regulation of warehouses, negotiability of warehouse receipts, establishment of a Warehousing Development and Regulatory Authority and for matters connected therewith or incidental thereto.*"[1]

Warehousing Development and Regulatory Authority (WDRA) was established to regulate the market in NWRs, so as to make warehousing in India more credible and trustworthy. Proper implementation of the *WDR Act* will enhance the credibility of warehousing and enable the market to grow and service a variety of consumers such as traders, farmers, banks (involved in pledge financing) and exchanges.

WDRA commissioned the Macro/Finance Group, National Institute of Public Finance and Policy (NIPFP) to conduct a qualitative sample study on the warehousing market across the country. This was the result of a felt need to understand the agricultural warehousing market and the experiences of different stakeholders in this market from a first hand perspective. Over the course of three months, NIPFP has conducted focus group discussions and in depth interviews with different stakeholders across the country. These responses have been collated as findings and analysed in the report.

Warehousing in agriculture is part of the larger agricultural ecosystem. Just like agriculture, the warehousing market is local, unorganised, and fragmented. National standards have not yet been uniformly adopted or mandated, and the quality of warehousing and the contractual obligations that Warehouse Service Providers (WSPs) enter into, vary widely across regions.

Large, organised corporate entities have entered this market in the past decade, and many are growing rapidly. They offer better quality services, have better internal systems and processes and can make greater capital investment into the busi-

[1] See preamble of the *WDR Act*

ness. Over time, market consolidation is likely to occur along segments. For example, there may emerge a few dominant national players in specific kinds of commodities, or types of storage (cold storages, for example).

However, due to high land costs capital investment into building new warehousing infrastructure is limited. Many WSPs prefer to offer storage related services (such as collateral management) in rented warehouses. As per some conversations, this is beginning to change as consumers (mainly banks), start demanding better services, and warehouse availability decreases.

The government's focus has been on encouraging farmers to use warehouses in order to access post-harvest credit. Lending against agricultural commodities stored in warehouses is generally considered safe as the commodity is good collateral. Different sources have estimated a fairly large potential for pledge financing to grow in India. However, the main users of warehouses and the main beneficiaries of pledge financing are traders who use pledge financing to hedge or tide over liquidity constraints.

WSPs are value enhancing intermediaries in this process of pledge financing. They act as the bank's collateral manager (as Collateral Management Companies (CMCs)) for the safekeeping of the pledged commodity. This may involve storing a commodity at a warehouse owned/ operated by a WSP, or at a location owned/ operator by the borrower. In either case, the value addition to the bank derives from the quality of the systems and processes followed by the WSP for preserving the commodity. This includes regular inspection for quantity, fumigation (where required), and accurate quality and quantity measurement.

Other users also stated that the quality of services, including turnaround times, client interfacing and quality of infrastructure are important considerations (other than storage and labour costs). Most users have started graduating towards larger, nationally operating WSPs. Other than warehousing and collateral management, WSPs also offer in some cases, to help clients purchase and sell commodities. For some bank branches, WSPs also track market prices of pledged commodities to help banks have an accurate view of their margins against loans.

A warehouse is the most likely, and efficient location for aggregation of agricultural produce. WSPs are providing value added services that regulated markets currently provide (for example, assaying of commodities, checking quantity, services with regard to buying and selling of commodities, etc). In addition, the legal obligation to preserve the commodity as per the information provided in the Warehouse Receipts (WRs) issued by them creates the foundations for a national market in agriculture, based on the credibility of the warehouse receipts issued by WSPs.

WDRA is the appropriate authority to drive this effort. A state has limited resources, and its resources must therefore be employed in a manner so as to provide the most useful services for the market in the most efficient manner possible. It must provide basic goods of having relevant standards for regulation, ensure compliance, and protect consumers. It must regulate so as to use market relevant tests for supervising warehouses. It must have an efficient inspection system that inspects diverse aspects of a WSP's operation and incentivises corrective behaviour.

It must also enable the creation of information technology infrastructure that creates more information and transparency in the sector. A national electronic system of holding and transferring WRs will be beneficial for all stakeholders. A small

WSP will get visibility at a national level, simply by abiding with WDRA's regulations, therefore increasing its competitiveness based purely on the quality of its services. Established WSPs will be able to differentiate themselves on the basis of their specialised skills in handling specific commodities, or in specific regions. Banks and other stakeholders will get access to information about warehousing capacity and quality at a local level. Fraud and duplication, substantial risks with physical WRs, will be minimised.

Intrusive regulation may endanger the growth of this market if it unduly restricts certain business activities (that do not threaten a WSP's core duty to preserve the quality of a deposited commodity). Regulation must also be nimble enough to allow regulated entities to conduct their business (regulatory approval processes must have clarity and certainty). The focus of regulatory supervision must be on defining market-relevant minimum standards, ensuring standard operating procedures are adhered to and developing essential market infrastructure that provides more information and transparency to the market.

This following chapters of the report presents the literature, findings and their analysis that the conclusions stated above are based on. It begins by introducing the features of the Indian warehousing market WDRA in Chapter 1. The chapter also looks at the development of the NWR system and its potential usage today.

Chapter 2 discusses the history of WR finance and NWRs, the benefits of negotiability and the challenges in making the warehousing market trustworthy and credible. This chapter also discusses the problems that are predominant in the current Indian warehousing market as well as the solutions that the market has developed to overcome these.

Chapter 3 presents the study schedule, sampling criteria and details of respondents interviewed over nine districts:

1. Karnal, Haryana
2. Mehsana, Gujarat
3. Ernakulam, Kerala
4. Guntur, Andhra Pradesh
5. Purnia, Bihar
6. North 24 Parganas, West Bengal
7. Vidisha, Madhya Pradesh
8. Nanded, Maharashtra
9. Kamrup, Assam

In addition, in-depth interviews were held with several bank representatives in Mumbai.

The findings of the survey, and its analysis are provided for in chapters 4 and 5 respectively. In addition, chapter 5 contains recommendations for regulating the warehousing market in the country. The recommendations provided in chapter 5 have been provided below.

Summary of recommendations

1. Warehouse regulation should be neutral to the categories of users of warehouses. Regulations that impose performance requirements must impose such requirements as are generally necessary to make the business of warehousing trustworthy and credible.
2. Co-ordinated efforts between WDRA and state warehousing regulators must be made to bring unlicensed warehouses within the regulatory purview. Additionally, users of warehouses must be convinced of the legal risks of using unlicensed warehouses.
3. Regulation must require the creation of structured and standardised formats for reporting information. Lending will improve further once lenders see a market with greater transparency and information.
4. An electronic NWR system will enable mar-

ket participants to use NWRs without having to worry about fraud and duplication.

5. The unit of regulatory supervision in warehousing must be the owner of the warehousing operation rather than the owner of the warehouse.
6. Business processes and the quality of service are key factors of competition in the market. Regulation must therefore create minimum standards and ensure compliance with them.
7. A focus on the processes of warehousing will enable regulation of both WSPs and CMCs. Collateral management being a subset of warehousing does not need to be regulated separately. Regulation of warehousing services in general, will enable supervision of collateral management processes as well.
8. Warehousing registration has to be a quick and nimble process in order to facilitate the current market practices that are helping in market development. For this, registration-related entry barriers must be lower and post-registration supervision must be better.
9. There must be no regulatory supervision of pricing within warehousing services. Any restrictions will disrupt the organic developments within the warehousing market that is leading to its transformation.
10. Regulations should ensure that insurance coverage for all aspects of legal liability is covered. Both the warehousing infrastructure, and the commodity stored within a warehouse must be insured against structural infirmities, fire, burglary, theft, employee malfeasance, etc.
11. Regulators should abstain from attempting to solve operational risks to WSPs. Doing so would disrupt the operation of competitive forces in a rapidly evolving market.
12. Regulations must contain directions to WSPs to devise operating procedures that enable them to discharge their functions with due diligence. Regulatory supervision must focus on compliance with these processes.
13. Warehousing regulations with regard to registration of WSPs must focus on creating minimum standards with regard to business processes and quality standards.
14. Warehousing regulations should focus on bridging information gaps in the warehousing market. On one hand, an information repository with details of WSPs, capacity utilisation, past track record of WSPs should be created, on the other hand regulatory supervision should focus on improved compliance on part of WSPs.
15. There must be a framework for dispute resolution. While greater competition will in time force WSPs to be more responsive to concerns of consumers, the government has a role in ensuring consumer protection. Regulated entities must therefore be required to create a framework for redressing grievances of consumers. WDRA must then provide a hearing against any unresolved grievances.
16. WDRA must create a consolidated online database of all NWRs issued, which should be updated real-time with every NWR transaction or transfer.
17. The database created by the regulator, must be easily accessible through a user-friendly portal, with ease of use and intuitive learnability of software, where all users of the NWRs are able to view and undertake transactions easily. It must also account for providing information to users without internet access, through tele-access, mobile SMS alerts etc.

18. Most WSPs covered during the course of the study had the basic infrastructural requirements (or arrangements) for accurately weighing and assessing the quality of the commodity. It is advisable that the ownership of weighing and quality testing infrastructure is not made compulsory, provided that other checks are in place. For instance: In case of presence of weigh-bridges close to the warehouse, it is essential that WSP staff accompany the depositor to ensure correct measurement of commodities being deposited. The presence of in-house weighing equipment may not be imperative.

Acknowledgements

This qualitative study was carried out with the purpose of developing an in-depth understanding of the warehousing sector in India. WDRA, the regulatory body for warehouses in the country is re-writing its rules and regulations to govern the warehousing sector in an efficient manner. This qualitative survey was commissioned to the National Institute of Public Finance and Policy (NIPFP) to gather information about the warehousing market in order to help WDRA frame evidence-based regulations.

The NIPFP team carried out this survey in nine districts across the country. The survey required interactions with varied stakeholders. This task would not have been possible without the help and cooperation of WDRA, Directorate of Marketing & Inspection, Ministry of Agriculture, Government of India, National Bank for Agricultural and Rural Development (NABARD), ICICI Bank, HDFC Bank, State Bank of India, DCB Bank, Yes Bank, StarAgri Limited, Shree Shubham Limited, Origo India, Sohanlal Commodities Limited, National Bulk Handling Corporation, NCMSL and New India Assurance. We acknowledge the help and support of all the market participants without whose cooperation this report would not have been possible.

We hope this report will facilitate understanding perspectives and concerns of all the key stakeholders of the warehousing sector and benefit the warehousing sector of India.

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Chapter 1

Introduction

1.1 Introduction

Warehousing in India has been linked to food security and agricultural growth. The Central Government established state owned and controlled warehousing corporations to enable better storage of agricultural commodities in the 1950s. Over the last two decades, the need for warehousing has also been felt in non-agricultural sectors such as retail commerce. Warehousing is now seen as an integral part of the supply chain where goods are not only stored for safekeeping, but also where other value processes are implemented, thereby minimising wastage and costs. In addition, warehousing has become an essential factor that enables food producers to access credit in the form of pledge financing.

Warehouses are primarily licensed by state governments under state warehousing laws. State laws which contain legal consequences for offences committed under them vary from state to state, and are applied inconsistently across the country. As a result, there is no national standardisation for warehouse regulation and enforcement. Market participants therefore rest heavily on contractual processes (that are devoid of any statutory backing) to detect violations, impose penalties and adjudicate disputes.

In 2007, the Parliament passed the Warehousing (Development and Regulation) Act, 2007, which came into force on October 25, 2010. This created the Warehousing Development and Regulatory Authority, a central regulator for NWRs.

The *WDR Act* is an:

"*Act to make provisions for the development and regulation of warehouses, negotiability of warehouse receipts, establishment of a Warehousing Development and Regulatory Authority and for matters connected therewith or incidental thereto.*"[2]

The *WDR Act* gives WDRA the following powers and functions, amongst others:[3]

1. "*to issue to the applicants fulfilling the requirements for warehousemen a certificate of registration in respect of warehouses, or renew, modify, withdraw, suspend or cancel such registration*";[4]
2. "*to regulate the registration and functioning of accreditation agency, renew, modify, withdraw, suspend or cancel such registration, and specify the code of conduct for officials of accreditation agencies for accreditation of the warehouses*";[5]
3. "*to specify the qualifications, code of conduct and practical training for warehousemen and staff engaged in warehousing busi-*

[2] See preamble of the *WDR Act*

[3] Section 35 of the *WDR Act* for list of powers and functions of WDRA

[4] Section 35.(2)(a) of the *WDR Act*

[5] Section 35.(2)(b) of the *WDR Act*

ness";[6]

4. "*to regulate the process of pledge, creation of charges and enforcement thereof in respect of goods deposited with the warehouse;*";[7]
5. "*to promote efficiency in conduct of warehouse business*".[8]
6. "*to promote professional organisations connected with the warehousing business*";[9] and,
7. "*to specify the duties and responsibilities of the warehouseman*".[10]

These functions have been given to WDRA to ensure that the NWR issued by WDRA-regulated warehouses were uniform and had a fiduciary trust of depositors and banks. In order to start issuing NWRs, a warehouse service provider must first register his warehouses with WDRA. It was hoped that WDRA regulated NWRs would be beneficial for a number of stakeholders such as banks, financial institutions, insurance companies, trade, commodities exchanges as well as consumers. In a span of four years, a total of seven hundred and six warehouses have been registered with WDRA.[11]. The report tries to understand the challenge associated with registering warehouses and also looks at the overall potential of the WDRA.

Although there has been a lot of research done on WR and its utility in the modern commodities market by multiple authors and organisations [12], there is no data on experiences of market participants to understand the warehousing market or warehouse finance in India better. There is also a lack of literature available on WR market in India and the experiences of market participants within the system. The understanding of the benefits and challenges of the WR system from a quantitative and qualitative standpoint is critical as it allows for determining effective ways to strengthen the warehousing market.

The WDRA is currently operating in an unorganised, fragmented, and rapidly evolving market. In order for it to discharge its functions effectively, a deep understanding of the business of warehousing, and its network effects is required. This report examines the warehousing industry in India by understanding the experiences of stakeholders within the warehousing ecosystem and explores how the warehousing business is run in different parts of the country. In addition, the report provides insights into the warehouse finance market and the risks involved in it.[13]

There is also a need to evolve an understanding of the government role in agriculture and warehousing in the market economy as it still plays a very dominant part. The qualitative survey was conducted cognisant of this aspect and studied the different forms of government intervention in the agricultural sector and the perception of government schemes and subsidies in the stakeholders. In addition, with a large majority of the warehousing business still state run, it became imperative for this report to consider the Central Warehousing Corporation (CWC) and State Warehousing Corporation (SWC) as two key stakeholders in the warehousing market dynamic.

[6] Section 35.(2)(c) of the *WDR Act*
[7] Section 35.(2)(d) of the *WDR Act*
[8] Section 35.(2)(e) of the *WDR Act*
[9] Section 35.(2)(g) of the *WDR Act*
[10] Section 35.(2)(o) of the *WDR Act*
[11] Warehousing Development and Regulatory Authority, *List of warehouses registered with the WDRA*, 2015, URL: `http://wdra.nic.in/RegisteredWarehouses.pdf` (visited on 08/28/2015).
[12] Please refer to reports and articles by Department of Food and Public Distribution, International Finance Corporation and Mahanta as few of the myriad examples present on this subject
[13] For the purposes of this study, a "warehouse" is being defined as under the WDR Act.

1.1.1 Terms of reference for this study

1. *Understanding how a warehousing business is run*
2. *Understanding the risks associated with storage and preservation of commodities through the value chain.*
3. *Understand the user experience of different kinds of warehouse users at the time of deposit and receipt of goods*:
4. *Understand the market for warehouse receipts*
5. *Understand whether market participants have the necessary infrastructure for transacting NWRs and/or are willing to make such investment.*

Chapter 2

Literature Review

2.1 State of Indian Agriculture Warehousing

2.1.1 Current capacity

Agricultural warehousing accounts for fifteen percent of the warehousing market in India and is estimated to be worth Rupees 8,500 crore.[14] It is however perceived to be inadequate and unorganised. More than 40 percent of the agricultural warehouses are run by state enterprises such as FCI, CWC and SWCs.[15]

30 percent of the warehousing capacity is held by unorganised small godown players. These unorganised warehouses lack scale and quality. On the other hand, there are a few large national-level players in the warehousing market which own professionally run warehouses and also provide ancillary services around warehousing.[16]

Although there is no exact data on the number of warehouses present, some of the substantial capacities available in public, cooperative and private sectors is depicted in 2.1.1:

There exists evidence of lack of warehousing capacity in the country.[17] The warehousing capacity gap estimated by the Planning Commission stands to be at 27 million metric tonnes today. A study on state of Indian famers in the year 2004 by the Ministry of Agriculture estimated that about 7% of food grains and 30% of fruits and vegetable are lost due to inadequate handling facilities. Approximately, 10% of valuable spices are lost due to lack of proper post-harvest infrastructural facilities. The above post-harvest losses of agricultural commodities in monetary terms have been estimated at about Rs. 44,000 crores.[18]

Out of the total capacity present in the Indian warehousing today, only 19.44 lakh metric tonne (1.94 million metric tonne) has been registered with WDRA by a total of seven hundred and six warehouses of CWC, SWC, Primary Agriculture Co-operative Society (PACS).[19] This corresponds

[14] Ernst & Young LLP and CII Institute of Logistics, *India's warehousing industry: an overview*, URL: `http://www.ey.com/Publication/vwLUAssets/The-Indian-Warehousing-Industry-An-Overview/%5C$FILE/EY-The-Indian-Warehousing-Industry-An-Overview.pdf` (visited on 11/18/2014).

[15] Price Waterhouse Coopers, *Building warehousing competitiveness*, tech. rep., Price Waterhouse Coopers, URL: `https://www.pwc.in/en_IN/in/assets/pdfs/publications-2011/building-warehousing-competitiveness-india.pdf` (visited on 08/28/2015).

[16] Ernst & Young LLP and CII Institute of Logistics, *India's warehousing industry: an overview*.

[17] Price Waterhouse Coopers, *Building warehousing competitiveness*.

[18] Department of Food and Public Distribution, *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country*, tech. rep., Government of India, 2015, URL: `http://wdra.nic.in/FinalBook.pdf` (visited on 08/28/2015).

[19] Department of Food and Public Distribution, *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country*.

Table 2.1: Total Storage Capacity of Different Entities

	Name of the organisation	Storage capacity (in million metric tonne)
1	Food Corporation of India (FCI)	38.34
2	Central Warehousing Corporation (CWC)	10.30
3	State Warehousing Corporations (SWCs) and State Civil Supplies	34.84
4	Cooperative Sector	15.07
5	Private Sector	18.97
6	Total	117.52

Source: Report by the *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country*

to 1.65% of the overall capacity estimated to be present in the market today.[20]

2.1.2 Categories of warehouses

Warehouses in India can be categorised based on:

1. Ownership;
2. Management; and
3. Type of good stored.

Warehouses can be owned by private entities or government entities. Some warehouses are professionally managed by warehouse service providers, while others are managed by individuals. Entities also operate and manage warehouses for self-consumption. Warehouses can also be categorised with respect to the type of goods they store. As a result, forms of storage that differ from a traditional warehouse (such as silos or cold storages) also exist.

2.2 Market failures

Currently two problems are predominant in the Indian warehousing market:

1. Information asymmetry; and
2. Inadequate nationwide regulation and enforcement.

[20]Most of the storage capacity available with CWC and SWCs is occupied by the FCI for storage of Central Pool stocks.

2.2.1 Information asymmetry

Insufficient information on a warehouse leaves its users unable to judge the value of receipts issued by that warehouse.

From a lender's perspective, the current market comes with risks relating to both the structure of the warehouse (for example its resilience to floods), as well as the it's management (leading to risks such as theft or fraud). Lenders cannot judge the viability of lending against warehouse receipts issued for goods stored in that warehouse. From a depositor's perspective, there is no way to ascertain and ensure that the goods are stored safely and maintained in both quality and quantity.

Sellers of warehousing service have privileged information about their warehouses which is not available to the buyers of those services. This leads to a situation of *information asymmetry*.

2.2.2 Inadequate nationwide regulation and enforcement

State laws containing legal consequences for offences committed under them vary from state to state, and are applied inconsistently across the country. As a result, there is no national standardisation for warehouse regulation and enforcement. Market participants must therefore rest heavily on contractual processes (that are devoid of any statutory backing) to detect violations, impose

penalties and adjudicate disputes.

Both of these factors, information asymmetry and inadequate nationwide regulation and enforcement, negatively impact the trade in, and lending against, commodities stored in warehouses. Over time, the market has developed its own solutions to these problems (see section 2.3). These solutions are available to only some market participants, leaving those that are excluded at a disadvantage.

2.3 Market-based solutions

The warehousing process (including storage, collateral management and trade) brings different risks to each stakeholder at various points of the process. These risks are currently not mitigated effectively and, as a result, the quality and quantity of the stored goods is often compromised. As a result, the market has developed its own solutions to overcome the information asymmetry and failure in regulation and enforcement. The two leading solutions are in the form of:

1. Collateral management services; and
2. The Closed User Group (CUG).

2.3.1 Collateral management services

CMCs offer to preserve and protect commodities stored in warehouses on behalf of lenders. In addition to physical security, CMCs also undertake to absorb losses to the stored commodities on their balance sheet. These services help bridge the problem of low quality information about the nature of warehousing services being provided. *The additional cost of engaging the services of CMCs is therefore a reflection of the price of information that is currently not available in this market.*

A collateral manager acts as a 'middle-man' between the warehouse service provider and the lender, in order to assure protection of the stored goods. Their involvement may vary from operating the warehouse to simply overseeing the operations. Collateral managers ensure the safety (to both quality and quantity) of goods stored in warehouses, and lenders are subsequently far more willing to participate in warehouse receipt-based lending when a collateral manager is involved. Consequently, a premium is available in the market for service providers that can assure lenders protection against losses, and/or compensation in case losses occur.

2.3.2 Closed User Groups

CUGs in the warehousing sector bridge the information asymmetry problem by generating and sharing relevant information within CUGs.

The National Commodity and Derivatives Exchange (NCDEX) operated CUG is an example of a CUG that attempts to solve the problem of market failure by replicating the regulatory interventions that state regulation should solve. NCDEX is a national on-line commodity exchange. In order to ensure the sanctity of the physical settlement of commodities traded on the exchange, it operates a CUG of WSPs NCDEX has 405 accredited warehouses with a holding capacity of 2 million metric tons.[21] Additionally, NCDEX has its own inspection, audit and monitoring mechanisms to which the NCDEX registered WSPs have to adhere to.[22]

[21] National Commodity and Derivatives Exchange, *Annual Report 2013-14*, Accessed: 2014-12-17, 2014, URL: `http://www.ncdex.com/Downloads/AboutUs/PDF/Annual_Report_2013-14.pdf`.

[22] See Regulation 18 of the National Commodity & Derivatives Exchange Limited, *National Commodity & Derivatives Exchange Limited, Regulations, 2003*, 2003.

2.4 Promoting warehousing in India

2.4.1 Gramin Bhandaran Yojana (GBY)

This scheme was implemented by the Department of Agriculture and Cooperation, Ministry of Agriculture and has since been merged with other existing schemes to be renamed as Agricultural Marketing Infrastructure (AMI) scheme, which is a sub-scheme of Integrated Scheme for Agricultural Marketing (ISAM).

The objective of the scheme was to promote construction of scientific warehouses in the rural areas of the country. The scheme provides subsidy of 25%. For north-eastern states, Farmer Producer Organisations (FPOs), panchayats, women, SC/ ST and self-help groups, the subsidy is 33.33%.

NABARD has sanctioned projects to several PACS for setting up warehouses so as to provide the nearest source of scientific warehousing to the farmers.

An independent evaluation conducted by Global Agrisystem Pvt. Ltd. under the report titled *Evaluation and Impact Assessment for the Central Sector Scheme of Grameen Bhandaran Yojna* highlighted that :

1. More than 76% of godowns built under the scheme are of less than 1000 MT;
2. 66.60% of the godowns are owned by farmers;
3. Majority of the promoters received approval for subsidy within six months; but the major problem faced in getting the subsidy was
    - a) Lengthy procedural wait time
    - b) Non cooperation of the officials, and
    - c) A delay in release subsidy
4. Pledge loan against stored produce was found not to be a popular practice among farmers and significant numbers , 37.42% did not wish to avail credit.
5. There is a positive impact on the price realisation as 62.30% users mentioned experiencing increase in the prices.
6. About 42.10% farmers mentioned that the role of intermediaries and brokers has been reduced due to the rural godowns.
7. Majority of the godowns are owned by an individual. Only 5.25% godowns surveyed were owned by companies/ corporation/ firms etc.

2.4.2 Private Entrepreneurs Guarantee (PEG), 2008 Scheme

In 2008, Government of India enacted a scheme for creating additional storage capacity for food grains through the private sector, CWC and SWC.

Under this scheme, Food Corporation of India (FCI), gives a guarantee of ten years to private parties for assured hiring of warehouses. For expeditious construction of godowns, it was decided that wherever CWC or SWC have their own land within the identified locations the CWC or SWC will construct godowns on priority for which FCI would give a guarantee of 9 years for storage charges. As of the beginning of year 2015, 121 lakh metric ton capacity had been completed. Private entrepreneurs created 93 lakh metric ton capacity under the scheme, and 28 lakh metric ton capacity was created by the CWC and SWC .[23]

2.5 Warehouse receipt financing

Agricultural production and trade are often considered low-margin, high uncertainty operations and are perceived as risky investments by financiers. Physical collateral such as land and machinery

[23] See Chapter 4 Department of Food and Public Distribution, *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country*.

is rarely used in mitigating financiers risks and as a result finance for agriculture can be difficult and expensive. In light of this, WR finance can play an important role in smoothening income for farmers by providing liquidity at times when cash flows dry out.[24]

Warehouse receipt financing has been primarily developed to :

1. provide liquidity for depositors while allowing them to hold on to their goods till they receive a better price;
2. allow farmers to use this system to avoid a distress sale and obtain working capital;
3. improve the transparency and efficiency of goods stored

While the overall market for pledge financing has grown over the recent past, it is still far from reaching it full potential[25]. To help reach this full potential, warehouse receipt financing and negotiability have been discussed ever since the Reserve Bank of India (RBI) conducted a comprehensive All-India Rural Credit Survey in 1951 and recommended the creation of a negotiable warehouse receipt system in the country.[26]. Later, the *Warehouse Receipts Bill* in 1978 was drafted with the objective of endowing upon warehouse receipts the status of negotiability under the Negotiable Instruments Act, 1881. The Warehouse Receipts Bill was initiated by the Banking Laws Committee but did not proceed beyond the stage of discussion of the draft.[27] However the concept of negotiable warehouse receipts came to fruition in 2007 with the establishment of the *WDR Act* and WDRA.

Although WR finance is estimated to be $3.0-$3.5 billion in India, it is far from its potential of $60 billion.[28] In addition to the market problems mentioned in section 2.2.2 and section 2.2.1, there are several reasons behind this gap :

1. Banks are still risk averse and fear it is not possible to recover loans from the depositor in case of fraud, mismanagement or insolvency of the depositor;
2. Legal remedies are time consuming and inadequate; and
3. Lack of an e-NWR platform.[29]

2.6 Uses of Negotiable Warehouse Receipts

The literature in the public domain specifically talking about NWRs, a subset of WR is negligible. There is scant literature evaluating the benefits or performance of NWRs. This is especially true concerning their use in India. There has been no study so far assessing whether the real benefits that were once anticipated by the negotiability being introduced has actually taken shape since its introduction.

The negotiability of WR allows the title to the goods to be transferred from one person to another via the passing of the related NWR. The main

[24] See section 2 Dr. Devajit Mahanta, "Review of warehouse receipt as an instrument for financing in India", in: *International Journal of Scientific & Technology Research* 1 (9 Oct. 2012).

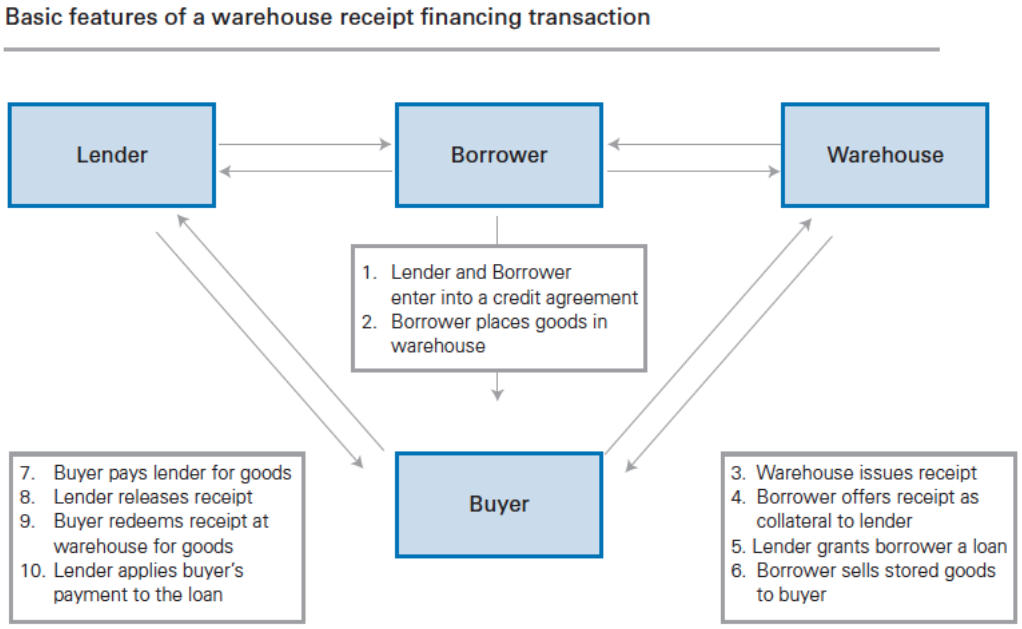
[25] See Chapter 10 International Finance Corporation, *Warehouse Finance and Warehouse Receipt Systems, A Guide for Financial Institutions in Emerging Economies*, tech. rep., International Finance Corporation, URL: `http://www.mongolbank.mn/conference/books/01.pdf` (visited on 08/28/2015).

[26] See Chapter 2 Department of Food and Public Distribution, *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country*.

[27] See section on Legislative Effort and Action Plan Jonathan Coulter and G. Ramachandran, *A strategy for the development of warehouse receipt system for agriculture in India*, tech. rep., Forward Markets Commission, Government of India and The World Bank, 2000, URL: `http://www.fmc.gov.in/showfile.aspx?lid=1143` (visited on 08/28/2015).

[28] See page 71 International Finance Corporation, *Warehouse Finance and Warehouse Receipt Systems*.

[29] See page 71 International Finance Corporation, *Warehouse Finance and Warehouse Receipt Systems*.



Source : Report titled : *The use of warehouse receipt finance in agriculture in transition countries*

benefits of a NWR is that :

1. A negotiable receipt allows easier trade and refinancing.
2. They can be traded on secondary markets, such as commodity exchanges, thereby attracting a larger pool of capital into commodity financing, beyond bank lending.
3. Easy to integrate with trading on an electronic exchange platform receipt may replace normal physical delivery in case the stakeholders trust the system.
4. It forms the basis for forward delivery of commodities and can be developed into futures contracts.[30]

In India, the lack of negotiability of warehouse receipts was solved by the creation of WDRA under the *WDR Act*. Under this act, warehouses that are registered with WDRA are allowed to issue NWRs.

The *Report of the Working Group on warehouse receipts and commodity futures* and *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country* mention considerable benefits for the Indian market from the introduction of NWRs that include :

1. Farmers may sell privately or make use of a simple settlement mechanism to ensure that he gets paid before the goods are removed from the warehouse;
2. A transaction can take place informally or on an organised market or exchange. In either case, the WR forms the basis for the creation of a spot, or cash market;
3. If transactions involve the delivery of goods on a future date, WR can form the basis for the delivery system in a commodity futures exchange ;and
4. WR increase the confidence of participants, particularly those in the private sector, in market transactions.
5. Increase of liquidity in the rural areas.;
6. Banks will improve the quality of their lend-

[30] See page 27 Food and Agriculture Organization, *The use of warehouse receipt finance in agriculture in transition countries*, 2009, URL: `http://www.fao.org/3/a-i3339e.pdf` (visited on 08/28/2015).

ing services and lower the cost of financing ;

7. Encourage scientific warehousing of agricultural commodities ;and
8. Improve the supply chain and enhance rewards for grading and quality.

However, there has not been a large demand for NWRs. The *Committee for Strengthening Negotiable Warehouse Receipts by the Warehousing Development and Regulatory Authority in the Country* recommended the following to generate greater demand for NWRs:

1. Scheme should provide pledge financing for all the farmers holding KCC against NWRs issued by all the registered warehouses including cold storages
2. Need for Full Fledged Infrastructure Status to Warehousing Sector
3. Simplification of accreditation / registration rules and regulation with a view to register more warehouses for issuance of NWRs.
4. Unified policy of insurance for WDRA requirement
5. Creation of Electronic Warehouse Receipts
6. NWR is issued as a Government security under Securities Contracts (Regulation) Act, 1956
7. Introduction of Modern Technology in warehousing sector
8. Greater awareness programmes for the farmers
9. A robust mechanism of inspection of warehouses
10. Capacity Building Programme in Warehousing Sector
11. Procurement of food grains through NWRs.
12. Simplification conversion of land use to be taken up with state governments.
13. Exemption of commodities stored in registered warehouses from stock limits under Essential Commodities Act, 1955.

Box 1: Bulgaria - A success story in warehouse finance

In Bulgaria warehouse receipt financing was first used in 2000. This was primarily due to the strict budgetary constraints that were placed on it by the International Monetary Fund(IMF). This created a major challenge for grain producers and processors as they could not generate operating capital due to stricter banking measure that were put into place.[a]

The programme's major components were:

1. Development and implementation of a warehouse receipt system in Bulgaria;
2. Development of grain commodity markets;
3. Assistance to providers of grain marketing information;
4. Assistance to grain industry trade organisation's efforts to consolidate and influence policy decisions and establish trade rules; and
5. Technical assistance and training to private grain processing and storage companies.[b]

The project covered all aspects of the grain marketing infrastructure, which was an important precondition for its success.

By 2009, this system was in full gear, with 47 licensed public warehouses and more than 500,000 tonnes of licensed capacity. As of 2009, the system had established itself as a major factor in stability of the grain market, and there had been no defaults related to the activities of licensed public warehouses. The financial sector lent an annual 10 to 50 million Euro against warehouse receipts. The requirement for warehouses was that they provide services to the newly established grain intervention agency with a public warehouse license.[c]

Bulgaria today has one of the few operational indemnity funds for warehousing outside the United States. The Bulgarian Ministry of Agriculture?s provided a three-year interest-free loan of US $2.5 million for the initial capitalisation of an indemnity fund.[d] This greatly helped in the successful expansion of the system. In the case of default of a WR obligation, the endorsers of the note of collateral are liable for damages incurred before its holder. When the holder of the note of collateral for grain deposit does not receive the amount on the note within three days of its being lodged, he/she is entitled to demand sale of the grain deposited in the public store.

Bulgaria also successfully introduced a prototype market information system complementing development of the warehouse receipt system. The implementation agency created a weekly grain marketing information service, based on direct information collected from a sample group of traders and grain processors in the country. The information is processed and distributed to a subscription list consisting of banks, licensed public warehouses, producers, and domestic and international traders.[e]

[a] See page 54 Food and Agriculture Organization, *The use of warehouse receipt finance in agriculture in transition countries*.

[b] See page 55 Food and Agriculture Organization, *The use of warehouse receipt finance in agriculture in transition countries*.

[c] See page 38 Food and Agriculture Organization, *The use of warehouse receipt finance in agriculture in transition countries*.

[d] See page 38 Food and Agriculture Organization, *The use of warehouse receipt finance in agriculture in transition countries*.

[e] See page 35 Food and Agriculture Organization, *The use of warehouse receipt finance in agriculture in transition countries*.

2.7 Regulating warehousing effectively

It is imperative that a firm understanding of the realities of Indian warehousing sector be present to enable policymakers to write regulations that governing warehousing in India. It is highly critical to understand the reasons behind the slow uptake of NWRs and its limited use over the last four years.

It is also equally important to determine the challenges that face stakeholders in the system that prevent them from accessing pledge financing and what could be done to mitigate them.

The lack of literature on NWRs, its usage and the evaluation of its performance so far is hindering the ability to take concrete steps on real reform. It is essential to understand what the role of the NWRs will be in the future and whether it serves the purpose for which it was set out for. This report aims to provide this information and assess user feedback to help bridge the data gap to provide a clearer sense of the ecosystem in which agricultural warehousing exists.

Chapter 3

Methodology

The research for the study consisted of three main tools:

1. Review of secondary literature on warehousing in India, and practices in other jurisdictions, as stated in section 2.
2. Field research based on the predefined questionnaires designed and approved for specific categories of respondents. Different predefined questionnaires were used for farmers, traders, WSPs, CMCs and banks. These questionnaires were employed in focus group discussions and in-depth interviews with respondents. Questions were designed in a manner so as to leave flexibility for related discussions around broad themes and concerns. A list of respondents is given in section 3.3.1.
3. Observations of working of the market infrastructure such as mandis and exchanges.

3.1 Sampling Methodology

The selection of districts and respondents was done in a manner that is diverse and reflective of the broad cross-section of the stakeholders involved in the warehousing sector. The strategy ensured maximum variation so as to get a diverse set of data for analysis.

The district selection was done based on the criteria mentioned below :

1. Geographical spread of the districts across the country for maximum coverage of major crops and terrains across regions ;
2. Sufficient density and availability of public and private warehouses in the district (based on the data provided to us by WDRA and publicly available data);
3. A mix of rural and urban districts;
4. Coverage of districts with different crop profile across states or regions to compare for differences and similarities in the warehousing sector and usage of NWRs;
5. A district mix of the various types of agricultural commodity(ies) produced and stored in the region that are also a part of the list notified for the issuance of NWRs; and
6. Availability of adequate stakeholders participating in the warehousing business;

The selected districts were then confirmed by discussions with market participants. In some cases, there was a change in the selected districts based on such conversations. This was done in order to ensure the selected district satisfied the criteria stated above, and provided findings with regard to the objectives for this study.

3.1.1 District selection and criteria

Districts have been selected based on the criteria mentioned in section 3.1. The district wise profile is provided in table below, which provides a high level profile of the district in addition to the reasons for choosing it.

	District Name	Region	Rural/ Urban	Crop Mix	Reason for selection
1	**Karnal, HR**	North	Semi-urban	Wheat, Rice, Sugarcane	Part of a predominant rice and wheat growing belt region in the north
2	**Mehsana, GJ** **Rajkot, GJ**	West	Rural Urban	Groundnut, Bajra, Cotton, Jeera Groundnut, Cotton, Castor and Sesamum	Insight into the workings of multi commodity warehouses housing a large jeera and groundnut market. Urban multi commodity region consisting of one of the few remaining regional exchanges
3	**Ernakulam, KL**	South	Urban	Pepper, Paddy, Rubber and Coconut	An urban district in the south, rich in spices and home to a regional commodity exchange.
4	**Guntur, AP**	South	Rural/ Semi Urban	Paddy, Cotton, Maize and Chillis	This is a district situated within the rice rich region of Andhra Pradesh consisting of a large number of cold storage facilities for chillis and dry storage for turmeric and paddy.
5	**Purnia, BH**	North	Rural	Rice, Wheat, Maize	A district in the large agricultural dependent state which has implemented agricultural market reforms in the recent past
6	**North 24 Parganas, WB**	East	Rural/Urban	Potato, Rice, Jute, Oilseeds	An eastern district close to Kolkata, producing rice and potato, staple of the eastern gangetic plain.
7	**Vidisha, MP**	Central	Rural	Soybeans, Wheat, Chickpeas	Large soyabean producing district in a well developed warehousing state in central India
8	**Nanded, MH**	West	Rural	Cotton, Soybeans, Sorghum, Black gram	Highly productive multi commodity district in a state with large warehousing infrastructure
9	**Kamrup (Rural),AS** **Kamrup (Metropolitan),AS**	East	Rural Urban	Rice, Rape seed, Mustard Rice, Tea, Wheat	A north east district with a hilly and plain terrain in both a rural and urban context

Source : www.agricoop.nic.in

3.2 Details of the participants/ respondents

In addition to the district selection, the respondent selection within each district has been done to ensure maximum sample of a diverse number of categories. The break up and overall scale of respondents interacted with is provided in this section.

The following is a list of all the categories of respondents covered for this qualitative study.

1. Depositors
    - Farmers - Primary target for utilising warehouses and NWRs in order to make fewer distress sales and a main focus of the study.
    - Traders - Primary users warehouses today and potentially large subset of NWR users.[31]
2. Public and Private banks engaged in pledge financing
3. WSPs[32]
    - CMCs[33]
    - Central Warehousing Corporation
    - State Warehousing Corporations
4. Warehouse Owners
5. Agricultural Produce Marketing Committees (APMCs) markets
6. Regional commodity exchanges

Field research was conducted by interviewing these stakeholders at each district or region. These interviews were conducted through a mix of Focused Group Discussions (FGDs) and one on one interviews. A predefined questionnaire was designed for the key stakeholders including to record their feedback but the majority of the interviews were to be conducted in a semi structured format. The collected primary data from questionnaires was then tabulated and organised for the analysis of the data and inferences were drawn from the evaluation study leading to recommendations and suggestions.

[31] Some traders were also commissioned agent or brokers who are market participants that help connect farmers with traders to sell their goods. These brokers are a crucial cog in the mandi ecosystem since they also provide easy unorganised means of finance to farmers at a relatively higher cost.

[32] For the purposes of this study, a "WSP" is being defined as the owner/partnership/government institution that owns and/or operates a warehouse which provides storage and warehousing services for goods including but not limited to agriculture produce, metals, commodities, liquids etc.

[33] They either lease/buy warehouses and manage commodities that are used for pledging. They are also sometimes just the caretaker of the goods within a fully captive warehouse. They usually provide these services to banks.

3.3 Detailed study schedule

The qualitative survey utilised 9 in house researchers from NIPFP for the field surveys.

Each team was responsible for conducting multiple activities during a single field visit. This included moderating focus group discussion, interviewing respondents, transcribing and video graphing these responses. A team spent 3-4 days at each district or region.

Table 3.2: Study Plan

	Field Visit/ Activity	**No.of Days**	**Date of Completion**
1	Pilot field study in Karnal, HR	3	17/4/15
2	Qualitative training at NIPFP office by Ms. Udita Das, Qualitative Research Expert	3	24/4/15
3	Field study in Mehasana, GJ and Rajkot, GJ	4	9/5/15
4	Interviews in Mumbai with multiple public and private banks	3	15/5/15
5	Field study in Ernakulam, KL	3	21/5/15
6	Interview collateral manager in Hyderabad and field study in Guntur, AP	5	5/6/15
7	Field study in Purnia, BH	4	5/6/15
8	Field study in North 24 Parganas, WB	4	10/6/15
9	Field study in Vidisha (Ganj Basoda), MP	3	17/6/15
10	Field study in Nanded, MH	3	17/6/15
11	Field study in Kamrup, AS	6	25/6/15

3.3.1 Number of respondents covered

The following is a list of all the categories and the minimum number of respondents covered *in total for the qualitative study*.

	District Name	**Farmers**	**Traders**	**Warehouse Owners**	**CWC**	**SWC**	**CMC**	**Banks**	**APMC**	**Regional Exchange**
1	**Karnal, HR**	10	4	4	1	1	1	1		
2	**Mehsana, GJ, Rajkot, GJ**	4	7		1		1	1	1	1
3	**Mumbai, MH**							4		
4	**Ernakulam, KL**	2	4	2	1	1	1	1		1
5	**Guntur, AP**	6	5	3	1	1	1	1	1	
6	**Purnia, BH**	8	8	3		1	1	1		
7	**North 24 Parganas, WB**	6			1	1	1	1		
8	**Vidisha, MP**	6	2	2	1		1	4		

9	**Nanded, MH**	6	8	2	1	1	1	2		
10	**Kamrup (Rural and Metropolitan), AS**	3	15	1	1	1	1	1		
	Total	51	53	17	8	7	9	17	2	2

3.4 Selection strategy of respondents

Two inter-connected strategies were used for recruiting respondents:

1. One of the prominent WSPs in a particular district was requested to facilitate interactions with key market participants such as banks, traders, etc. The WSP provided assistance through their local staff to locate and contact willing respondents or provide contact details for the respondents.
2. The report used a system of purposive sampling , which is the selection of a certain sample where the most amount of information can be gathered by interviewing or observing a varied, large and particular group.[34] Using this technique, a specific selection criteria which to select a sample of participants was determined.

The following considerations also informed the selection of respondents:

1. Typical sampling : Ensuring some stakeholders reflect the average or typical individual.
2. Unique sampling : Ensuring at least a few stakeholders display atypical or unusual characteristics.
3. Snowball sampling : Selected participants and interviewees who then, referred us to other stakeholders , who the report also decided to ask for participating in the study.

3.5 Data collection procedures

Interviews were conducted using two methods :

1. **Focus group discussions**
   - Small group discussions were organised, usually with 4-8 participants.
   - Both pre-structured and open questionnaires were utilised.
2. **In-depth interviews**
   - Combination of formal, semi structured and open questions
   - Interviews were conducted with farmers, traders, lenders, institutions, banks.
   - Interviews were conducted mostly with senior level management.

The majority of the research was conducted via semi-structured interviews. The interviewers had adequate flexibility to explore related issues that were relevant and came to light during the course of the interview.[35].

3.6 Data analysis

As Merriam states, the preferred way of data analysis is to analyse data during data collection rather than waiting to begin data analysis until all data has been collected. During this study, information collected in the initial districts was used to refine and focus the questionnaire.

The data collected from all nine districts was analysed by identifying segments and categories that assisted in answering the research objectives. Determining the categories present in collected interview transcripts and field notes was based on the major topics covered in the questionnaire. The responses to these questions were then segregated under these categories and analysed for a focussed summary of the responses provided across districts per stakeholder.

The primary data from questionnaires was tabulated and organised for the analysis of the data and inferences were drawn from the evaluation study leading to recommendations and suggestions.

[34] Michael Quinn Patton, *Qualitative research and evaluation methods*, Thousand Oaks, 2002.

[35] Sharan Merriam, *Qualitative Research: A Guide to Design and Implementation*, John Wiley and Sons, 2009.

Disclaimer: This report does not intend to be taken as a comprehensive set of all warehousing participants within the country, but rather be used to understand the data emanating from the quantitative report more holistically. This will provide a fuller analysis and give policymakers a much better understanding of the causes and consequences of public opinion.

Chapter 4

Findings of the study

This section states the findings of the study across nine districts (and in-depth interviews with stakeholders in Mumbai). Findings have been arranged as per the objectives of the qualitative study stated in section 1. These findings are not intended to provide a statistically determination of practices within the warehousing market on a national, state or sub-state level. They are intended to convey the practices followed by a wide diversity of respondents across different districts. A brief summary of findings is provided below:

1. *Market for warehouse receipts*
    - The market for warehouse receipts in agricultural commodities is dominated by storage for two primary purposes: (i) storage for preservation, and (ii) storage for accessing credit.
    - Traders are the main users of warehouses for both these purposes within the districts covered in the study. A very small proportion of farmers who were respondents used warehouses.
    - Storage itself takes place in both licensed and unlicensed warehouses, though users generally prefer licensed warehouses.
    - Banks that are engaged in pledge financing prefer warehouses with better documentation and quality, but place CMCs in-charge of managing the pledged commodity.
    - There has been a rapid growth of the pledge financing business in recent years, and bank branches in almost all surveyed districts had growing portfolios of pledge finance. The business was most robust in areas with high agricultural production and well functioning agricultural markets such as Mehsana, Guntur and Vidisha.
2. *Warehousing business operations:*
    - Profiles of those in the warehousing business are varied. Almost all districts had the presence of one or more large WSP companies. Such WSPs act as pure WSPs, as well as CMCs.
    - Many of the respondents were those engaged in building warehouses and leasing them out to WSPs. In some districts, there were also smaller, individual proprietors who are WSPs.
    - Generally, the quality of warehousing infrastructure did not vary depending on what kind of entity owned it. Newer warehousing facilities were generally better than older ones. Most CWC and SWC warehouses visited during the study were older, and therefore of

inferior quality.

- The quality and kinds of services offered by WSPs varies substantially. The kinds of services offered as CMCs depend on the contractual arrangement between the bank and the WSP.

3. *Risks associated with storage:*
   - WSPs, and Warehouse Owners (WhOs) face both business and legal liability risks. Business risks emanate from normal operations of the warehousing business and competitive forces. Legal liability risks arise due to lack of professional diligence, acts of employees, or natural or man-made disasters.
   - Business practices, internal controls and standard operating procedures are the first step towards risk-mitigation. Most large WSPs had standard operating procedures and internal control and inspections systems.
   - Insurance against legal liability risks is the other form of risk mitigation. Large WSPs insure both their infrastructure and the commodities they have in their custody from such risks. Generally though, the WSP took insurance for the infrastructure. Insurance for the deposited commodity was usually found to be taken by the depositor.
4. *Experiences of consumers of warehouses:*
   - Farmers comprise the smallest proportion of users of warehouses. The primary users of warehouses are traders, government agencies like FCI and HAFED, and banks.
   - Warehouse usage depends on the quality of services delivered by the WSP, costs of labour and transportation.
   - There was general under-utilisation of warehouses in certain districts that are major agricultural marketing hubs. Less developed markets generally have low availability of warehouses. In some districts, low capacity utilisation was ascribed to low agricultural output in the past year.
   - There is evidence of information asymmetry and power asymmetry in the warehousing market. In some districts, depositors spoke about lack of information on warehouse rents and their inability to raise concerns with WSPs due to lack of quality warehousing options.

5. *Infrastructure for e-NWRs*
   - Most respondent WSPs stated that they maintain standardised procedures, trained staff and insurance for conducting the warehousing business with minimal risks.
   - Some large WSPs have electronic systems for record-keeping, verification and generation of WRs. However, technology has not been integrated completely into the business processes of these firms. One WSP who has done so reported operational efficiencies consequent to complete technology adoption for its warehousing business. A large portion of the market continues to use completely manual and paper-based processes.

4.1 The market for warehouse receipts

4.1.1 Utility of storage

Warehousing services are used largely by traders. In some districts (for example, Guntur) large farmers utilise warehouses as well.

Warehouses serve an important purpose for traders who use it for three main reasons:

1. Use it store goods for them to further process and mill;
2. Use it to store goods that can be exported later at a higher price after processing;
3. For accessing credit for financial liquidity till the goods are sold.

The commodities stored vary widely. The rice millers in Karnal, the jeera traders in Mehsana and the chilli traders in Guntur all used modern warehousing to maintain goods that are export quality. In Ernakulam, and Kamrup , the agriculture warehouses were used to store electronic items as well as other materials like books due to the lack of farmers or traders in that area. This was true of both private and government warehouses.

The perception among the majority of respondents across the surveyed districts is that there isn't a shortage of warehousing facilities. Due to consecutive years of bad yields, there is an excess supply of warehousing facilities in most districts surveyed, driving rents down. In low productivity areas on the other hand, there is a lack of warehousing, but due mainly to the low necessity for storage. This was true of North 24 Parganas, where the banks reported that the warehousing capacity in rural areas was very small and the culture of warehousing was yet to really take off.

4.1.2 Types of warehouse receipts

In today's market, there exists two different receipts associated with warehousing. These are :

1. Warehouse receipts : A warehouse receipt is given to a depositor when the public warehouse is actively managed and leased by a CMC. In this case, the CMC does not have to provide the bank with information beyond KYC data, because the quantity and quality of the product is verified before the receipt is generated, and stated on the WR. These are generally preferred by the bank since they are issued by WSPs/ CMCs in full control of the warehouse. Respondents in various districts implied that although the loan to value ratio is the same for both WR and storage receipts, banks tend to usually give loans faster and easier for WRs.[36] In issuing warehouse receipts, CMC gain revenue from the depositor as well as a commission from the bank on the value of the loan, typically in the range of 0.5%-1.5%.
2. Storage Receipts : A storage receipt is given to depositors when the warehouse is owned by a warehouse owner and the goods within the warehouse are managed by a CMC. Here the CMC, appointed by the bank is managing these goods on behalf of the bank. The warehouse, in this case, could be public or a captive godown used to store the goods of the owner himself. Banks honour storage receipts on a case to case basis based on specific, strict criterion.[37] In the case of a

[36] As mentioned by the bank manager of a public sector bank in Karnal.

[37] A commodity head in a large private bank during a meeting in Mumbai mentioned that the overall market for storage receipts in India was around 40% of the overall warehousing finance market in India.

storage receipt issuance, the CMC only earns a commission from the bank and not from the depositor. The depositor's share of payment is embedded within the tripartite agreement between the bank, depositor and the CMC

The difference in the types of receipts owes to the legal regulation of warehouses under state laws. Only licensed warehouses are legally permitted to issue WRs. Storage spaces that are unlicensed are not legally permitted to issue WRs. However, a lot of storage does in fact occur at such locations. Banks also lend to persons who store commodities within their own facilities, after the commodity is placed under the charge of a CMC. Storage receipts are issued in such cases, where the facility at which a commodity is stored is not a licensed warehouse.

4.1.3 Pledge finance market

Pledge finance involves a depositor pledging his or her agricultural commodities to a bank so as to avail a loan. This is done in order to acquire a working capital and meet the financial needs of the depositor while waiting for a good price to sell the commodity.

Although WR finance is estimated to be $3.0-$3.5 billion in India, it is far from its potential of $60 billion.[38].

Interviews with bank branches provided significant insights into the pledge finance market :

1. The main users of pledge finance in all districts were traders. There was a very small proportion of farmers who availed pledge finance.
2. A portfolio of a bank branch, on average, is usually around seven to ten crores. Guntur was an anomaly however with a bank branch registering loans worth a hundred crores.
3. Financing is focused around the commodities produced and traded in that area e.g. chillies in Guntur, jeera in Mehsana, etc.
4. The pledge financing business is safe with the help of CMCs, and growing every year.
5. Loans to farmers are within RBI stipulated limits. Generally loans to farmers are not provided above this limit. Traders, however do not have a fixed limit and get loans upto eight crore based on credit worthiness
6. Banks are highly reliant on CMC to manage the goods in warehouses and feel that they are an integral part of the pledge finance business.
7. Although most of the pledge finance business is conducted with private warehouses, banks in most districts expressed a preference for storage in CWC and SWC due to lower risk owning to government ownership.
8. There has been growth in demand for warehousing, especially in Ernakulam, Purnia and Nanded. However, lenders did caution that the trends were usually seasonal and dependent on commodity prices.

Potential:

Some districts surveyed have shown a tremendous potential for pledge finance. Karnal and Mehsana have a large number of traders and processors due to their large rice and jeera market respectively.

In certain cases like Nanded and Guntur, the reason for a robust pledge finance portfolio is good warehousing market, wide variety of commodities available and good access to a mixture of commodities varied and stocking possibilities high.[39]

[38] See page 71 International Finance Corporation, *Warehouse Finance and Warehouse Receipt Systems*.

[39] The wide variety of commodities in Nanded is a big advantage since it allows the bank to access a wide base of customers and enables risk diversification.

In Vidisha, many large FMCG companies such as ITC and Cargill are procuring directly from farmers/traders, which has had an impact in the scope of expansion in commodity financing in the areas as well.

North 24 Parganas had a large number of farmers, yet the pledge finance market was relatively small. This was largely due to the fact that rural areas did not have enough warehouses. The pledge finance market has also been affected by the fraud that took place in Burdwan district in West Bengal where the CMCs and depositors colluded to pilfer stock.

In Kamrup, the pledge finance market is negligible because the majority of the warehouses used by the traders are for storing goods only for a very limited period of time. These warehouses are used to provide traders with transit storage of goods moving from mainland India to the other north-eastern states.

Box 2: Finance required during the production life cycle

There are three stages of production where producers require finance. This is uniform across all surveyed districts.

1. Pre-Production stage: The farmers obtain finance for procuring seeds, fertilisers, and other farm equipment for production. The banks at this stage, lend through a short term crop loan scheme for farmers issued via the Kisan Credit Card. In Guntur, farmers also were able to avail loans through PACS at a rate of interest of just seven percent. However, many of the farmers interviewed across all districts usually borrow from middle men who are commissioned brokers (arhatiyas).

2. Production: Farmers require finance for hiring labour, farm equipment and renting farm land. The same credit facilities available during pre-production are available at this stage. During this stage, respondent farmers reported that they harvest and store their commodities in their own backyard. The duration for which this storage occurs is proportional to the perishability of the commodity.[a]

3. Post-production: Farmers require finance for transportation and repayment of loans availed during pre-production and production stage. At this stage, farmers borrow from commissioned agents through an informal trust arrangement (this was reported in all districts except Ernakulam). This is primarily because middlemen are open to lending small amounts of money, more frequently and without the requirement of a collateral. Respondents in most of the surveyed districts mentioned twenty four percent interest charged per annum. In most cases, the farmer disposes of his commodity to either a commissioned agent or a trader as soon the crop is harvested.

[a] In situations where the commodity is not highly perishable, the farmer keeps his produce usually out in the open, with jeera, rice and turmeric.

Box 3: Profiles of Unjha and Basoda mandi

Unjha mandi

Unjha mandi is situated in the Mehasana district of Gujarat. It is one of Asia's largest markets for the trading of jeera, fennel seed and psyllium.

Location: The Unjha mandi has several locational advantages. It lies on the main line of the Western railway and the nearest Unjha railway station is only 1 kilometre away. It is well connected by Ahmedabad-Delhi national highway and state highway 41. The proximity to rail, road and sea route help traders connect with both domestic and international buyers. There are 35-40 banks with their branches in Unjha city which help service the large volume of mandi transactions.

Transaction mechanism: All payments to farmers happen through cash in the mandi and the trade settlement takes place on the same day. The buyers pay 1.5 % commission to the middlemen or the arhatiyas. The seller/farmer is charged only for labour for off-loading the produce in the market. The mandi committee takes a commission of 0.5% of the value of goods. The mandi committee is responsible for dispute resolution and effective oversight. Respondent farmers in the mandi, and traders operating there all stated that they were very happy with the mandi's functioning. Mandi administrators stated three main reasons for this:

1. No limitation on volume of commodity allowed in to the market;
2. The mandi mandates all transactions only in cash; and
3. Regular and impartial inspections and auction oversight by mandi inspectors.

Facilities in the mandi premises: There are approximately 1000 godowns (both registered and unregistered) located close to the mandi . The mandi is also equipped with a canteen where all farmers are provided food at concessional rates, and also a rest house for farmers.

Basoda mandi

Basoda mandi is situated in the Vidisha district of Madhya Pradesh. It is one of the biggest grain markets in Asia. The main commodities traded in this mandi are wheat, gram and soybeans.

Location: The Basoda mandi lies on the main line of a railway and the nearest railway station is less than one kilometre away. It is well connected by state highway and national highway. There are 6-7 banks close to the Basoda mandi offering banking and commodity financing services.

Transaction mechanism: All payments to farmers happen through cash in the mandi and the trade settlement takes place on the same day. The buyers pay commission to the middlemen or the arhatiyas. The seller/farmer is charged only for labour and off loading the produce in the market. Mandi administration is provided by an elected mandi committee.

4.2 Warehousing business operations

One of the main objectives for this study was to understand the business warehousing. This would include understanding the functioning of a single individual WSP[40], and organised companies that function as WSPs and CMCs. It would also include an understanding of the relevant concerns of users of warehousing facilities. Accordingly, this section is organised into the following parts:

1. Profiles of users of warehouses (section 4.2.1)
2. Profiles of operators of warehouses (section 4.2.2)
3. Warehousing facilities (section 4.2.3)
4. Key aspects of the warehousing business and related processes (section 4.2.4)

4.2.1 Profiles of users of warehouses

Traders comprise the dominant users of the warehouses covered in the study. This was true across all but one district (Guntur, AP). However, some WSPs, CMCs and banks stated that many traders are also farmers, or may hold themselves out as farmers in certain cases to avail discounted storage charges at warehouses.[41]

In some instances, large companies engaged in the processing of agricultural commodities are also clients of WSPs. Companies such as ITC Limited and Cargill also use warehouses in certain areas for temporary storage.

Banks are important users of warehousing services. Depositors (mainly traders) avail of pledge financing against stored commodities. Banks engage CMCs to take possession of the collateral (the deposited commodity) before disbursing credit to borrowers.[42]

In urban districts such as Ernakulam and Kamrup, the user profile is more diverse. This is because warehouses are close to consumption as well as production centres. The same warehouses in such areas are used to store both agricultural and non-agricultural commodities (such as CBSE exam answer scripts, electronic goods, fertilisers, paint, etc.)

4.2.2 Profiles of operators of warehouses

The following main forms of warehouse operators were found in the districts covered:

1. WSPs who own or rent warehouses for providing public warehousing services or for collateral management. In some cases, such WSPs have to manage collateral in premises under the control of a third party as well. CWC and SWCs are government owned companies engaged in the business of providing warehousing services;
2. Individuals who own warehouses (WhOs), but provide no warehousing facilities. They usually lease out the premise to WSPs for providing warehousing/ collateral management services, or to corporate clients for captive storage;
3. Individuals who own warehouses and provide warehousing services. There were a small number of such respondents in some districts covered in the study;
4. Mandis and some regional exchanges have their own warehousing / godowns.

[40] For the purposes of this study, a "WSP" is being defined as the owner/partnership/government institution that owns and/or operates a warehouse which provides storage and warehousing services for goods including but not limited to agriculture produce, metals, commodities, liquids etc.

[41] Respondents in Karnal and Guntur stated that in some cases, traders also enter into agreements with farmers who then avail of warehousing facilities, etc on the trader's behalf.

[42] In certain cases, borrowers approach CMCs directly. The CMC then forwards the request for pledge financing to the bank.

4.2.3 Warehousing facilities

Warehousing facilities varied depending on:

1. *The local economy of the region.* Areas with a vibrant agricultural economy such as Guntur, Mehsana, Ernakulam and Vidisha generally had better and larger warehouses than less vibrant economic areas such as Purnia, Kamrup and North 24 Parganas;
2. *The time when the facility was constructed* (recently built warehouses were significantly better than those built 10-15 years earlier);
3. *The profile of the warehouse owner*: Corporate entities with larger capital have built high-quality warehouses in recent years. Older SWC and private warehouses were generally of inferior quality; and,
4. *The purpose for which the warehouse is being built*: Warehouses built for dry storage are different from cold storages.

Other than this, there were differences in infrastructure standards within and across regions. Such differences pertained to plinth heights, facilities for ventilation, access routes, material used for construction, etc.

A number of warehouses were unlicensed. In addition, respondents in North 24 Parganas and Kamrup stated that their states do not have a licensing system for warehouses.[43] However, all these facilities were being used for providing warehousing facilities. Banks were providing pledge financing regardless of whether warehouses were licensed or not. This was being done through the use of CMCs in such areas.

[43] Licensing of warehouses in West Bengal is governed by the West Bengal Warehouses Act, 1963 and the West Bengal Warehouses Rules, 1967. The Director of Marketing is the licensing officer. There is no need for a license for operating a warehouse in Assam.

Box 4: Regional Commodity Exchanges

Very few regional commodity exchanges are still actively functioning today. Two such exchanges were covered as part of this study, and have been profiled below.

India Pepper And Spice Trade Association (IPSTA) Exchange :

This regional exchange located in Ernakulam, Kerala is the only pepper exchange in India. It has over 105 registered broker members, out of whom 15-20 are active. Farmers comprise a very small proportion of the total membership. To become a member, one needs to be referred by an existing member and submit a guarantee fund. The exchange is completely electronic now and has developed its own unique trading platform that mimics the NCDEX trading platform. Members use the market primarily for hedging. The settlement taken place on the 15th of every month, as compared to the 30th for a national exchange. Goods have to be deposited in the 6000 MT warehouse run by the exchange (or in a CWC warehouse nearby that the exchange has tied up with) at least five days prior to the settlement date. No cash payments are allowed. These goods are randomly sampled for quality at a third party lab in case required.

Regional Commodity exchange, Rajkot:

This regional exchange (mainly for castor) is located in Rajkot. This is the only remaining exchange running on an open outcry model, where traders and brokers gather in a open courtyard in the middle of the exchange to buy and sell. There are a total of 101 broker members, currently 22 are active. Almost all the members are traders from around the region. The daily turnover of the exchange is around Rs 35 crore and the settlement at the exchange happens on the day after the trade. These physical settlements are inspected by the exchange and also by the Forward Markets Commission (FMC). Although the exchange has a godown, it is rarely used since most of the members have their own godowns and the general storage requirement is low due to the next-day settlement policy. In recent years the exchange has lost volume and value after the NSEL collapse. The loss in trust has resulted in lower profit and turnover for the exchange. The exchange aims to move towards an electronic platform soon to compete with the national exchange, but is currently weighing up the cost benefit analysis as the initial capital expenditure would involve two to three crores. Broker members use the exchange primarily for hedging.

4.2.4 Key aspects of the warehousing business and related processes

Business activities

In the districts covered in the study, public warehouses offer the following services:

1. preservation of commodities;
2. collateral management for pledge financing; and
3. storage for trading on commodity exchanges.

WSPs such as Shree Shubham Logistics Pvt. Ltd. (SSL), National Bulk Handling Corporation Ltd. (NBHC), National Collateral Management Services Ltd. (NCMSL), are engaged in all three kinds of activities. CWC and SWCs warehouses are not being used for trading on exchanges. It was found that in some situations, where the warehousing facility is under the actual control of the WSP, the same premise may be used for both preservation, as well as for collateral management.

NCDEX, the largest commodity exchange has stringent requirements for the storage of commodities that are traded on its exchange. It does not permit non-exchange commodities to be stored within the same godown.

Business processes

It was found that the primary business activity of a WSP is to provide storage and preservation. WSPs involved in collateral management provide services that are additional to the basic facility of storage for preservation. Exchange-linked storage requires more stringent processes and protocols for storage for preservation.

Storage for preservation

There was a wide diversity of the kinds of services related to the obligations that WSPs undertake in relation to storage within and across the districts covered.[44] In most cases, storage occurred at a facility under the active control and management of the WSP. The WSP had leased/ rented the premises, and the depositor may or may not have been one of many depositors in that warehouse.

In other cases, the premises in which the commodity was stored was owned/ rented by the depositor, and the WSP took possession and control over the space in which the commodity was stored. The WSP was in-charge of ensuring the physical security of the deposited commodities.

The nature of obligations also varied depending on the types of services required of the WSP. In most cases, the WSP was in-charge of verifying the quantity of the commodities, sampling and certifying the quality of the commodities, and undertaking steps (for example, fumigation) to preserve the value of the commodity. In some cases however, the obligation of the WSP was limited to ensuring the physical security of the commodity, and the depositor undertook to preserve the quality of the commodity (for example, by fumigating the deposited goods periodically at his own expense).

The process for storing commodities is divided into three phases:

1. Inward process,
2. Storage process and
3. Outward process

It was found that most of the large WSPs followed similar basic protocols at each of these three stages. Most such WSPs stated that they have detailed written process documents. WSPs in almost all districts follow a standard operating procedure even if it is not formally documented in most cases. These also include a process for fumi-

[44] This does not include captive warehouses for personal use.

gation and maintenance of the stock as required.

The inward process starts with the depositor bringing the commodities at the gate of the warehouse. The watchman issues the depositor a gate pass which contains information about license plate number of the truck, weight of the truck with goods and without goods, driver's signature. The depositor takes the gate pass to warehouse manager and starts unloading goods. The unloading charges are borne by the depositor. WSPs then sample the commodity and examine its quality.

Quality testing is usually done, either on premises or in a lab in a nearby town or city. Most WSPs have equipment to examine the quality of a commodity in the warehouses owned by them. If such equipment is not present in certain warehouses, the sample is sent to another facility or an independent lab for quality testing.

The storage process involves sampling, regular inspection and periodic fumigation of the stock. These processes vary depending on the type of commodity and its perishability. Inspection is conducted by the Capital Markets Services (CMS)'s internal audit team as well as by bank reps in almost all the cases with a varying level of frequency ranging from two weeks to two months.

In this service offering, WSPs earn income by levying charges on the depositors. This is done on a rental charge per month based on either a) space occupied by the commodity per square feet or b) per bag cost.

Collateral management services

WSPs are empanelled and engaged by banks to to provide collateral management services and secure the pledged goods in a warehouse for a depositor. This happens once the depositor approaches the bank to seek a loan against the commodities at a warehouse. A tripartite agreement is then signed between the bank, depositor and the WSP for a basket of services that a WSP can provide. These include quantity and quality assaying, fumigation, pest control and insurance.

The activities of the WSP once a contract has been agreed to is provided below :

1. WSPs have the keys to the warehouse and control all stock entering or exiting the warehouse.
2. WSPs staff are on site during working hours to manage the stock.
3. WSPs provide standard storage practices for ensuring preservation e.g. stacking, distance from walls, etc,
4. The WSPs also offer other value added services including procurement and help in sale of commodities and monitoring market prices on behalf of banks with pledged commodities.
5. WSPs provide banks a bi-weekly or monthly reports on information on the goods and if demanded, reports on price movements.

Banks stated that they all follow a centralised empanelment process with regard to CMCs. The choice of which WSPs to empanel as a CMC is made centrally, at the corporate offices of all banks. Branch heads at local branches then have discretion in selecting one of the empanelled CMCs for handling the pledged commodity. This choice depends on the quality of services provided by the empanelled WSPs in that region. Banks choose WSPs based on many factors:

1. General quality of service and responsiveness;
2. Prompt deposit and release of goods;
3. Well-defined processes and protocols;
4. Prompt issuance of warehouse/ storage receipts; and
5. Financial soundness of the WSPs.

Exchange-linked storage

Box 5: Process for pledge financing

The warehouse finance process usually includes the following steps:

1. The depositor brings the goods to a warehouse managed by a WSP, or the commodity is already stored at a particular premise and the WSP has to manage the commodity at such premise. If it is the latter of the two, the WSP usually has to inspect the premises and certify that they are fit for storage of that commodity.[a]
2. The WR is generated after the process of checking the quantity and quality is conducted by the WSP.
3. Quantity is usually checked using a weigh-bridge which generates a weighing slip that cannot be tampered with.[b]
4. Quality of the commodity is tested and certified by an on-site or a nearby lab.
5. The depositor or the WSP approaches a bank to seek a loan against a WR or storage receipt issued at the warehouse.[c]
6. The bank then determines the amount of loan to disburse based on the assessment of the quantity and quality of goods done by the WSP as mentioned on the WR.
7. Inspections on the quantity and quality of the goods is conducted by the internal audit team of a WSP and the representatives of the bank fortnightly to monthly.
8. The depositor then has the option of finding a buyer or withdrawing his goods by approaching the bank for a release order.
9. The depositor is then allowed to withdraw his goods once all the outstanding dues are paid.

[a] In some cases like Vidisha, multiple WSPs provide collateral management services within the same third party owned warehouse. Though this practice is generally avoided by larger WSPs, there are exceptions.

[b] In certain districts like Guntur, a bag is assumed to be a certain weight and the quantity is determined based on number of bags stored. This is risky and un-scientific.

[c] In Ernakulam and Vidisha, when the warehouse doesn't meet certain requirements, the bank asks the WSP to identify a different location fit for storage

Some WSPs have warehouses which have segregated warehouses or space within warehouses for NCDEX-traded goods. NCDEX is the largest agricultural commodity exchange currently in operation in India. These are used for exchange linked storage and trading.

The requirements and processes followed for such warehouses are far more stringent than a regular accredited warehouses:

1. Warehouses for exchange linked storage must be independent, or segregated from already existing warehouses with non-exchange commodities. The WSP must demarcate such a facility clearly for the purpose of exchange trading and storage.
2. There are detailed specifications for unloading at particular bays, and including driver signature, cross checking of bills.
3. Tracking of all goods has to be done to a particular lot size and recorded.
4. Colour code or symbol code different goods
5. Explicit marking of the goods that have expired as per exchange specifications is required.
6. Stricter, standardised requirements are prescribed regarding stacking of goods.
7. There are regular NCDEX and third-party inspections.

The WSP usually charge per bag, at a rate up to double for exchange-linked storage compared to a non-exchange linked warehouse. In one district, the non-exchange rate per bag was eight rupees compared to the exchange linked bag of sixteen rupees.

Sources of revenue, costs

The costs and revenue in warehousing business differ for warehouse owners and WSPs. The costs for warehouse owners are limited to the extent

of constructing a warehouse and maintaining the warehouse. In some cases the WSPs also own warehouses. In those cases, the costs with regard to constructing and maintaining the warehouse are also incurred by the WSP. In cases where WSPs merely rent/ lease warehouses, their costs for WSPs are limited to operational expenses.

Costs and revenues for WSPs

The cost and revenue break-up for WSPs differs on basis of their cost and revenue model.

1. **Costs**: The costs for WSPs can be divided under following sub-headings:
   (a) **Rent**: Rent is major component of cost for WSP. However, in some cases, the WSPs own warehouses and do not have to pay rent. None of the WSPs we met owned all the warehouses they were managing. In fact, some WSPs do not invest any money on capital creation or warehouse construction. The rent component of cost depends on individual business model of WSP. The three business models are as follows:
   - *the WSP owns the warehouse:* In this business model, the WSP has to incur the capital costs incurred by the warehouse owner for building and maintaining the warehouse. Another capital cost component for WSPs is the cost of equipments (weighing, testing, fumigation, pallets and dunnage sheets). In addition to the capital costs, the WSP has to incur operational costs. These costs can be sub-divided into:
   - *the WSP leases the warehouse:* In this business model, the major cost component for the WSP is the rent that he has to pay the warehouse owner. In Karnal, the WSP stated that the rent for the warehouse makes 70 percent of the total cost.
   - *the WSP has a revenue sharing agreement with the warehouse owner:* In this business model, the WSP has an agreement with the warehouse owner and instead of paying a rent to the warehouse owner, the WSP shares the revenue with the warehouse owner in an agreed ratio.

   (b) **Salaries for staff:** A WSP has staff for supervising the warehouse, providing security and auditing the warehouses. The WSPs in almost all districts stated that salaries are a major cost component for WSPs. In Guntur, the WSP stated that salaries are 80 percent of total costs.
   (c) **Insurance premium for stored commodities:** A WSP is responsible for the quantity and quality of the commodities stored in the warehouse. WSPs buy insurance to cover their risks with regard to the commodities. The standard insurance policy cover taken by WSPs cover risks related to fire, flood and theft.
2. **Revenue**: The sources of revenue for the WSPs can be divided into the following categories:
   (a) *Rental income*: The WSP can earn rental income from a warehouse if he owns the warehouse. This rent may be charged on a per sq. ft. basis or per bag basis. If the WSP doesn't own the warehouse and has leased the ware-

house, the rent component is passed on to the depositor.

(b) *Service charge*: WSPs provide a bouquet of services to their customers. Depositors can ask for the WSP to secure the quantity of stock and not concern itself with the quality of the stock. On the other hand, a depositor may ask the WSP to fumigate the stock and preserve its quality. In either case, the service charged to the depositor will vary.

(c) *Commission from the bank*: Once the goods are pledged with a bank, the bank becomes the custodian of the goods. In that case, the WSP earns his commission from the bank. In Karnal, the banker stated that their bank paid its empanelled WSPs 0.75 to 1 percent of interest income depending on their years of association and past record. In some cases, banks can pay the WSP a fixed rate for managing a warehouse. For example, in Guntur, the bank paid Rs. 35,000/ month for managing a warehouse to the WSP.

Costs and revenues for owners of warehouses

The cost and revenue break-up for WhOs is as follows:

(a) **Costs**

i. Capital costs: Capital costs are incurred on a one-time basis for constructing the warehouse. These costs can be further sub-divided into the following:

A. Land: Throughout the nine districts, warehouse owners stated that the cost of land is high and unless one has hereditary access to land, or the government provides subsidies, it is not viable to construct a warehouse.

B. Buildings and fixtures: The cost of building a warehouse depends on labour costs, materials costs and the quality of fixtures (electricity, water, fire equipment and ventilation) in a warehouse. Under the NABARD scheme, warehouses were required to be constructed in accordance with certain parameters and standards. Many respondent warehouse owners had used the NABARD subsidy scheme to construct warehouses. Utilising this subsidy, the cost of construction for warehouse owners across nine districts on an average came to Rs. 650 per square feet (excluding the land cost). In Nanded and Purnia, the warehouse owners stated that constructing a warehouse cost them Rs. 500 per square feet, in Mehsana the cost of construction was Rs. 650 per square feet, and in Ernakulam constructing a warehouse cost Rs. 850 - 950 per square feet.

ii. Operational costs

A. Insurance: WhOs typically buy an insurance policy to safeguard their warehouse premises from fire, flood and

other perils. In Ernakulam, one warehouse owner stated he paid Rs. 6000 per annum as insurance premium. Larger WSPs stated they had a company-wide floater insurance policy covering all their risks across warehouses throughout the country.

B. Repair and maintenance: The warehouse owner is also responsible for maintaining the life of the warehouse. Expenses on wear and tear, repair and maintenance of the warehouse building and fixtures are borne by the warehouse owner.

(b) **Revenue**

i. Rent: The WhO receives a fixed rent either from the depositor (if the WSP is not involved) or from the WSP who has hired the warehouse. The rents across the districts varied from Rs. 4 to 6/sq ft. In some cases, the warehouse owners charged rent on a per bag basis. In cases where the warehouses are hired by WSP, the warehouse lease is usually for a period of 11 months with 1 month exit clause. In Guntur, Karnal and North 24 Parganas, the warehouse owners stated that the WSP can exit a warehouse by providing a one month notice to the warehouse owner.

ii. Share of revenue from proceeds of warehousing services (if the warehouse owner has a revenue sharing agreement with the WSP): In some cases, the WSPs make a revenue sharing agreement with the warehouse owners. In this case, the warehouse owners receive a share in the revenue earned by the the WSPs. In Guntur, the warehouse owner had a 75:25 revenue sharing agreement with the WSP. In North 24 Parganas and Purnia, the warehouse owner had a 70:30 revenue sharing agreement with the WSP. This enables WSPs to bear rental costs in accordance with the capacity utilisation of the rented/ leased facility.

4.3 Risks associated with storage

This section categorises and explains the risks that exist in the warehousing business. Most respondents take common risk mitigation measures to cover for the specific types of risk they are vulnerable to.

WSPs generally suffer from business risks and legal liability risks. Business risks arise in the usual course of the operation of the market. These pertain to low demand for services, increased competition, higher input costs, etc. Such risks lead to a loss of market for the firm.

Most WSPs that participated in this study reported that low capacity utilisation leading to low rentals is a risk to their business. Many respondents in Mehsana and Ernakulam pointed to the high costs of renting/ leasing warehousing premises and noted that it is a significant input cost. Vidisha had much greater competition among WSPs than some other districts, mainly

due to the high volume of business in agricultural commodities. Most banks involved in pledge financing had at least two empanelled WSPs to perform collateral management services for them.

One measure to guard against low demand and therefore low income from rentals is to lease warehousing facilities on a revenue-sharing basis. In Guntur, Mehsana and Nanded, WSPs reported that in some cases they had entered into an agreement with WhOs to pay a percentage of the monthly revenues to the WhO rather than a fixed rental. This ensured that the rental costs of the WSP were aligned with its capacity utilisation of that warehouse.

Legal liability risks arise when a WSP fails to perform a contractual obligation, or becomes liable to the holder of the warehouse receipt for the actions of its agents or employees. The general and pre-dominant contractual obligation of WSPs is to ensure the preservation of the commodity, so that the holder of the WR receives the commodity in the condition stated in the WR. If the quantity or quality of a commodity is less than that stated in the WR, the WSP becomes liable to compensate the holder.

WSPs have to take a variety of measures to prevent against legal liability risks. One measure is to build/ lease/ rent warehousing infrastructure that is adequate for preservation of the types of commodities to be stored. For example, respondents in Kamrup stated that the construction of warehouses in that area generally takes into account the threat of earthquakes, as Kamrup falls within a zone of high seismic activity. Such risks are common to both WSPs and WhOs (who usually rent out their facilities for warehousing services). Numerous other risk mitigation measure pertain to the warehousing facility. These include:

1. Threat of fires due to natural or man-made causes: WSPs in most districts had fire safety equipment such as extinguishers installed. A few large WSPs also had provisioning for water to douse fires within their facilities. Another common measure to guard against such risks is to take insurance. Most WSPs who formed part of the study had insured both the infrastructure and the stored commodities against fire.
2. Threat of third-party actions such as theft, burglary: WSPs in all districts employ security guards at their warehousing facilities. There was at least one security guard in almost every warehousing facility visited during this study. In addition, almost all the warehouses visited had a boundary wall (other than some warehouses in Ernakulam[45] and North 24 Parganas). Some warehousing facilities had close circuit television cameras installed as well. In addition, almost all WSPs take insurance against theft.
3. Threat of loss due to incorrect assessment of quantity and quality of the commodity by the WSP's employees: WSPs and WhOs employ trained personnel at their facilities to manage and oversee the deposit of commodities in accordance with their internal standard operating procedures.[46] Almost all large WSPs also maintain records of visitors, deposits of commodities and WRs issued. The detailed practices of WSPs have been explained in section 4.2.4.

[45] A number of small warehouses (approximately 100-300 MT capacity) were located within densely populated areas in Ernakulam. Such warehouses did not have boundary walls in certain cases.

[46] In some cases where WSPs were maintaining multiple facilities within a close distance, they maintained a full team of 5-6 people at a central hub, and 1-2 people at all other facilities. This allocation of personnel depended upon the intensity of usage of that particular warehousing facility, as well as the value of the commodity stored in such facility.

4. Threat of loss due to misappropriation/ theft by employees: WSPs usually require that its employees follow laid-down processes. Some WSPs have independent, central inspection/ vigilance teams that inspect warehousing facilities periodically. Most WSPs reported that such inspections occur at fortnightly to bi-monthly intervals. Such inspections cover an inspection of the commodity stored against the internal records of the company, as well as an inspection of whether the standard operating procedures are being adhered to. Other than this, WSPs and WhOs also maintain fidelity insurance coverage. Smaller WSPs generally did not have such insurance, and in some cases were unaware of the need and availability of the same. All large WSPs had fidelity insurance.

Risks also arise from natural disasters or from the likelihood of the occurrence of other "Acts of God" such as civil wars, riots, etc. However, the WSP is generally not liable for loss caused by such incidences.

4.4 Experiences of consumers

This section covers the following:

1. Categories of users who use warehouses, and reasons for non-usage (section 4.4.1);
2. The factors that depositors consider while choosing a warehouse (section 4.4.2);
3. The concerns of depositors with regard to storage of commodities - common risks arising from low quality warehousing and risk mitigation measures (section 4.4.3);
4. Incidences of disputes and how they were resolved; (section 4.4.4) and
5. Whether government run schemes affect their choice and their perception of these schemes (section 4.4.5).

4.4.1 Categories of users who use warehouses

Farmers

Farmers comprise the smallest proportion of users of public warehouses.[47] Some farmer respondents in Karnal, Mehsana, Ernakulam, Purnia and Kamrup have built storage spaces for their personal use. The storage in such make-shift godowns is for temporary preservation, till they can sell their produce to the middlemen. Across all the districts visited, farmers stated that they don't use public warehouses to store their crops. This was corroborated with other findings from WSPs who verified that of the total stock stored in their warehouses, less than 5 percent belonged to farmers. Guntur was an exception where the WSP stated that seventy percent of the stock belonged to farmers. However, the WSP also mentioned that many traders book storage space in name of farmers to avail discount in storage rent, therefore it was difficult to say with certainty if the stock indeed belonged to farmers.

Government agencies

Government entities like FCI, The Haryana State Cooperative Supply and Marketing Federation Limited (HAFED), National Fertilizers Limited (NFL) and The Cotton Corporation of India (CCI) continue to be the biggest procurers of food and cash crops. The majority of the capacity of the CWC and SWC warehouses is absorbed by these government entities. In Karnal and Nanded, more than 90 percent of the capacity of the CWC warehouses was used up by govern-

[47] We sub-divided the farmers into two categories.
- Small and medium farmers (owning upto 20 acres of land)
- Large farmers (owning more than 20 acres of land)

ment entities. In other districts too, we found that government agencies reserve warehousing space for their own consumption leaving very little spare capacity available for private users of warehouses. Agencies like FCI use warehouses to maintain buffer stock for Public Distribution System (PDS). In the interviews with CWC and SWC, we found that government WSPs prefer to rent out space to government agencies rather than scouting for private depositors.

Traders

Traders are the second largest users of warehouses.[48] With the government warehouses mostly used up for PDS, traders use private warehouses to store their stock. After procuring the stock from aggregators, the arhatiyas choose storage option on the basis of clients' requirements. Arhatiyas deal with several kinds of clients like processors, importers, exporters. Interviews with traders in Mehsana revealed that the storage requirements of importers, exporters and traders who deal in NCDEX trade are stringent. On the other hand, mill processors who procure stock for their own consumption are more accommodative with storage requirements, that is, they do not care as much about the quality of stock. In North 24 Parganas, one processing company had stored its stock for its own consumption. In our visit we found some percentage of the stock infested and despite repeated reminder by CMC and the bank, the processing mill had not got his stock fumigated.

Banks

Banks are direct users of warehouses for preserving the commodities pledged to them. In all the districts surveyed, stocks were pledged to pub-

[48] For the purpose of this qualitative study, traders includes arhatiyas and final buyers. This is because the WSPs we interviewed referred to major stockists broadly as traders.

Box 6: Reasons for farmers' inability to use warehouses

The challenges for farmers to use warehouses and subsequently warehouse receipts are detailed below:

1. Farmer respondents stated that they require immediate cash to finance their business and personal expenses;
2. In North 24 Parganas and Karnal the warehouses were far away from the point of production, and closer to mandis which led to high cost of transportation;
3. In certain districts like Karnal, the government sets the MSP for non-basmati paddy and wheat, resulting in negligible fluctuation through the year. Therefore, there is no incentive to store the commodity in order to profit from seasonal variation in prices;
4. Big traders or big farmers crowd out small farmers in certain cases. This was especially noticeable in Guntur PACS warehouse where two large farmers occupied a small 200 MT godown.
5. CWC and SWC warehouses are critically few in number and largely reserved for government procurement in most of the districts; and
6. Small farmers usually are not able to afford warehouses due to smaller crop yields. In certain districts like Unjha, private warehouse owners stated that they were unwilling to store small quantities of produce as it is not cost-efficient. Warehouse owners stated they prefer to rent out space to a large group of farmers who aggregate their deposits together use a warehouse.[a].

[a] Various farmer producer organisations in Mehsana, Karnal and Guntur bring together farmers and help them realise economies of scale

lic and private banks. Traders store crops for long periods of time either for deferred consumption or for hedging. During this time, some choose to pledge their stock. The WSP issues them a WR or a storage receipt against the stock which then is pledged to the bank against a loan. The bank then has a lien over the pledged commodity. Once the depositor is ready to pay the loan back, he goes to the bank, pays off the loan and gets a release order. This release order entitles the depositor to reclaim the stock and use it or sell it further.

4.4.2 The factors that depositors consider while choosing a warehouse

All users of warehouses (including farmers, traders and banks) stated that they are primarily concerned about the preservation of the quantity and quality of stock. When a user chooses a warehouse to store his goods, he expects that the WSP would be able to take care of the quantity and quality of stock in such a manner that the value of the commodity will be preserved.

The quantity of stock can be affected by following factors:

1. Loss of stock due to fire, flood, theft or burglary.
2. Loss of moisture leading to shrinkage and loss in weight.

On the other hand, the quality of the stock can be affected by the following factors:

1. Moisture gain
2. Infestation of stock
3. Loss of lustre
4. Intermingling with inferior quality of stock

In addition to preserving quantity and quality of commodities, another concern for users is the cost of storage. This is primarily a concern for farmers and traders. The cost of the warehouse depends on the following factors:

1. Cost of transportation
2. Rent, and
3. Labour costs.

In Mehsana, traders preferred warehouses that were closer to processors, thus confirming that transportation charge is an important consideration for traders. In Guntur, some depositors stated that the loading and unloading charges are lower in government WSPs, while others felt that the loading and unloading charges are higher in government WSPs. Depositors in Purnia stated that they preferred government WSPs because they charge lower rents. In Vidisha and Kamrup too, depositors preferred government warehouses because of lower storage rents.

Traders who store their crop for purposes of hedging are also sensitive to price fluctuations and volatility. This is external to warehousing,

Box 7: Factors considered by depositors while choosing warehouses

In Karnal, farmers stated that when they bring paddy to the mandi for sale, the moisture content is high. Subsequently, the moisture levels drop significantly during storage which leads to shrinkage and loss in volume. Due to this farmers preferred to sell their crop immediately after harvest. In Kochi, traders preferred privately owned warehouses because the respondents felt that private warehouses are run by CMCs who have more stringent practises for preserving quality of commodities. Similarly, in Nanded, depositors of turmeric mentioned that the commodity is high value and very sensitive to infestation. This led them to choose warehouses which were newly constructed as the spoilage in case of turmeric is faster in older warehouses. In Nanded, depositors yet again preferred private WSPs because of perceived better processes.

however market sentiment and price volatility determine the usage of warehouses. For example, if the market is depressed and the traders expect the market to improve then they will choose to stock the commodity in anticipation of higher returns in future. On the other hand, if the commodity market is bullish then the traders would rather sell their stock than store it. This was confirmed by depositors in Ernakulam and Kamrup who said that they use warehouses in anticipation of better rates and any marginal increase in rates leads to liquidation of stock. This finding was also confirmed in Vidisha where depositors said that they prefer warehouses where the WSP is able to deliver goods faster. This means that depositors especially traders who need to deliver stock at agreed rates are sensitive to delivery time on part of WSPs.

4.4.3 The concerns of depositors with regard to storage of commodities

Farmers and traders in the surveyed districts stated their concerns with regard to storage of commodities. These concerns can be categorised as follows:

1. *Lack of good quality warehouses*: In Guntur, the farmers stated that the only warehouse available to them was a small warehouse constructed by their PACS which could not accommodate all farmers' produce. There were no other government or private warehouses nearby. The non-availability of warehouses led them to stop using warehouses. In Mehsana, the farmers stated that the only usable warehouses were within mandi yards and those warehouses commanded a premium for their better quality and location. This had cost implications for them and thus they avoided using those warehouses. Traders in Nanded stated that their previous experience with government WSPs was poor. They recounted how when they stored their stock at CWC and SWC warehouses, the quality of their deposited stock deteriorated due to leakage, dust and lack of fumigation. In addition, the warehouse managers were apathetic to their concerns. This led them to prefer private WSPs over government WSPs.
2. *Lack of accountability and transparency*: In Purnia, farmers felt that government WSPs were unwilling to take responsibility of the stock and thus the farmers did not feel confident leaving their crop in those warehouses. Traders in Nanded believed that it is difficult to hold government WSPs accountable for loss in quantity or quality of the stock which is why it was better to stock commodities with private WSPs. Both in Purnia and Karnal, farmers felt that there was no transparency with regard to storage rents. In Karnal, farmers said that private WSPs do not provide any public information on rents. Similarly, in Purnia farmers said that WSPs should publish rent schedules.
3. *Lack of understanding among depositors*: In Purnia, farmers believed that warehousing is a public good and the government should provide it for free. So, while there was a private warehouse available within their village (Birauli), and two privately owned warehouses within 2 kilometres of their village, they did not use them because they did not want to pay storage rent. In North 24 Parganas, the farmers could not fathom the benefits of storing their produce. On the contrary they assumed that storage of crops will create a glut in the market and suppress the prices. In

Kamrup, farmers assumed that they alone can take care of their crops and WSPs cannot be trusted to take care of their produce.

4.4.4 Incidences of disputes and how they were resolved

No incidences of disputes were brought to our notice across surveyed districts. However, our interactions with farmers and traders led us to believe that there exists a power asymmetry between depositors and the WSPs. This can be illustrated by the example in Kamrup where the traders said that the warehousing space in the district was scarce. For this reason they refrained from asking questions or raising concerns with WSPs because they feared that they would be denied warehousing space if the WSPs were annoyed. Similarly, the farmers in Kamrup stated they had doubts about how disputes with regard to quantity and quality of commodities could be raised or resolved.

4.4.5 Perception and usage of government run schemes

Government WSPs are mandated to extend discounts to farmers when availing storage space. However, the farmers in Karnal told us that the discount schemes in fact worked against farmers as WSPs preferred to rent space to traders who can be charged higher, thus crowding out farmers. Farmers in Karnal stated that they were often denied storage space both by government and private WSPs. Farmers in Karnal also mentioned that CWC required farmers to make advance bookings and pay rent for the period of non-usage in order to block storage space. This made storage expensive for farmers. Another concern with advance space booking was that if the actual yield fell short of booked capacity then the farmers ended up paying for the entire booked space.

4.5 Infrastructure for e-NWRs

WDRA intends to make the use of NWRs electronic in order to enable seamless transfers of NWRs, more information and transparency about the quality and services provided by WSPs, and create minimum standards for warehousing services. This requires the large-scale adoption of the following:

1. Electronic systems for the creation of electronic NWRs: This will require basic computerised systems for input of relevant information, as well as precautions embedded in standard operating processes to prevent against alteration and tampering of the recorded information.
2. Equipment for accurately testing the quality of the deposited commodity;
3. Equipment for accurately weighing the quantity of the commodity to be deposited;
4. A centralised system of record-keeping, such that the information contained in NWRs may be verified periodically. This will require all warehouses to be connected to the WSP's central record-keeping system through the internet; and
5. A system of general record-keeping for enabling regulatory supervision;
6. Access to a central repository of NWRs by market participants such as farmers, traders, and banks. This will require basic internet connectivity for all market participants.

Technology adoption

The level of technology adoption and infrastructure readiness vary across WSPs and other market participants. Some CMCs have invested in and incorporated Systems, Applications and

Products data management solutions (SAP) as an integral part of their warehousing operations. In such cases, the WR is created and all relevant information is fed live into an internet enabled SAP system. The central office of the WSP therefore has immediate knowledge and information about the creation of the WR. Some other CMCs have adopted technology on a piecemeal basis. In these cases, while the receipt is generated electronically, the information is not shared centrally through a SAP system. Such information is usually shared with the central office through more routine forms of electronic communication, such as encrypted email communication. Smaller WSPs provide their clients with printed receipts, but their systems themselves are not fully electronic.

Generally, the level of technology adoption is low, but most large WSPs are moving rapidly towards adoption of better technology to improve their internal control mechanisms. One WSP stated that the cost of full SAP adoption was approximately rupees five crore (including training of personnel), and took about one year to implement throughout the organisation.

In regions where the overall market infrastructure is well developed, and exchange linked trading is common, the level of technology adoption was generally better. In smaller markets, the level of technology adoption was lower. This is noteworthy since technology has the potential to deliver a better integrated view of warehouse performance in remote areas, and reduce the cost and fallibility of human supervision.

Very few WSPs reported a technology enabled system of central inspection. Information captured electronically is usually verified by internal teams who conduct periodic stock verifications. There may be situations where there is asymmetric information between the local warehouse manager and the central office.

Market participants, with the exception of banks do not leverage technology effectively. This is primarily because there are no electronic WRs issued in the market. Receipts are printed and issued in physical form. It is however noteworthy that there was mobile phone and internet connectivity in all the surveyed districts. Market participants can therefore access central records through mobile based applications as well.

Banks maintain central records of all lending against warehouse receipts. Some banks have adopted data management systems specifically for their pledge financing portfolio. The use of technology, and readiness for a system of NWRs was found highest amongst banks.

Equipment for warehousing

Most CMCs and some WSPs had the basic equipment for assessing and recording the quality and quantity of deposited commodities. In most cases, such equipment was present in-house within the warehousing facility. In certain districts such as Ernakulam and Vidisha, there were plenty of external weigh-bridge facilities that are used routinely by depositors and WSPs. Some large WSPs had weigh-bridges that generated the record of the weight electronically, and therefore could not be tampered with.[49]

Record-keeping

Most WSPs keep records in registers regarding visitor information, movement of vehicles within the warehousing facility, records of depositors and their personnel. The diligence in record-keeping

[49] Some WSPs stated that they usually weigh the vehicle carrying the commodity twice: once with the commodities loaded, and once after unloading, to arrive at the net weight of the commodity. In some cases, the commodity is weighed bag by bag on other weighing equipment after it has been unloaded from the truck. This is done especially for high value commodities where there is need for extreme accuracy in recording the quantity.

however varies widely. Smaller WSPs, especially those who merely rent/ lease out warehousing facilities for other WSPs and WSPs do not follow such processes despite providing some ancillary services such as security. In this case too, there is a trend towards better record-keeping, especially among the nationally organised WSPs.

Chapter 5

Analysis and recommendations

This chapter analyses the findings in chapter 4 in order to provide analysis that will enable WDRA to regulate the warehousing business better. The warehousing sector is extremely dynamic and in a phase of rapid expansion. Multiple WSPs have made substantial investments, and are growing on a national scale. Heavy, intrusive regulation may endanger the growth of this market if it unduly restricts certain business activities (that do not threaten a WSP's core duty to preserve the quality of a deposited commodity) or is not nimble enough to allow regulated entities to conduct their business. The focus of regulatory supervision must be on defining market-relevant minimum standards, ensuring standard operating procedures are adhered to and developing essential market infrastructure that provides more information and transparency to the market.

5.1 The market for warehouse receipts

5.1.1 Analysis of findings

1. Traders are the dominant users of warehouses across the country. They are also the largest users of warehouse receipt finance and are targeted by banks and CMC as potential clients to avail pledge finance. Pledge financing is likely to be the key driver of the growth of the warehousing market in the near future. However, other regulatory changes in the agricultural sector may have an impact on this trend. For example, the government has recently launched initiatives to create an integrated online platform for regulated agricultural markets.[50] This development may have significant impact on the type of services for which warehouses are required in the national spot market.
2. The number of farmers using warehouse receipts was negligible across all the surveyed districts. Farmers usually do not store their harvest at all, due to high financial liquidity requirements.[51]. It may be concluded that government programs aimed at subsidising warehouse usage for promoting financial inclusion have not been as successful as desired. Access to warehousing should not be used as a substitute for direct financial inclusion. This has to be done by incentivising formal lending institutions to provide better

[50] See Press Information Bureau, "Central Sector Scheme for Promotion of National Agricultural Market through Agri-Tech Infrastructure Fund", July 2, 2015. Available at: `CentralSectorSchemeforPromotionofNationalAgriculturalMarkett` visited on August 5, 2015. "*585 regulated markets across the country will be integrated with the common e-platform to provide farmers and traders with access to opportunities for purchase/ sale of agri-commodities at optimal prices in a transparent manner across the country.*"

[51] There are other obstacles for farmers to utilise warehouses, which are stated in 6

quality of services to farmers. The warehousing business must be regulated in a manner so as to making the use of warehouses safer, trustworthy and more useful.

3. The warehouse receipt market today exists for licensed warehouses, that are open for storage to the general public and unlicensed warehouses, which are primarily used by traders and processors for their captive use. Although there is a strong preference by the banks to fund licensed warehouses, they see a lot of potential to provide pledge finance to goods stored in the unlicensed warehouses with the help of empanelled CMCs. Warehouse regulation must therefore focus on ensuring unlicensed warehouses gradually come within the ambit of regulatory supervision.
4. Banks in mature markets within the districts surveyed have all seen their portfolio of pledge finance increase. Traders, who are major users of warehouses access pledge finance largely to tide over liquidity constraints. The demand for this service will continue to grow organically. Regulation of warehousing should enable this market to develop.
5. The perception of the Gramin Bhandaran Yojana scheme has been below average in most of the districts. However, it is undeniable that the scheme has encouraged most small entrepreneurs to build warehouses, usually on previously owned land. The increase in recent years of land prices in several districts has made building a warehouse without some form of subsidy very difficult indeed and this scheme has provided them with an opportunity to break even within eight to nine years.

5.1.2 Recommendations for improving the market for warehouse receipts

1. Warehouse regulation should be neutral to the categories of users of warehouses. Regulations that impose performance requirements must impose such requirements as are generally necessary to make the business of warehousing trustworthy and credible.
2. Co-ordinated efforts between WDRA and state warehousing regulators must be made to bring unlicensed warehouses within the regulatory purview. Additionally, users of warehouses must be convinced of the legal risks of using unlicensed warehouses.
3. Regulation must require the creation of structured and standardised formats for reporting information. Lending will improve further once lenders see a market with greater transparency and information.
4. An electronic NWR system will enable market participants to use NWRs without having to worry about fraud and duplication.

5.2 Warehousing business operations

5.2.1 Analysis of findings

1. As stated in section 4.2.1, warehouse usage is not limited to one specific category of users. While traders are dominant users, banks, farmers, processors and government agencies (including for storing exam answer sheets in North 24 Parganas) all use warehouses. It is therefore difficult to target public policy actions aimed at specific categories of users such as farmers. Many medium to small farmers are also traders or processors, and vice-versa. Some of them also trade on commodity exchanges, especially in

Mehsana.

2. There is a clear segregation in the market between firms or individuals that construct warehouses, and WSPs who provide warehousing services, including collateral management. Firms and individuals involved in both, have differing sources and levels of legal liability. An owner of a warehouse may rent out his facility and incur no legal liability except from those arising from infrastructural infirmities. WSPs however face much higher legal liability as they have actual physical custody of a deposited commodity.
3. Public warehouses (run by WSPs) offer services related to storage for preservation only, storage for pledge financing, and storage for trading on commodity exchanges. The requirements of storage, the specific services to be provided and the degree of external oversight differs for all three. Large WSPs that have good internal systems and processes, electronic record-keeping systems, and a proper system of internal inspection and reporting to their clients do not face issues in providing all three services. Therefore, the basic integrity of storage practices is a pre-requisite for delivery of proper services to users.
4. Warehousing and commodity management is extremely dynamic. WSPs generally have a mix of self-owned and hired/ leased warehousing facilities. As such, the facilities under the active control and management of a WSP may vary widely over time, and from region to region. Each large WSP manages a mix of high quality warehousing infrastructure and low quality warehouses. As many WSPs manage commodities in hired locations, the competitive advantage one WSP can have over another is the quality of its systems and processes, and its experience in managing that particular kind of commodity. This is a clear indicator that banks and other users place greater emphasis on the quality of the services offered by the WSP than the infrastructure. While a basic standard of infrastructure is essential, warehousing business is fairly active even in regions with low quality warehouses.
5. There is a high degree of standardisation in the basic processes followed by WSPs. Every WSP who was a respondent follows the same basic processes with regard to inward movement of commodities, the storage process and for outward movement. These basic processes of weighing commodities, sampling, and maintaining stacking plans are common within the industry. They can therefore be stated to be minimum requirements for any warehousing operation. Their widespread prevalence indicates that they must be considered minimum standards for warehousing operations.
6. Collateral management is a subset of warehousing services, and is most distinct from warehousing in cases where the CMC manages a commodity in a location which is not a public warehouse. The other difference between warehousing services and collateral management is that the latter involves a tripartite agreement between the WSP, the depositor/ borrower and the bank. This is not however a material difference from the perspective of warehousing regulation. Within the warehousing market, WSPs must be free to compete and provide services that the larger market values.
7. The business of collateral management re-

quires dynamism and fluidity in warehouse management. In many cases, WSPs warehouses are leased for less than a year. In order for effective regulatory oversight, warehouse registration processes need to nimble and quick. This will enable the market to develop under proper regulatory supervision, without hindering the growth of the market.

8. Exchange linked storage is subject to strict, direct oversight by the exchange itself. Exchange accredited WSPs have to segregate exchange-traded storage from other storage, and follow stricter processes. Such storage is also more expensive than normal storage, and WSPs are able to charge significantly higher rents for such storage. As long as exchanges have obligations to ensure delivery of exchange traded goods, they will continue to regularly supervise exchange-linked storage. Commodity exchanges world-wide have such mechanisms in place. Regulatory supervision of warehousing should not create entry barriers and performance requirements that cater only to the requirements of exchanges. Doing so would leave out the bulk of commodity warehousing from its regulatory purview.
9. Most respondent WSPs complained of high capital costs, of which land cost was a significant component. However, capital costs are input costs that can be transferred on to the consumers. Therefore, charges for warehousing services are relatively low compared to what WSPs expect them to be. WSPs did not discuss why charges cannot be increased. This can however, also be ascribed to the operation of market forces. New WSPs are competing with older ones, usually CWC and CWCs. Older WSPs have greater market trust and a larger client base. Competitive forces are therefore constraining upward revision of charges. This is however likely to change with greater penetration of private WSPs in most districts covered during the study. With a diversification of the client base, and greater market consolidation, charges will increase, and so will the consequent incentives for investing in the warehousing business.

5.2.2 Recommendations for regulating warehousing business operations

1. The unit of regulatory supervision in warehousing must be the owner of the warehousing operation rather than the owner of the warehouse.
2. Business processes and the quality of service are key factors of competition in the market. Regulation must therefore create minimum standards and ensure compliance with them.
3. A focus on the processes of warehousing will enable regulation of both WSPs and CMCs. Collateral management being a subset of warehousing does not need to be regulated separately. Regulation of warehousing services in general, will enable supervision of collateral management processes as well.
4. Warehousing registration has to be a quick and nimble process in order to facilitate the current market practices that are helping in market development. For this, registration-related entry barriers must be lower and post-registration supervision must be better.
5. There must be no regulatory supervision of pricing within warehousing services. Any restrictions will disrupt the organic developments within the warehousing market that is

leading to its transformation.

5.3 Risks associated with storage

5.3.1 Analysis of findings

1. WSPs face a number of operational risks that occur in the usual course of business. These risks are germane to the warehousing sector, and competitive forces ensure businesses take steps to mitigate/ overcome such risks.
2. Legal risks faced by WSPs can be insured against, even if they cannot be prevented. Proper insurance coverage enhances consumer protection by giving WSPs the ability to compensate aggrieved consumers, and not suffer detrimental losses while doing so. It also ensures a contractual relationship that is similar to a fiduciary relationship: the WSP takes on the complete responsibility for preservation of the value of the commodity, even in the case of damage caused by third-parties.
3. Regulation can also help the market mitigate many risks by requiring or specifying standard operational procedures that will enable market participants to mitigate legal liability risks. These would mostly arise due to lack of good procedures for commodity preservation, lack of good operational procedures for stock verification, lack of proper inspection systems, and lack of proper safety equipment or compliance with safety norms.

5.3.2 Recommendations for mitigating risks in the warehousing business

1. Regulations should ensure that insurance coverage for all aspects of legal liability is covered. Both the warehousing infrastructure, and the commodity stored within a warehouse must be insured against structural infirmities, fire, burglary, theft, employee malfeasance, etc.
2. Regulators should abstain from attempting to solve operational risks to WSPs. Doing so would disrupt the operation of competitive forces in a rapidly evolving market.
3. Regulations must contain directions to WSPs to devise operating procedures that enable them to discharge their functions with due diligence. Regulatory supervision must focus on compliance with these processes.

5.4 Experiences of consumers

5.4.1 Analysis of findings

1. As stated in section 4.4.1, warehouses are used by a variety of users like farmers, traders, government agencies and banks. The largest users of warehouses continue to be government agencies and traders. Therefore, policies cannot be targeted to benefit any one type of depositors. WDRA is keen that farmers are benefitted by NWRs, however the farmers continue to be smallest users of warehouses.
2. Farmers do not use warehouses for a variety of reasons. The main reason among those is the necessity for immediate financial liquidity post-harvest, and the lack of availability of good formal lending channels. This issue cannot be resolved by providing better warehouses alone. The quality of services provided by participants in the formal banking sector needs to improve. It is not correct to expect that better availability of storage infrastructure alone will promote greater financial inclusion.

3. Farmers also do not use warehouses because of lack of aggregation. Fragmented and small land holdings mean that the volume of an individual producer's is not large enough to justify rental costs and other charges related to storage. This is another reason why *arhatiyas* (intermediaries or aggregators) are large users of warehouses. Such aggregation can be enabled if the warehouse itself becomes a source of aggregation and for sale and transfer of the commodity. In such cases, the farmer would deposit his commodity directly at the warehouse, and have the ability to sell the commodity as it is stored at a warehouse, without going to a regulated market.
4. Respondents repeatedly emphasised as stated in section 4.4.2 that quality of warehousing is a key differentiator when it comes to making a choice with regard to a warehouse. In one case, a trader pointed to slow turnaround times of one WSP as a reason for switching to another. Warehousing regulation must therefore not increase the cost of compliance so as to deter participants from storage in regulated warehouses.
5. Many respondents stated that while they were unhappy about the quality of preservation, they were unable to seek redress or compensation due to lack of other alternatives in the market. This situation may improve if competition is encouraged and natural market forces compel WSPs to handle customer grievances better. In the medium to long term however, basic standards of consumer protection are necessary to safeguard the orderly growth of the market.
6. The factors that influence the usage patterns of warehouses are broadly based on the quality of preservation promised by the WSP and related costs. The regulatory focus must therefore be on ensuring minimum standards in the quality of preservation. The associated costs are likely to decrease once there is greater supply of warehousing. This supply can be enhanced through regulation that helps the market to clearly differentiate between a WDRA regulated warehouse and an unregulated one.

5.4.2 Recommendations for improving the warehouse user experience

1. Warehousing regulations with regard to registration of WSPs must focus on creating minimum standards with regard to business processes and quality standards.
2. Warehousing regulations should focus on bridging information gaps in the warehousing market. On one hand, an information repository with details of WSPs, capacity utilisation, past track record of WSPs should be created, on the other hand regulatory supervision should focus on improved compliance on part of WSPs.
3. There must be a framework for dispute resolution. While greater competition will in time force WSPs to be more responsive to concerns of consumers, the government has a role in ensuring consumer protection. Regulated entities must therefore be required to create a framework for redressing grievances of consumers. WDRA must then provide a hearing against any unresolved grievances.

5.5 Infrastructure for e-NWRs

5.5.1 Analysis of findings

1. Technology improves record keeping and lowers operational costs for a WSP since it helps them improve their internal control mechanisms. By reducing the possibility of human discretion and error, technology adoption can improve the efficacy and reliability of the warehouse receipts issued by a WSP. However, since the initial costs of adoption of technology are high, regulatory intervention through 'nudges' can substantially help WSPs in adopting technology solutions for warehouse database management.
2. The creation of a central repository of information about warehouse receipts can serve two purposes; one, of providing warehouse receipt based information to all stakeholders involved and two, incentivising all WSPs to move to the centralised system of storing information. This is because, the operational costs of maintaining two database management systems, one online and another offline, for a WSP are very high. Therefore, it is highly likely that WSPs would migrate a centralised, online database management system with greater connectivity to the other stakeholders within this market. This may also result in WSPs issuing only NWRs to benefit from the online database management system.
3. Even though the survey found use of technology based solutions by stakeholders of the warehousing business to be generally low, it was found that farmers and traders were aware of the NCDEX prices for the commodities they produce and trade, which they would benchmark to the commodities. It was observed that despite low technology adoption, the warehousing market does not require specialised and sophisticated technological knowledge or skills to access price and best practices related information. Users can access information through SMS, emails, etc.
4. There are system wide efficiencies to be had by creating centralised data and information infrastructure for tracking warehouses and warehouse receipts. The database will have several advantages for WSPs and users of warehouse receipts for the electronic system will solve the inefficiencies of the present WR system. Paper WRs are susceptible to theft and forgery, they have to be carefully maintained and physically transferred between warehouses, owners of receipts and lien holders to assure protection and transfer of title. However an e-NWR system will override these problems and enable faster exchange among receipt holders. The online database will reduce transaction costs and reduce process time for users. This will eliminate any duplication, loss or theft of warehouse receipts. Lending by banks is likely to increase as the database will solve the problem of lack of reliable information of warehouse owners, goods deposited and the WR.
5. Physical infrastructure is very important for accurate assessment and recording of deposited commodities in a warehouse. Robust physical infrastructure is the first checkpoint to ensure the accuracy and reliability of a warehouse receipt issued. Although the survey found that most WSPs did not lack for such equipment, in some districts, weighing assaying equipments was available close to

the warehouses.

5.5.2 Recommendations for building infrastructure for e-NWRs

1. WDRA must create a consolidated online database of all NWRs issued, which should be updated real-time with every NWR transaction or transfer.
2. The database created by the regulator, must be easily accessible through a user-friendly portal, with ease of use and intuitive learnability of software, where all users of the NWRs are able to view and undertake transactions easily. It must also account for providing information to users without internet access, through tele-access, mobile SMS alerts etc.
3. Most WSPs covered during the course of the study had the basic infrastructural requirements (or arrangements) for accurately weighing and assessing the quality of the commodity. It is advisable that the ownership of weighing and quality testing infrastructure is not made compulsory, provided that other checks are in place. For instance: In case of presence of weigh-bridges close to the warehouse, it is essential that WSP staff accompany the depositor to ensure correct measurement of commodities being deposited. The presence of in-house weighing equipment may not be imperative.

5.6 Consolidated Recommendations

1. Warehouse regulation should be neutral to the categories of users of warehouses. Regulations that impose performance requirements must impose such requirements as are generally necessary to make the business of warehousing trustworthy and credible.
2. Co-ordinated efforts between WDRA and state warehousing regulators must be made to bring unlicensed warehouses within the regulatory purview. Additionally, users of warehouses must be convinced of the legal risks of using unlicensed warehouses.
3. Regulation must require the creation of structured and standardised formats for reporting information. Lending will improve further once lenders see a market with greater transparency and information.
4. An electronic NWR system will enable market participants to use NWRs without having to worry about fraud and duplication.
5. The unit of regulatory supervision in warehousing must be the owner of the warehousing operation rather than the owner of the warehouse.
6. Business processes and the quality of service are key factors of competition in the market. Regulation must therefore create minimum standards and ensure compliance with them.
7. A focus on the processes of warehousing will enable regulation of both WSPs and CMCs. Collateral management being a subset of warehousing does not need to be regulated separately. Regulation of warehousing services in general, will enable supervision of collateral management processes as well.
8. Warehousing registration has to be a quick and nimble process in order to facilitate the current market practices that are helping in market development. For this, registration-related entry barriers must be lower and post-registration supervision must be better.
9. There must be no regulatory supervision of pricing within warehousing services. Any restrictions will disrupt the organic develop-

ments within the warehousing market that is leading to its transformation.

10. Regulations should ensure that insurance coverage for all aspects of legal liability is covered. Both the warehousing infrastructure, and the commodity stored within a warehouse must be insured against structural infirmities, fire, burglary, theft, employee malfeasance, etc.
11. Regulators should abstain from attempting to solve operational risks to WSPs. Doing so would disrupt the operation of competitive forces in a rapidly evolving market.
12. Regulations must contain directions to WSPs to devise operating procedures that enable them to discharge their functions with due diligence. Regulatory supervision must focus on compliance with these processes.
13. Warehousing regulations with regard to registration of WSPs must focus on creating minimum standards with regard to business processes and quality standards.
14. Warehousing regulations should focus on bridging information gaps in the warehousing market. On one hand, an information repository with details of WSPs, capacity utilisation, past track record of WSPs should be created, on the other hand regulatory supervision should focus on improved compliance on part of WSPs.
15. There must be a framework for dispute resolution. While greater competition will in time force WSPs to be more responsive to concerns of consumers, the government has a role in ensuring consumer protection. Regulated entities must therefore be required to create a framework for redressing grievances of consumers. WDRA must then provide a hearing against any unresolved grievances.
16. WDRA must create a consolidated online database of all NWRs issued, which must be updated real-time with every NWRs transaction or transfer.
17. The database created by the regulator, must be easily accessible through a user-friendly portal, with ease of use and intuitive learnability of software, where all users of the NWRs are able to view and undertake transactions easily. It must also account for providing information to users without internet access, through tele-access, mobile SMS alerts etc.
18. Most WSPs covered during the course of the study had the basic infrastructural requirements (or arrangements) for accurately weighing and assessing the quality of the commodity. It is advisable that the ownership of weighing and quality testing infrastructure is not made compulsory, provided that other checks are in place. For instance: In case of presence of weigh-bridges close to the warehouse, it is essential that WSP staff accompany the depositor to ensure correct measurement of commodities being deposited. The presence of in-house weighing equipment may not be imperative.

A warehouse is the most likely, and efficient location for aggregation of agricultural produce. WSPs are providing value added services that regulated markets currently provide (for example, assaying of commodities, checking quantity, services with regard to buying and selling of commodities, etc). In addition, the legal obligation to preserve the commodity as per the information provided in the WRs issued by them creates the foundations for a national market in agriculture, based on the credibility of the warehouse receipts issued by WSPs.

WDRA is the appropriate authority to drive this effort. A state has limited resources, and its resources must therefore be employed in a manner so as to provide the most useful services for the market in the most efficient manner possible. It must regulate so as to use market relevant tests for supervising warehouses. It must have an efficient inspection system that inspects diverse aspects of a WSP's operation and enforces corrective behaviour.

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Appendix A

Annexure: Survey questions

A.1 Questionnaire for CWC & SWC

1. Introduction:
   (a) Profiles : Size, Capacity, Services provided, commodities stored, staff size ;
   (b) What is the profile of staff present?
   (c) Where is the warehouse located? What is the selection criteria, distance from mandi, farmers
   (d) Profile of depositors (Farmer, trader, govt. %)
2. Warehousing Business:
   (a) What is the operating expenditure for running the warehouse ?
   (b) What is the revenue from rent and storage (CWC mandated per bag storage?)
   (c) Whether it is owned, managed or leased?
   (d) What is the capacity utilisation? (Seasonal average)
   (e) Whether there is a standard operating procedure(SOP) for warehouse management?(For. Eg: Fumigation, quality testing procedure)
   (f) Whether any steps are taken for risks and mitigation steps(insurance)?
3. Warehousing Development and Regulatory Authority(WDRA)
   (a) Whether the warehouse is registered with WDRA? Why/ why not?
   (b) Have you benefitted from registration?
   (c) Whether you faced any issues with the registration process?
   (d) How often do you interact with WDRA and for what reason?
4. Warehouse Receipts(WR) and Negotiable Warehouse Receipts(NWR)
   (a) Do you issue Negotiable Warehouse Receipts(NWR)?
   (b) If yes, how much % of stock is pledged? By whom?
   (c) How many NWRs have you issued in the last five years?
   (d) What is the process for issuing the NWRs? What is the ease of the process or barriers?
   (e) Whether there is awareness amongst borrowers and willingness to use NWR vs WR?

A.2 Questionnaire for WSPs

1. Introduction;
   (a) Profiles : Size, Capacity, Services provided, commodities stored, staff size ;
   (b) What is the profile of the staff present?
   (c) What is the location of the warehouse? What is the selection criteria, distance from the mandi, farmers?
   (d) What is the profile of the depositors?(Farmer, trader, govt. %)
2. Warehousing and CMC business
   (a) What is the Operating expenditure for running the warehouse?
   (b) Whether the warehouse is owned? If yes, what are the capital costs?
   (c) What is the revenue from rent and storage?
   (d) Whether the warehouse is owned, managed or leased?
   (e) What is the capacity utilisation? (Seasonal average)
   (f) What is the Standard Operating Procedure(SOP) for warehouse management (Fumigation, quality testing procedure, security services)
   (g) What are the risks in the business? What are the mitigation steps(insurance) taken?
   (h) What are the terms of engagement for your Collateral Management Company's services ?
   (i) Which banks have you tied up with? What is your rate ?
   (j) What other services do you provide (procurement)? If so, from whom and how (Detail the process)
3. Warehousing Development and Regulatory Authority(WDRA)
   (a) How often do you interact with WDRA and for what reason?
4. Storage receipts(SR), Warehouse Receipts(WR) and Negotiable Warehouse Receipts(NWR)
   (a) Do you issue SRs, WRs, NWRs? When do you issue them and how many have you issued in the past?
   (b) If yes, how much % of stock is pledged? By whom? (Profiles of people who have pledged)
   (c) How many SRs/WRs/NWRs are issued in the last five years?
   (d) What is the process for issuing the SRs/WRs/NWRs? What is the ease of the process or barriers?
   (e) Whether there is awareness of borrowers and willingness to use NWR vs WR?

A.3 Questionnaire for banks

1. Portfolio;
   (a) What is the current pledge financing portfolio of the bank? (and as a % of overall loans)
   (b) Whether the loans are issued against Warehouse Receipts(WRs), Storage Receipts(SRs) or Negotiable Warehouse Receipts(NWRs)?
   (c) What has the trend been over the last 5 years?
   (d) What financing products do you offer for agriculture commodity financing?
   (e) What is the default rate for the loans for commodity financing? How many loans have become Non Performing Assets(NPAs)?
   (f) What are the targets for the branch?
   (g) Whether the bank does any marketing of its commodity finance products and how?
2. Borrowers
   (a) Profile (Farmer, Trader, Net worth, collateral)
   (b) What is the size of the loans taken? (Range and average)
   (c) What is the average duration of the loan?
3. Process
   (a) What is the end to end loan process?
   (b) What are the interest rates? Whether they vary with profile of borrowers?
   (c) What are the processing charges levied?
   (d) What is the turn around time for loan issuance?
   (e) What is the loan to value ratio usually? How is this determined ?
   (f) Whether the bank has a preference of warehouse? (Govt. vs. Private, Registered vs. Unregistered?)
   (g) Whether there is a cost difference in loan based on whether the commodity is stored in govt. vs. private warehouse?
   (h) On what basis are loan applications rejected?
   (i) What are the risks involved and what are the mitigation steps taken? ?
   (j) Whether insurance coverage is required? If yes, who pays for the insurance?
   (k) Do you currently have a system where the information regarding fraud accounts are shared across banks?
4. Collateral Management Companies(CMC)
   (a) Which CMCs have you empanelled?
   (b) How do you select a CMC?
   (c) What are the terms of engagement with the CMC?
   (d) What are the disputes with the CMC? How have they been resolved?
   (e) Have you dealt with only Warehouse Service Providers(WSP) till now? Can you envisage a system where there is no CMC? Will this impact loan rates?
5. Warehousing Development and Regulatory Authority(WDRA)
   (a) Whether you have dealt with WDRA registered warehouses? What the experience been?
   (b) Whether preferential rates are offered against NWRs?
6. Perception of government and government schemes
   (a) What is the total benefit availed by borrowers under government schemes for

warehousing?

(b) How many warehouses have been built under such scheme?

(c) What is the viability of the scheme?(Breakeven, ROI, etc)

A.4 Questionnaire for warehouse owners

1. Introduction;
   (a) Profile. What are the total number of warehouses owned, size, infrastructure, crops stored, built on ancestral land/purchased land etc.
   (b) What is the profile of the staff?
   (c) What is the location of the warehouse, what is the selection criteria, distance from the mandi, farmers?
   (d) What is the profile of depositors? (Farmer, trader, govt. %)
2. Warehousing business
   (a) What is the capital expenditure and operating expenditure incurred?
   (b) What is the revenue from rent and storage?
   (c) Whether it is owned, managed or leased?
   (d) What is the standard operating procedure for warehouse management/ warehouse storage operations?
   (e) What are the risks involved and what mitigation steps do you take?
   (f) What are the regulations or licences obtained? Whether the warehouse is registered?
3. Warehousing Development and Regulatory Authority(WDRA)
   (a) Whether you are aware about WDRA?
   (b) Whether your warehouse is registered with WDRA? Why/Why not?
   (c) Do you see any benefit of registering with WDRA?
   (d) How often do you interact with WDRA and for what reason?
4. Warehouse Receipts(WRs) and Negotiable

Warehouse Receipts(NWRs)

(a) Whether you are aware of WRs/NWRs?

(b) Whether you are availing any benefit from them?

(c) If yes, how much % of stock do you pledge?

(d) What are the benefits?

(e) If no, why not?

(f) What is the process for issuing a WR/NWR?

(g) What is your perception of the ease in the process or barriers?

(h) Have you had any past experience with WRs?

(i) Have you dealt with NWR? If no, why not?

5. Perception of government and government schemes

(a) Whether you are aware of government schemes for warehousing?

(b) Whether you have availed any benefit under any scheme?(NABARD schemes)

i. What was the total loan availed?

ii. How many warehouses were built?

iii. What is the viability of the scheme?(Breakeven, ROI, etc)

(c) Whether the scheme has been beneficial?

(d) What is your perception of the ease, process to avail benefits and barriers in the scheme?

(e) What are the limitations of the scheme?

A.5 Questionnaire for traders & others

1. Introduction;

(a) Profiles ? What is the size of your company, crops dealt with ?

2. Procurement process

(a) Who do you buy from?

(b) Who is the rate determined?

(c) Where do you procure from?

3. Storage of goods

(a) Where do you store the commodities? (In warehouses,godowns/govt., private)

(b) Are the warehouses captive? If yes,

i. Do you have a Collateral Management Company(CMC)to manage the goods?

ii. Do you issue Negotiable Warehouse Receipts(NWRs)?

(c) Are the warehouses registered?

(d) Why not use government warehouses if rates are better?

(e) What is the selection criteria of the warehouse?

(f) What are the cost of storage, rent, transportation, CMC charges?

(g) What is the average duration of storage?

(h) What is the wastage or quality loss on the commodity?

(i) Whether you purchase insurance for the commodities stored? (What kind, with whom?)

(j) What are the benefits of storage?

4. Warehouse Receipts(WRs) and Negotiable Warehouse Receipts(NWRs)

(a) Whether you are aware about WRs and NWRs?

(b) Whether you are using WRs and

NWRs?

i. If yes, how much % of stock do you pledge?
ii. What are the benefits?
iii. If no, why not?

(c) What is the process?
(d) What is your perception of the process of availing loan against WRs/NWRs, ease of the process or barriers?
(e) How has your past experience with WRs been?
(f) Have you dealt with NWR? Why not?

5. Risks involved
   (a) What are the overall risks involved in your business?
   (b) What are the risks associated with warehouse receipts/NWRs?
   (c) How do you handle disputes? Do you have any disputes about quality ?
6. Perception of government and government schemes
   (a) Are you aware about any government schemes for warehousing?
   (b) Have you availed benefit under any scheme? (NABARD schemes)
      i. What is the total loan availed?
      ii. How many warehouses were built?
      iii. What is the viability of the scheme?(Breakeven, ROI, etc)
   (c) Whether the scheme has been beneficial?
   (d) What is your perception of the process of availing benefit of the scheme, ease/ barriers?
   (e) What are the limitations of the scheme?

A.6 Questionnaire for farmers

1. Introduction;
   (a) Profile. What is the size of your farm, crops grown, yield, harvest season?
   (b) Do you have any other sources of income?
2. Crop cycle
   (a) What are the resources (time,money) involved in the pre to post production stages?
   (b) Who do you sell your produce to?
   (c) How and where do you sell your produce?
   (d) When do you sell your produce?
   (e) What price do you get ?
3. Warehouse : Access to storage
   (a) Are you aware of warehousing facilities in the vicinity? Do you use them?
   (b) If yes, then:
      i. Do you have your own warehouse or do you rent it out? (If rent, how is it determined and why)
      ii. What do you store?
      iii. Why do you store your produce? (own consumption-seed vs pledge finance)
      iv. How do you select the warehouses? (Distance, cost, commodity management, infra, etc.)
      v. What are the terms of engagement? (Storage charges, other)
      vi. Do you have any concerns?
      vii. How has your experience been with warehouse owners/CMCs/CWCs/SWCs/Private)
   (c) If no, then:
      i. Why do you not use warehousing for your produce? (Prior experi-

ence, Money, Accessibility, Lack of knowledge etc.)

ii. What is the maximum time you hold the commodity before bringing it to the mandi?

4. Access to finance
   (a) If you need money, who do you go to?
   (b) What do you need it for?
   (c) Whether you prefer informal sources or formal sources? Which do you use? Why?
   (d) What are the terms of the finance availed? What is the interest rate payable?
   (e) What collateral do you provide to avail the loan?
   (f) How has your interaction been with banks with regard to availing loans, KCC etc.?
5. Access to information
   (a) What information do you have regarding market price for commodities ?
   (b) How is the price at which you sell to the Trader(Arhatiya)determined ?
   (c) Do you use crop insurance? Have you heard about it ?
6. Warehouse Receipts(WRs) and Negotiable Warehouse Receipts(NWRs)
   (a) Whether you are aware about WRs, NWRs?
   (b) Whether you are availing benefit of WRs and NWRs?
      i. If yes, how much % of stock do you pledge?
      ii. Does storage make sense and why?
      iii. If no, why not?
   (c) What is the process of availing finance against WRs/NWRs?
   (d) What is your perception of the process of availing finance, ease of the process and barriers, if any?
   (e) How has your past experience been with Warehouse receipts?
7. Perception of government and government schemes?
   (a) Whether you are aware about government schemes for warehousing?
   (b) Whether you are availing benefit under any of those schemes? (NABARD scheme)
   (c) Whether it has been beneficial?
   (d) What is your perception of the process of availing benefit under the scheme, ease of the process and barriers, if any?
   (e) What are the limits of the schemes ?

Appendix B

Annexure: District Profiles

Karnal

Abstract

Karnal is a rich rice producing and milling district in Haryana. In addition to rice and paddy, wheat is the other staple crop of the region. Although warehouse finance was taking place, it was mostly in the form of warehouse or storage receipt and not negotiable warehouse receipts. The creation of warehouses on a large scale was because of the attractive rentals as well as large government procurement that existed in the area. The majority of the farmers, small and marginal sold their crops immediately to brokers at local markets.There were a lot of export oriented traders in the region due to the ability to procure rice, especially basmati rice.

Respondents: The respondents were ten farmers, four traders, one collateral manager, four warehouse owners, one public bank manager, one SWC and one CWC.

Commodities: The agricultural commodities grown in this region are predominantly paddy and wheat.

WDRA awareness: The stakeholders were generally unaware of WDRA. Only the CWC manager was aware of WDRA as the CWC warehouse was registered and was issuing NWRs.

Government schemes and utilisation: Warehouse owners and traders both have availed the subsidy scheme under NABARD's Grameen Bhandaran Yojana to build warehouses. This scheme allowed for issuance of five year term loans to build warehouses for stipulated government use. However, the warehouse owner had numerous complaints regarding the adherence to contract by FCI. Farmers avail Kisan credit card loans issued by the bank. They also obtain rebates on purchase of new machinery.

Pledge financing market: The total pledge financing market is approximately Rs 100 crore. The loan ranges from Rs 2.5 crore to Rs 25 crore. The majority users of commodity pledge financing are traders and large farmers. The bank see little risk of pledge financing as most of the loans are secured by a collateral manager or given to a CWC or SWC. However, the bank found the private warehouses to be in a better condition than government warehouses.

Mehsana

Abstract

Mehsana district is situated in Gujarat. The major crops grown in this region are castor and jeera. The farmers in this region grow three crops annually. Mehsana has large state of the art private warehouses and these are mostly owned/leased by Shree Shubham Logistics. As castor and jeera are traded on the NCDEX exchange, many warehouses in this region are registered with WDRA. This enables warehouse owners to charge a premium for storing goods in NCDEX linked warehouses.

Respondents: The respondents were six farmers, six traders, one private bank, two warehouse owners and one collateral manager.

Commodities: The agricultural commodities grown in this region are bajra, potato, groundnut, jeera, castor, guar seed, isabgol maize, and mustard. The farmers also grow various kinds of vegetables.

WDRA awareness: The farmers were not aware of WDRA. Banks, traders, warehouse owners and collateral managers were aware of WDRA.

Government schemes and utilisation: The state government procures milk from farmers at a minimum set price. The farmers avail the Kisan Credit Card subsidy offered by the central government. Traders and warehouse owners who built warehouses under the NABARD scheme did not receive any subsidy.

Pledge financing market: Major private banks offer pledge financing in this region. Traders and large farmers are the users of pledge financing.

Ernakulam

Abstract

Ernakulam is an urban district in Kerala with Kochi as the major city within it. The district and the surrounding regions are known for their pepper and spice production. There is little awareness regarding NWRs, but traders, bank officials and CWC manager have dealt with warehouse finance. Traders are the largest users of warehouses and warehouse finance. Large farmers and traders were regular users of warehouses and used it store high value spices like pepper and cardamom. The demand from agricultural commodities is significantly lower than the supply of warehouses available in the district, mainly due to the recent pepper adulteration dispute with the food and safety regulator. The overall demand for warehouse finance is increasing in the region, with most of the goods pledged being held in captive godowns.

Respondents : We interacted with two small farmers, four traders, one private bank, one warehouse owner, one private bank , one CWC and a SWC.

Commodities : The major crops grown in Ernakulam are cardamom, pepper, green gram, green peas and ginger.

WDRA awareness : There is awareness about WDRA and NWRs amongst traders, SWC and the CWC. The CWC and SWC warehouses are registered with WDRA, however they haven't issued NWRs and are doubtful about the benefits of registration.

Government schemes and utilisation : Some warehouses have been constructed under the GBY scheme under NABARD. However, no money has been received as per scheme guarantee by the warehouse owners.

Pledge financing market : Major private sector banks provide warehouse financing and funding against warehouse receipts facility. Paddy is predominantly pledged and financed against in Perambavoor, cashews in Kollam, pepper, spices, cardamom in eastern Kerala.

Guntur

Abstract

Guntur district, located close to the new capital of Andhra Pradesh, is home to the largest chilli market in the country. This region also has large mandis for turmeric and lemon and is close to areas which are rich in paddy production. The storage of these chilli takes place in cold storage facilities. In most of the cold storage facilities, the farmers make up the same number of traders, if not more. The banks have a large profile and also fund against cotton, maize and turmeric along with chilli. The chilli traders in the region use the storage facilities for exports, while the maize traders store and sell their produce to beer and poultry processing companies. Institutions like ITC and governmental agencies like Cotton Corporation of India have leased dry warehouses for their own storage. Farmers in the region are members of PACS, which have utilised the services of a CMC to try and register their warehouses with WDRA. However, the storage facilities are far outweighed by the demand from the farmers. The farmers storing their goods in dry warehouses, were also generally unable to hold on to their produce for long, due to the immediate need for money.

Respondents: The respondents were six farmers, five traders, one private bank, three warehouse owners, one collateral manager, one SWC and one CWC manager.

Commodities: The agricultural commodities grown in this region are paddy, cotton, chilli, maize and turmeric .

WDRA awareness: The farmers showed little awareness of WDRA or NWRs in spite of the training sessions that were recently held for farmers in the area. The warehouse owners, traders and even the bank manager were generally unaware of WDRA. Only the collateral manager that we interacted with were aware of WDRA and were actively helping farmer run PACS to get their warehouses registered.

Government schemes and utilisation: Dry warehouse owner had utilised subsidy under the GBY scheme of NABARD to construct warehouses. However, the time taken to provide for the subsidy was considered to be far too long. The farmers, as a part of the PACS, availed lower interest rates on loans.

Pledge financing market: The trend of commodity pledge financing in Guntur is increasing and the profile of the banks was exceptionally high last year. Total business in the area for the bank was Rs100-120 crore. The major focus for banks to fund against were cotton and chilli but to a smaller extent included maize and turmeric. Farmers made up fifteen percent, traders and depositors made up fifteen percent and the other seventy percent was processors. The loan to value ratio in this region was slightly lower than other districts at sixty to sixty five percent for farmers and seventy to seventy five percent for traders due to the inability to grade all the goods scientifically and instead having to grade them visually.

Purnia

Abstract

Purnia is a district situated in Bihar. The major crops grown in this region are maize and potatoes. The farmers in this region grow three crops annually. Purnia houses the famous “Annaj Mandi” and it is from here that the grain requirement of the northeast states are met. None of the farmers have used a warehouse to store their goods. The traders prefer government warehouses over private warehouses due to the better prices offered. There are no taxes charged by the mandi because APMC law is not applicable in Bihar. The existence of middlemen makes it difficult for farmers to access banks and other government schemes due to the high cost involved.

Respondents: The respondents were eight farmers, five traders, one SWC warehouse, one private bank, three warehouse owners and one collateral manager.

Commodities: The agricultural commodities grown in this region are maize, wheat, jute, potatoes and banana.

WDRA awareness: The farmers, warehouse owners and traders are not aware of WDRA. Only banks and collateral managers are aware of WDRA.

Government schemes and utilisation: Each block is provided subsidised rice and wheat seeds by the government. However, these seeds are of poor quality and produces low yield. The government provides subsidy on urea, however the rates have reduced over time.

Pledge financing market: The trend of commodity pledge financing in Purnia is increasing. This is evident from the value of their portfolio in pledge financing between 2014 and 2015. In 2014 the portfolio was was Rs 7 crore. In 2015 (Jan-June), the portolio is already at Rs 6 crore. There has been no funding against NWRs. Majority of the pledge financing users are traders and large farmers.

North 24 Parganas

Abstract

North 24 Parganas in West Bengal is a highly agricultural district. The warehousing market is underdeveloped and the warehouse finance market is not mature with a history of a large fraud that occurred in the recent past. The banks have lower portfolio size compared to other more mature warehousing states and districts. They mostly run commodity finance to meet priority sector lending targets. Farmers and traders were unaware of warehouse finance with traders predominantly using warehouses for storage. Farmers usually sell their goods to the middleman and could not understand the benefits of storing crops as they believe that it would cause a glut in the market and suppress rates further.

Respondents: The respondents were six farmers, one private bank, one collateral manager, one SWC and one CWC manager.

Commodities: The agricultural commodities grown in this region are paddy and mustard. The farmers also grow various kinds of vegetables.

WDRA awareness: The farmers were not aware of WDRA. Banks and collateral managers were aware of WDRA but generally unaware of NWRs.

Government schemes and utilisation: The farmers borrow money from NABARD samiti but usually do not take loans from banks due to the dislike of paperwork.

Pledge financing market: Banks offer pledge financing but have a very limited number of clients and low portfolio size. The low pledge finance portfolio is also due to the lack of warehousing that exists in West Bengal and the large fraud in the warehouse finance market that took place in the recent past.

Vidisha

Abstract

Vidisha is a district situated in Madhya Pradesh. The major crops grown in this region are wheat, channa and soyabeans. The region is only able to grow two crops annually due to scarcity of water. Many large companies such as ITC and Cargill procure commodities from traders. There are more private warehouses than government warehouses in the region and the traders generally prefer dealing with private warehouses due to the prompt services provided.

Respondents: The respondents were five farmers, two traders, one collateral manager, two warehouse owners, three private banks, one public sector bank and one CWC warehouse in Bhopal city.

Commodities: The agricultural commodities grown in this region are wheat, channa and soyabeans.

WDRA awareness: The farmers are not aware of WDRA. Only traders, banks and warehouse owners are aware of WDRA.

Government schemes and utilisation: Subsidy on pesticides are not available to the farmers. One warehouse owner applied to NABARD for subsidy for building a warehouse. However, the warehouse owner has not yet received any subsidy amount.

Pledge financing market: The total pledge financing market is approximately Rs 60 crore. ICICI bank has a market share of approximately 65-70% in this region. The majority users of commodity pledge financing are traders and large farmers.

Nanded

Abstract

Located at the crossroads of Northern and Southern India, Nanded is an important trading hub. Its location in Maharashtra has created a robust warehousing market and a substantial pledge finance market with the presence of major collateral management companies.The crops predominantly grown in Nanded are high value crops such as soya bean and turmeric. Currently, there are very few cold storage facility in the region. However, given the presence of high value, perishable commodities, cold storage facilities are likely to come up in few years. The users of warehousing facilities are largely traders, who either own their personal warehouses or hire a collateral management company to store it in leased warehouses. The awareness of WDRA and NWRs is limited to only amongst the traders.

Respondents : We interacted with five small farmers, two private banks, one collateral management company, two warehouse owners, one CWC and a SWC manager.

Commodities : The major crops grown in Nanded are cotton, soyabean, turmeric, groundnut, white gram, red gram, tur, bengal gram. Price fluctuations in cotton prices have diverted a majority of the farmers towards soya bean, which has made Nanded a hub for soya bean.

WDRA awareness : The level of awareness about WDRA and NWRs is negligent especially among the farmer and warehouse owners. Internal management issues have prevented CWCs and SWCs from registering with WDRA. The traders and collateral managers, who are the majority users of warehousing also do not see any apparent benefit in registering their warehouses with WDRA.

Government schemes and utilisation :Warehouse owners have availed the Grameen Bhandaran Yojana (GBY) scheme under NABARD, to build their warehouses and are satisfied with the scheme and the subsidies offered.

Pledge financing market : Major private banks have pledge finance operations in Nanded. Of the nine surveyed districts, pledge financing portfolio in Nanded is above average.

Kamrup

Abstract

Warehousing is crucial in Assam because the state serves as a transit point for transporting commodities to the rest of the states across North East India. Kamrup district has an urban character and the only major crop grown in the area is paddy. However, owing to its location near the state capital, commodities from adjoining districts as well as other states are traded here. Pledge financing is largely absent. The awareness about WDRA and NWRs is limited amongst personnel of the CWC and SWC. Farmers store their produce in personal, traditional storage structures. Warehousing in Assam falls under the administrative supervision of the Department of Cooperation, instead of Department of Consumer Affairs, as in other states. This organisational issue has significantly stifled the growth of warehousing in Assam.

Respondents : We interacted with two small farmers, one private banks, two warehouse managers, one CWC and a SWC manager.

Commodities : The major crop grown in Kamrup is paddy. Betel nut and vegetables are also grown to a limited extent.

WDRA awareness : There is no awareness amongst farmers or traders about WDRA. Some CWC and SWC warehouses are registered with WDRA, however they are skeptical about continuing registration.

Government schemes and utilisation : Warehouses have been built under the GBY scheme under NABARD. Farmers are discontented with the facilities made available to them.

Pledge financing market : There is absence of pledge financing in Kamrup.