
# Electronic Negotiable Warehouse Receipt (eNWR) Issues and Challenges

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## Issues & Challenges

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*Issues & Challenges*

*MANAGE*
*National Institute of Agricultural Extension Management (MANAGE), established in 1987, is an autonomous organization operating under the aegis of the Ministry of Agriculture & Farmers Welfare, Government of India (GoI). The Institute aims at strengthening the agricultural extension system in the country through Training, Education, Research, Consultancy and information & documentation. Institute is also implementing some important Central Sector Schemes and offering educational programs with focus on agricultural extension, agribusiness and agri-warehousing management.*

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# Preface

Indian agriculture is changing be it increased production, diversification or shift in its orientation towards agri-food policy. Same can also be observed through the policy initiatives taken by the Government. An important sector which has been identified as a mean to help farmers integrate with market and have better access to formal credit is agri-warehousing. The provisions introduced by the Government through the enactment of Warehousing Development & Regulation Act, 2007 provide negotiability to the warehouse receipt with ability to influence all the players of supply chain from producer till consumer. In order to make the system more transparent and efficient, the Government has also introduced an institutional arrangement to implement electronic negotiable warehouse receipt (eNWR) system. The eNWR system will help in overcoming challenges related to paper receipt and associated trade transaction based paper work. It is also expected to facilitate smooth transfer of ownership of receipts one account to other leading to easy and secured finance again the commodity stored in a warehouse.

This report is a compilation of findings based on the interaction with selected respondents from states like Madhya Pradesh, Telangana and Tamil Nadu. It speaks about the structure of implementation of eNWR in India. The study also highlights various benefits offered by eNWR as perceived by different stakeholders including farmers. An attempt has also been made to understand challenges associated with eNWR and make some realistic suggestions to overcome the same and make this concept more acceptable and successful.

I appreciate the efforts made by Akshita Vashishth, Sangamesh Angari and Shalendra in coming up with a comprehensive report on eNWR covering different aspects of its implementation. I expect this publication to be of immense benefit for all relevant stakeholders including researchers, trainers and extension functionaries placed at various institutes. I hope the document will also facilitate the process of bringing the desired changes in the lives of farmers by improving their access to market.

(Dr P Chandra Shekara)
Director General

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*The contribution made by Shri Abhishek Rai, EVP & Head – Human Resources and Marketing and his team from National E-Repository Limited (NeRL) is duly acknowledged.*

*Shri Rai and his team was a great support in explaining various aspects of eNWR and establishing contact with different stakeholders like warehouse and bankers.*

*The authors also acknowledge the contribution made by Dr R K Tripathi from WDRA, New Delhi*

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# Section 1. Background of the Study

A shift in agricultural orientation has been observed from production toward agri-food policy (Chand, 2017). Various policy initiatives taken by the Government to facilitate income enhancement of the farmers including reforms in agri-warehousing sector suggest the same. Warehousing Development and Regulation Act, 2007 was introduced to provide negotiability to the warehouse receipt having implications for each player of the supply chain including farmers. The warehouses registered as per the provisions of the Act, 2007 will be able to issue negotiable warehouse receipt enabling the user to avail loan from banks against such instrument issued for the stored produce. The system of negotiable warehouse receipt is expected to help farmers avoid distress sale, operate as a tool of trade and facilitate finance to the farmers, enable bank to improve the quality of lending services in agriculture sector and increase liquidity in the rural areas (PIB, 2011). Warehouse receipts as negotiable instatement can be traded, sold, swapped, used as collateral to support borrowing, or accepted for delivery against a derivate instrument such as a futures contract (RBI, 2005).

In-spite of these benefits, approximately 30 percent of agricultural households still avail credit from non-institutional sources. The probable reasons could be that either their credit demand are for consumption purposes or they are tenant farmers, sharecroppers and landless labourers who are not able to offer collateral security to avail institutional credit, or they are involved in unviable subsistence agriculture or banks don't find them credit worthy. As a result, these farmers find it convenient to borrow money from non-institutional sources due to easy accessibility (RBI, 2019). The system of negotiable warehouse receipt introduced by the Government can be used for offering collateral security which is expected to facilitate access to credit from institutional sources.

As per the provisions of Warehousing Development and Regulation Act (2007), the Negotiable Warehouse Receipts (NWRs) can be in both paper and electronic forms. The system of electronic negotiable warehouse receipts (eNWR) was launched by the Authority established under the Act on 26$^{th}$ September 2017. In order to facilitate management of database and support electronic receipts, two repositories namely NeRL and CCRL have also been

established by WDRA. The electronic repository system maintained as per the guidelines developed by WDRA facilitates in overcoming challenges related to paper receipt and associated trade transaction based paper work. Electronic receipt are maintained in repository accounts similar to holding shared in DEMAT Accounts. Ownership of eNWR can be shifted smoothly through transfer from one account to other. Finance against eNWRs can also be availed easily because of involvement of repository establishing linkage with all possible stakeholders. The eNWR offers various advantages over present paper dominated receipt system. The physical receipt based system suffers from various limitations like lack of trust among stakeholders, limited transparency and market access, operational challenges and high cost of transactions. The eNWR system is introduced through participation of wide range of stakeholders covering farmers, traders, warehousemen, assayers and bankers. In such an environment, it would be interesting to understand various aspects of agri-warehousing and negotiable warehouse receipt and its influence on different stakeholders mainly farmers.

With this background, a short duration study was carried out by MANAGE during August – November 2022 to examine the policies introduced by the Government to encourage development of storage infrastructure mainly with focus on electronic negotiable warehouse receipt. The study also focuses on different challenges faced and benefits perceived by different stakeholders participating in the warehouse based supply chain like farmers and traders (as users), warehousemen as service provider and banks as source of institutional credit.

## Objectives

The study specifically focusses on following objectives –

1) To understand the agri- warehousing sector in India
2) To study the structure of implementation of eNWR in light of recently introduced policies of the government
3) To study various benefits as perceived by different stakeholders including farmers with the introduction of eNWR
4) To understand various challenges associated with eNWR as perceived by farmers and other stakeholders like traders, warehousemen and bankers.
5) To make suggestions based on the findings of the above.

## Methodology

The study is based on both primary and secondary information. Secondary information is mainly culled out from research papers, research reports, government websites and other research based articles. Primary information was collected from different stakeholders like warehouseman, bankers, traders and farmers covering different types of warehouses like public warehouses, private warehouses (both organised and individual) and warehouses operating under cooperative sector which are managed mainly by Primary Agricultural Cooperative Societies (PACS). Initially plan was to collect information from two states namely Telangana and Karnataka. However, based on the discussions with officers from different organisations like National e-Repository Limited (NeRL) and Warehousing Development and Regulatory Authority (WDRA), three states were included in the study to appropriately cover the different types of warehouses operating in the Country like public warehouses (considered mainly from Telangana), private warehouses (mainly from Madhya Pradesh) and cooperative warehouse (mainly from Tamil Nadu).

The information on different aspects of agri-warehousing and electronic negotiable warehouse receipt was collected from all the relevant stakeholders as per the sampling design presented below –

| **Table of Warehouse** | **Type of Ownership** | **No. of Ware-house** | **Farmers @ 3 per location** | **Traders @ 1 per location** | **Banks @ 1 per location** | **Warehouse Executive @ 1 per location** |
|---|---|---|---|---|---|---|
| **Public** | CWC | 5 | 15 | 5 | 5 | 5 |
| | SWC | 5 | 15 | 5 | 5 | 5 |
| **Private** | WSP | 5 | 15 | 5 | 5 | 5 |
| | Individual | 5 | 15 | 5 | 5 | 5 |
| **Cooperative** | PACS | 5 | 15 | 5 | 5 | 5 |
| **Total** | **--** | **25** | **75** | **25** | **25** | **25** |

Purposive sampling was followed for selection of states and warehouses. The states were selected after having a discussion with experts whereas warehouses were identified after having a discussion with the officers of respective organisations/ experts based on experience of issuing eNWR. At second level for selection of stakeholders like traders, bankers and farmers,

snowball sampling technique was applied. Respondents were selected based on the suggestions and recommendations of already interviewed participants as per the requirements of the study.

The information was collected by using a pre-designed questionnaires containing both open-ended and close-ended questions. Various aspects outside the questionnaire were also discussed with different stakeholders covered under the study. The descriptive analysis using tools like MS Excel and Tableau was performed to analyse the information collected from different stakeholders and organized as per the requirement of the study.

## Presentation of Report

The report consists of five sections. The second section, followed by background, speaks about the history of warehousing in India covering various policies introduced by the Government in recent past to develop storage infrastructure. The third section covers different aspects of implementation of electronic negotiable warehouse receipt (eNWR) including the structure introduced by WDRA for management of information. The fourth section mainly is the compilation of findings based on field observations and analysis of information collected from different stakeholders. Summary and suggestions are presented in the fifth and last section of the study.

# Section 2. Agri-warehousing in India

The agricultural warehousing industry was worth Rs 145.82 billion in 2019 and is anticipated to be worth Rs 365.75 billion by the end of 2024. The growing necessity for appropriate storage of fruits and vegetables in the country is fuelling the need for agri-warehousing in the country (BL, 2021).

## History of Warehousing in India

Warehousing as an industry in India has seen many developments in the past few decades. Prior to this, only a few temporary structures mainly used for the storage of foodgrains at limited scale were available. Warehouses were used to maintain emergency stock to be utilised during famines and similar periods of food shortage, especially in areas with extreme weather conditions. Given the scavenging nature of humans in primitive time, the selection of living space was based upon availability of food, and once that possibility was lost, they moved to more fertile places. But as civilizations grew, humans decided to have long-term settlements, hence making plans for future where food security was a major consideration. Hence, granaries came into existence which were mainly to ensure a buffer by providing storage without any other value added or associated service.

### *Pre-British era*

The warehouses were mainly small unsupervised storage spaces made on farms with discarded materials not used by farmers for their personal or commercial use. These stored grains were later used by farmers to barter with other commodities to make their livelihoods possible. Generally, an isolated place at the far back side of house was used for storage of grains and other related produce. Such stocks were mainly used for self-consumption by growers.

Community or state-owned storage spaces were also utilised to store agricultural surplus to be used subsequently by the members of the community. Mainly foodgrains were maintained through such storage system due to lack of technological advancement. Such a system was susceptible to losses due to moisture, pests, insects or fungal attacks.

## British Rule

Industrial revolution facilitated production of commodities at large scale which gave rise to transportation of such commodities to Europe and other countries via sea routes. This encouraged introduction of storage areas at ports with facilities for traders to avail rest as well. Another, important addition was storage spaces at train stations to facilitate loading and unloading of commodities being moved from one state to other. The understanding and advancements in trade created the demand mainly among community of traders for warehouses in major trading areas to facilitate the exchange of large volume of commodities. A scheme to develop grain elevators in the country was introduced by the Secretary of State for India in year 1889. Subsequently, the Royal Commission on Agriculture in India (1928) laid emphasis on development of storage and warehousing. The Commission recommended the establishment of licensed warehouses in India. The importance of warehousing was felt seriously in India and in the year 1944, the Reserve Bank urged all the State Governments by issuing directions to enact legislation for setting up of warehouses in respective states. The Government of India appointed Agricultural Finance Sub-Committee under the chairmanship of late Prof. D. R. Gadgil to report the ways to overcome rural indebtedness in light of the recommendations of the Policy Committee on Agriculture, Forestry and Fisheries (1945). The Gadgil Committee observed that finance provided by the commercial banks to the agriculturists could be increased considerably by improving the arrangements for marketing of crops by grading and standardization, creation of proper storage facilities and promoting regulated markets. The Committee also felt the need for introducing negotiable warehouse receipt system in the country with ability to enhance rural credit.

## Post- Independence Era

Post-independence, Rural Banking Enquiry Committee in 1949, suggested an institutional arrangements, with participation of Central and State Governments along with Reserve Bank of India, to promote construction of scientific warehouses in the country. The need for similar institutional arrangements was further emphasised by Rural Credit Survey Committee in 1954, which led to enactment of the Agricultural Produce (Development and Warehousing)

Corporations Act, 1956. This enactment helped in establishment of pubic warehousing system in the country operating at three levels, the Central Warehousing Corporation (CWC) for the markets of all India importance; State Warehousing Corporations (SWC) for secondary markets operating at district level and Cooperatives to look after the warehousing needs at the village and community level.

In the year 1962, the Government of India decided to split the Agricultural Produce (Development and Warehousing) Corporations Act, 1956 into two Acts, namely National Cooperative Development Corporation Act, 1962 and the Warehousing Corporations Act, 1962. National Cooperative Development Corporation Act, 1962 is responsible for different activities being carried out by Cooperatives. Whereas, the Warehousing Corporations Act, 1962 defines specific functions and areas of operation of Central and State Warehousing Corporations along with the list of notified commodities allowed for storage. Such warehouses can store seeds, manures, fertilisers and agricultural implements in addition to agricultural produce.

Initially the private sector was shy of entering into warehousing business for being a highly capital intensive industry which made it monopoly business for the Central and State Warehousing Corporations. The participation of private players increased after liberalisation and various policy initiatives taken by the government to support construction of warehouses post nineties. The massive growth in private warehousing capacity led the Government to develop regulatory processes for having a credible warehousing ecosystem in the country. Accordingly, the Government of India has enacted the Warehousing (Development and Regulation) Act, 2007 to strengthen warehousing activities in the country and put in place a regulatory framework for negotiable warehouse receipt system.

## Post-harvest Losses

A sound warehousing system can help in effective management and reduction of post-harvest losses. The estimated economic value of post-harvest losses in India was Rs 926.51 billion (USD 15.19 billion) in 2014 (Agarwal et al., 2020). Around 6 – 8 percent of the total production is lost at post-harvest level due to

issues related to moisture, diseases and insect and pest attacks. Post-harvest losses further get amplified due to transportation or transit losses. Post-harvest losses in various perishable and semi-perishable items such as milk, meat, fish and eggs are reported to be in the range of 10 – 25 percent. In perishables like fruit and vegetable losses can be even more ranging from 30 – 40 percent (Hegazy, 2016). One of the major reasons of post-harvest losses is the lack of quality storage and warehousing facilities in the agriculture sector. A sound post-harvest infrastructure covering storage will not only help in effective management of crops but will also help in exposing crops to export market mainly horticultural corps especially when India is one of the leading producers in major horticultural crops.

## Policy Evolution

Government has introduced various plans and policies to facilitate creation of storage capacity. National policy on handling storage and transportation of foodgrains, introduced in 2000, speaks mainly about reducing storage and transit losses at farm level where more than two-third of the total foodgrains produced are retained and consumed. It also lays emphasis on encouraging farmers to adopt scientific storage methods. In order to bridge the gap in storage capacity through participation of private sector, the policy focuses on efforts to harness the resources available in public and private sector to build and operate storage related infrastructure. The Government has also introduced various schemes/ programs to encourage creation of commercial storage infrastructure like Private Entrepreneurs Godown, Grameen Bhandar Yojana, Rural Infrastructure Development Fund (RIDF), Pradhan Mantri Kisan Sampada Yojana (PMKSY), Agriculture Infrastructure Fund (AIF) and Agriculture Marketing Infrastructure (AMI) under Integrated Scheme for Agricultural Marketing (Table – 1).

*Table 1. Different Schemes/ Programs of the Government to promote agri- warehousing infrastructure*

| Sr. No. | Name of the Scheme | Objective | Benefit Available | Beneficiaries | Implementing Organization |
|---|---|---|---|---|---|
| 1. | National policy on handling, storage and transportation (June, 2000) | Reduction of storage and transit losses at farm level | Integrated bulk grain handling, storage and transport- | Farmers Producer Organization, Agriculture | Department of Food and Public Distribution, |

| | | | | | |
|---|---|---|---|---|---|
| | | | tation facilities to the tune of 5.5 lakh MTs had been created through private sector participation on Build-Own – Operate (BOO) basis | Entrepreneurs, etc | Government of India |
| 2. | Private Entrepreneurs Godown (PEG), 2008 Scheme | Reduction in dependence on cover and plinth (CAP) type of open storage for foodgrains | Creation of 15.29 million MTs storage capacity in 19 states through private sector participation and CWC/ SWCs | Farmers Producer Organization, Agriculture Entrepreneurs, etc | Department of Food and Public Distribution, Government of India |
| 3. | Grameen Bhandaran Yojana (Rural Godown Scheme) | Creation of scientific storage capacity with allied facilities in rural areas to meet the requirements of farmers for storing farm produce, processed farm produce and agricultural inputs and promotion of grading, standardiz-ation and quality control of agricultural produce | 25.00 – 33.33 percent subsidy within the prescribed limit | Farmers, Farmers Groups, Self Help Group (SHG), Co-operative institutions, Agricultural Product Marketing Committees (APMC), Boards, etc | Ministry of Agriculture and Farmers Welfare |
| 4. | Rural Infrastructure Development Fund (RIDF) | To establish storage of agriculture produce, especially foodgrains at centres of production, distribution | An allocation of Rs. 2000 crores for Financing Warehousing Infrastructure under RIDF | State Governments/ Union Territories State Owned Corporations/ State Govt. Undertakings State Govt. Sponsored/ | NABARD |

| | | | | | |
|---|---|---|---|---|---|
| | | and consumption | | Supported Organisations, Panchayat Raj Institutions/ Self Help Groups (SHGs)/ NGOs, etc | |
| 5. | Pradhan Mantri Kisan Sampada Yojana (PMKSY) | To create robust supply chain infrastructure for perishables | To create modern infrastructure with efficient supply chain management from farmgate to retail outlet | Directly and indirectly benefiting about 20 lakhs farmers and creating more than 5 lakhs employment | Ministry of Food Processing Industry |
| 6. | Agriculture Infrastructure Fund (AIF) | Encourage investment for creation of agriculture infrastructure | Announce-ment of Rs 1 lakh crore Agri Infrastructure Fund under Atmanirbhar Bharat Package by Union Finance Minister on 15.05.2020 Interest subvention of 3 percent per year up to a limit of Rs. 2 crore | Farmers, FPOs, PACS, Entrepreneurs, Startups, SHG, APMCs, Federation, etc | Ministry of Agriculture and Farmers Welfare |
| 7. | Agriculture Marketing Infrastructure (AMI) | Creation of scientific storage capacity for storing farm produce, processed farm produce, agricultural inputs and to reduce post-harvest and handling losses | 25.00 – 33.33 percent subsidy within the prescribed limit | Individuals, group of farmers/ growers, registered farmer producer organizations partnership/ proprietary firms, companies, corporations; NGOs, Self Help Groups, cooperatives, cooperative marketing federations, autonomous bodies and state agencies | Directorate of Marketing and Inspection |

In order to facilitate farmers avail affordable storage close to production area and help them avoid distress sale, funds are also made available by NABARD under Warehouse Infrastructure Fund. The status of capacity created with the support of Warehouse Infrastructure Fund is presented in Table-2.

*Table 2. Status of warehousing capacity development under Warehouse Infrastructure Fund scheme as on 31st March 2021*

| States | Capacity Developed (Million Tonne) | Authorizations (Rupees Crore) | Expenditures (Rupees Crore) |
|---|---|---|---|
| Tamil Nadu | 1.8 | 2520.9 | 2088.4 |
| Karnataka | 1.3 | 1700.5 | 1366.2 |
| Telangana | 1.8 | 951.7 | 852.3 |
| Others | 7.4 | 4402.3 | 3177.1 |
| **Total** | **12.7** | **9,728.0** | **7,620.7** |

*Source: NABARD*

## Developing Farm Level Modern Storage Structures

In India about 70 percent of the produce is stored at the farm level which can either be for self-consumption or other trade purposes. Storage structure developed using kaccha materials like paddy straw, bamboo, mud, etc are utilised for such storage. These structures are not capable of protecting the produce against damages from moisture and attack by various diseases and insects and pests and therefore, various advancements have been observed in the storage structures suggested by different institutes working on the subject. Coal Tar Drum Bin proposed by Central Institute of Agricultural Engineering (CIAE), Bhopal, the Pusa Bin proposed by Indian Agricultural Research Institute (IARI), New Delhi and domestic metal bins developed by IGMRI, Hapur are some of the scientific storage structures developed specifically to provide protected storage at farm level.

## Encouraged participation of private sector

Considering the role played and services offered by warehouses in supply chain followed by most of the agri-commodities, it is important for warehouses to be equipped with technology allowing temperature control, moisture control and other such facilities. Therefore, increased investment mainly coming from private sector has become a necessity for development of cold storages, temperature-

controlled vehicles and other technologically supported storage spaces so as to support emerging modern supply chain required to deliver safe food/ product as per the preference of consumers. The Government has also introduced various programs and schemes to encourage participation of private players in agri-warehousing sector. Same has also been observed in the growth registered in the storage capacity created by private sector over last ten years (Table-3). The table reveals that the storage capacity during 2010-2021 has increased by 57.45 million MTs. The major contribution to this increase in storage capacity has come from State agencies and private sector. The storage capacity managed by private sector increased four times from 18.97 million MTs during 2010-11 to 78.56 million MTs during 2020-21. This clearly indicate the conducive environment created by the policies of the Government and requirement of scientific warehousing to support various emerging supply chains.

*Table 3. Storage capacity created by different organizations*

| Sr No | Organisation/ Sector | Capacity in Million MTs | | Change (MMT) |
|---|---|---|---|---|
| | | 2010-11 | 2020-21 | |
| 1 | Food Corporation of India (FCI) | 32.05 | 12.70 | -19.35 |
| 2 | Central Warehousing Corporation (CWC) | 10.07 | 14.5 | 4.43 |
| 3 | State Warehousing Corporation (SWCs) and other state agencies | 32.59 | 43.91 | 11.32 |
| 4 | Cooperative Sector | 15.07 | 16.53 | 1.46 |
| 5 | Private Sector | 18.97 | 78.56 | 59.59 |
| | **Total** | **108.75** | **166.2** | **57.45** |

*Source: Annual Report, WDRA, 2010-11 & 2020-21 (https://wdra.gov.in)*

## Structure of Agri-warehousing in India (Types of warehouses)

Participation of different kinds of organisations like private, public and cooperatives with their own focus and agenda and trade requirements mainly in liberal and global environment have encouraged emergence of different formats and types of storage structures like the concepts of cold chains and container freight stations (CFS) and inland container depots (ICD) facilitating easy maintenance and reduced pilferage of cargo. In order to facilitate understanding, the warehouses can be classified into various groups based on the kind of management followed and control on goods stored exercised, ownership type and kind of technology deployed in operations.

## *Based on management and control of goods stored*

### Public Warehouses

The warehouses which are run to store goods of the general public are known as public warehouses. Anyone can store their goods in these warehouses on payment of rent. An individual, a partnership firm, a cooperative or a company or even government may own these warehouses. License from the government is required to start such a warehouse. Usually, these warehouses are set-up at transportation points of railways, highways and waterways, providing the facilities of receipt, dispatch, loading and unloading of goods. These are economical and easily available storage facilities for farmers, small manufacturers and traders. Some public warehouses provide facilities for packaging and grading, and the inspection of goods as well.

### Private Warehouses

The warehouses which are owned and managed by the manufacturers or traders or even large growers, to store exclusively their own stock of goods, are known as private warehouses. These warehouses are constructed by wholesalers and retailers near their business centres, by manufacturers near their factories and in case of farmers, generally, near their fields. The design and the facilities provided therein are as per the nature of products to be stored.

### Field or Management Warehouses

An arrangement where a collateral management or credit support company takes over the management of the warehouse and becomes responsible for the control of the commodities. The company, now, provides all the services of a warehouse on a charge to be levied on the owner of the stock. Such stock can be used as collateral for sake of commodity financing. Lending institutions generally avoid lending to the owners of stocks which are lying under their own control as in case of a private warehouse.

## *Based on management of operations*

### Government Warehouses

These warehouses are owned, managed and controlled by central or state governments or public corporations or local authorities. Both government and

private person may use these warehouses to store their own goods or public goods. Central Warehousing Corporation, State Warehousing Corporations, Food Corporation of India, Civil Supplies Corporations, etc. are examples of government warehouses. The Agricultural Produce (Development & Warehousing) Corporations Act, 1956 was enacted by the parliament as per the recommendations of Rural Credit Survey Committee (1954). The Act provided a framework for government control warehousing system having Central Warehousing Corporation (CWC) to serve markets of national importance, State Warehousing Corporation (SWC) to serve markets of district level importance and cooperative warehouses for village and community level storage needs. Though the Act was subsequently bifurcate into (i) National Cooperative Development Corporation Act, 1962 and (ii) the Warehousing Corporation Act, 1962 to define specific functions and operations of central and state warehousing corporations.

- **Central Warehousing Corporation (CWC) –** CWC provides handling and scientific storage to more than 400 commodities including agricultural products, industrial raw materials, completed goods and a range of hygroscopic and perishable things. Import and export warehousing is provided through its 30 Container Freight Stations available at ports and inland stations. CWC also provides facilities for bonded warehousing, pest control services, handling, moving and storing ISO containers (cewacor.nic.in).
- **State Warehousing Corporation (SWCs) –** State Warehousing Corporation operates as per the provisions of the Warehousing Corporations Act, 1962 to store agricultural products and other specified commodities. The Corporation aims at ensuring availability of warehouses for the storage of agricultural products, seeds, manures, fertilisers and other listed goods. There are 19 State Warehousing Corporations (SWCs) operating in India. In the equity capital of the SWCs, Central Warehousing Corporation owns 50 percent of the shares. As on 31st March, 2021, these State Warehousing Corporations were operating a network of 2203 warehouses with a total storage capacity of 439.12 lakh MT (CWC, 2021).

- **Food Corporation of India –** At an average FCI transports 42 to 45 million tonnes of foodgrains each year. The enormous moving operation of foodgrains are facilitated by FCI through its 2297 owned & rented depots/ slios, 550+ rail-heads (owned by Indian Railways and others), and 97 FCI own sidings (fci.gov.in). Storage acquires utmost importance in an organisation like FCI as it has to maintain sizable stock of foodgrains for an extended length of time (https://fci.gov.in). The storage strategy of the Corporation aims at satisfying the need for maintaining sufficient inventory for the Public Distribution System and other welfare programs run by the Government. Additionally, a buffer supply must be maintained to ensure the food security of the nation. The Corporation maintains a network of strategically positioned storage facilities including silos throughout the country. Adequate scientific storage is a prerequisite for achieving policy objectives of any organisation like FCI. In addition to own storage space, FCI rents space from other service provider like Central Warehousing Corporation, State Warehousing Corporations, State Agencies, and Private Parties for both short term as well as for guaranteed period under the Private Entrepreneurs Guarantee Scheme. The storage capacity available with FCI during last ten years (2012-2022) for maintaining Central Pool Stocks is presented in Table-4.

- **Private sector warehouses –** Warehouses owned and managed by private entities including individuals, companies, societies, partnership firms, etc. come under this category. These warehouses can act as a private, public or field warehouse based on management and control. These warehouses are owned as well as controlled by private entities, and many times have their own set of rules and regulations to manage stock as per the requirements of stakeholders associated with them for storage and other related services. Though, the Authority established under the Warehousing Development & Regulation Act, 2007 is offering registration to all warehouses to operate uniformly as per the provisions of the Act, only a limited number of warehouses have availed the registration. Many private warehouses are still reluctant to come under such supervision for their inability to see the benefits of being part of such system. The

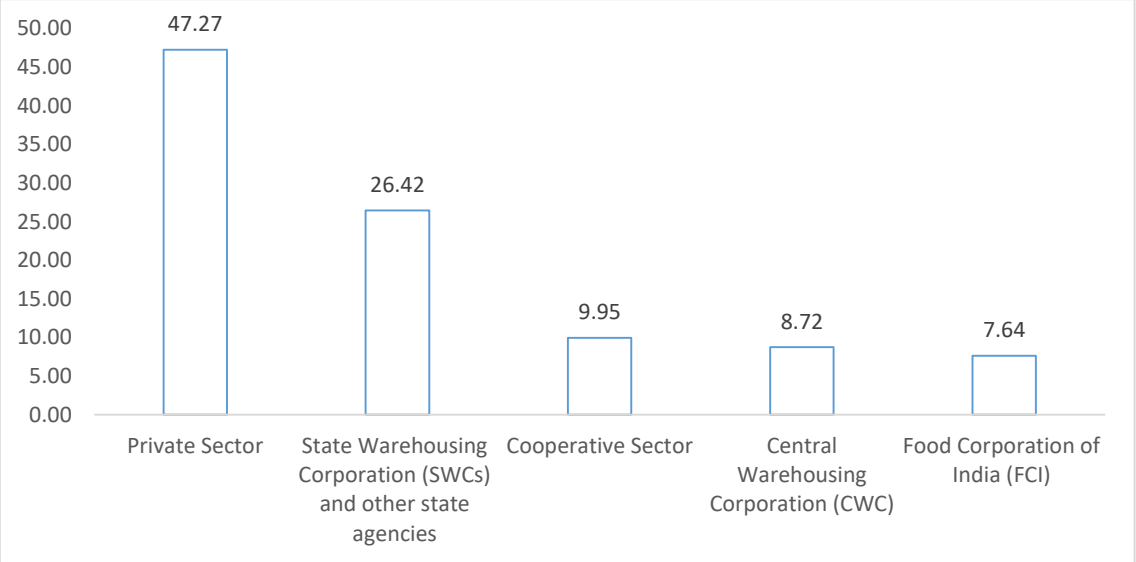
contribution of different organisations in the storage space, as presented in Figure-1, reveals a significant participation by the private players owing to schemes and programs of the government and business opportunities available in agriculture.

*Table 4: Storage capacity of Central Pool Stocks during last ten years (2012 to 2022) in Lakh MT*

| As on | Storage Capacity with FCI | Storage Capacity with State Agencies | Total | Percent Capacity FCI |
|---|---|---|---|---|
| 01/04/2012 | 336.04 | 341.35 | 677.39 | 49.61 |
| 01/04/2013 | 377.35 | 354.28 | 731.63 | 51.58 |
| 01/04/2014 | 368.90 | 379.18 | 748.08 | 49.31 |
| 01/04/2015 | 356.63 | 352.59 | 709.22 | 50.28 |
| 01/04/2016 | 357.89 | 456.95 | 814.84 | 43.92 |
| 01/04/2017 | 352.71 | 420.22 | 772.93 | 45.63 |
| 01/04/2018 | 362.50 | 480.53 | 843.03 | 43.00 |
| 01/04/2019 | 388.65 | 467.03 | 855.68 | 45.42 |
| 01/04/2020 | 412.03 | 343.91 | 755.94 | 54.51 |
| 01.04.2021 | 414.70 | 403.26 | 817.96 | 50.70 |
| 01.04.2022 | 426.69 | 361.73 | 788.42 | 54.12 |

Source: https://fci.gov.in

*Figure 1. Contribution (in percent) of different sectors in storage space available in India (2020-21)*




*Source: Information culled out from WDRA Reports*

Private warehouses can further be categorised into two groups i.e. warehouse service providers and individual warehouses.

- ***Warehouse Service Providers (WSP)* –** These are warehouse companies registered under the Companies Act (mainly private limited), which usually have more than one warehouse facility operating under them. On an average, one such warehouse facility has a storage capacity of around 5000 MT, and varies in their level of operation and kind of services offered based on capital investment. WSPs offer services like storage, preservation, collateral management and even pledge financing against the kind of receipts issued by them. The warehouses not registered under WDRA Act, 2007, may issue storage receipts whereas those registered under the Act may issue negotiable as well as non-negotiable warehouse receipts along with electronic warehouse receipts. Unregistered warehouses do business mainly based on their own network and track records of services offered in the past. Banks have been issuing secure loans against storage receipts, as long as the credit history of the respective warehouses are promising.

- ***Individual Warehouse* –** An individual warehouse includes warehouses that exist as an individual entity and have no other facilities under their name. Such warehouses can also be seen in the light of scale and management structure. Individual warehouses generally have an average storage capacity of 3000 - 5000 MTs and offer limited facilities based on the kind of commodity/ crops grown in/ near the area they are located. Madhya Pradesh has a large number of individual warehouses located in different districts, with a large number of them having already registered under WDRA.

- **Bonded Warehouse –** The concept of bonded warehouses was developed in order to facilitate the deferred payment of customs/excise duty by entrepreneurs, manufacturers, exporters and importers. It enables them to carry out their operations with minimum investment. These warehouses are used to store imported/excise goods under an

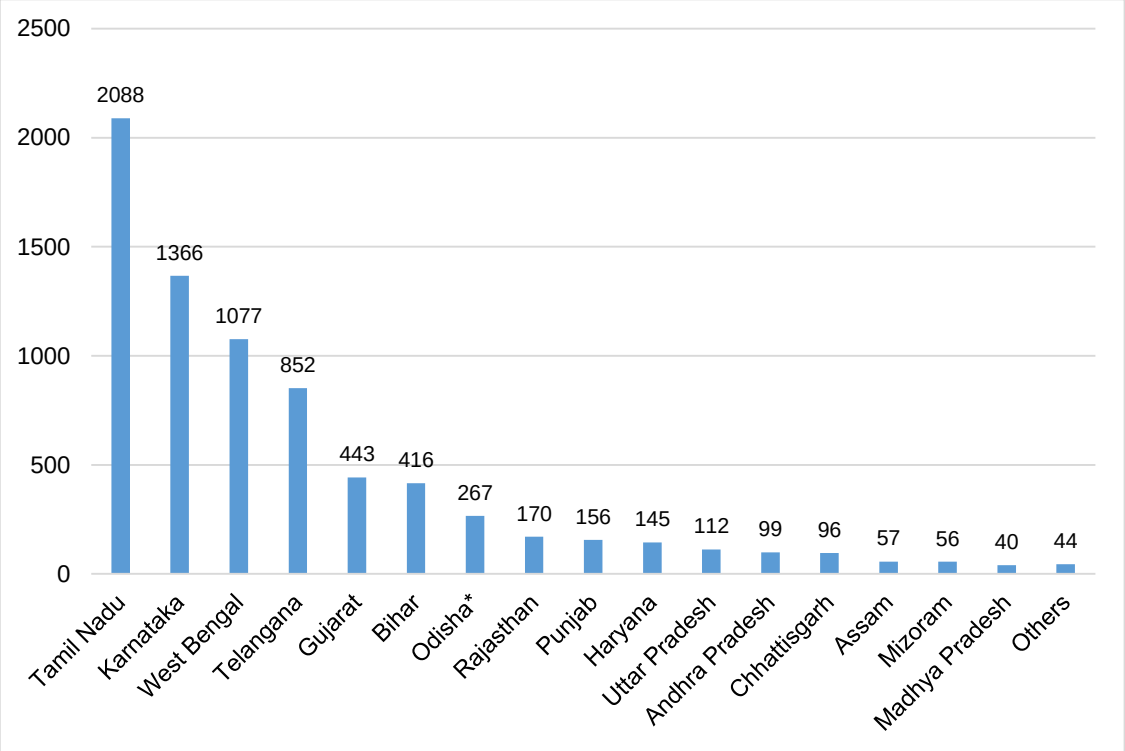
undertaking or ‘bond’, which does not allow the release of goods until the relevant duties are paid. These are generally established near ports or industry hubs. These warehouses are owned, managed and controlled by Government as well as private agencies. Private bonded warehouses have to obtain license from the government. Bonded warehouses can be custom bonded or excise bonded warehouse. Accordingly, these warehouses are used to store imported or excise goods for which import/excise duty is yet to be paid. In case of imported/excise goods the importers/manufacturers are not allowed to take away the goods from the warehouse till such duty is paid.

- **Cooperative Warehouses –** These are, generally, small capacity warehouses owned managed and controlled by co-operative societies. In India, Primary Agricultural Cooperative Credit Societies (PACS) and Agricultural Producers Cooperative Marketing Societies provide these warehouse/ storage spaces (Parasnath, 2016). PACS can be helpful in improving access of farmers to various services like storage, marketing, aggregation and availability of quality inputs. PACS can provide both backward and forward links to its members. These warehouses may develop the capacity to provide warehousing facilities to member farmers at the most economical rates for their proximity to farmers. Such warehouses are usually smaller in size with average capacity of 100 MTs in comparison to other public warehouse structures and many times offer friendly schemes to encourage farmer towards use of scientific storage.

Tamil Nadu has come forward as a major state with a thriving environment for cooperative warehouses, especially those operated by PACS. PACS often offers variety of services to its members like input facilities, agriculture tools on hiring basis, storage facilities (warehouses) and information services, marketing and transportation services. The availability of warehouses under cooperative societies in Tiruvannamalai district suggests the progress made by cooperatives societies in Tamil Nadu in providing storage facilities. There are 157 primary agricultural cooperative credit societies and 7 agricultural producer cooperative marketing societies operating in Tiruvannamalai District. These society are

operating more than 230 Warehouses with most of them having a capacity of 100 metric tonnes (MT). There are a few warehouses even with a larger capacity like five warehouses with an average capacity of 500 MT, three with an average capacity of 1000 MT and one with a capacity of 2,000 MT (Parasnath, 2016). These warehouses were constructed with the support available under the Rural Infrastructure Development Fund and Warehouse Infrastructure Fund of NABARD. The funds availed by Tamil Nadu under Warehouse Infrastructure Fund also suggest the emphasis laid by the state government on providing storage facilities close to farmers. The progress of state-wise disbursements of funds from Warehouse Infrastructure Funds (WIF) 2013-14 and 2014-15 is presented in Figure-2.

*Figure 2. State-wise disbursements from WIF 2013-14 and 2014-15 as on 31 March 2021 (Rs Crore)*




## *Based on warehouse infrastructure*

**General or Conventional**

These are also called dry warehouses, capable of storing large variety of agricultural and non-agricultural goods which does not deteriorate or deteriorate at a highly slow rate under ambient conditions. These warehouses provide safe

and economical storage. These are located at a site away from sources of contamination, fire, flood, etc. The conventional warehouses are at a safe height from ground level i.e. having the plinth height sufficient to check water seepage or entry of rats. The walls are strong enough and roof is made of corrugated sheets supported by trusses. There is proper system of selective and cross ventilation. Floor is seepage proof and packaged stock is stacked in different patterns to keep it stable for a longer period. The warehouse has a proper boundary wall or barbed wire fencing. The open space is adequate to provide parking and manoeuvrability for the goods vehicles. The Conventional warehouses are to be constructed as per IS: 16144:2014 standards.

**Cold Storage**

A cold storage is a temperature controlled storage space which caters to industries such as agriculture, horticulture, fisheries and aquaculture, dairy and processed food. The cold storage market in India is highly fragmented with over 50 percent being utilised for potato storage. The key activities involved in cold storages are aggregation, sorting, pre-cooling and packaging of produce for movement from farms to manufacturers. Integrated cold storage warehousing has huge potential in India. The cold storage system when supplemented with temperature-controlled transportation connecting farm-level storage facilities, processing units and distribution outlets, form a cold chain system. This not only improves efficiency but also solves the problem of wastage of horticultural products. Private investment in cold chain is gradually growing due to different government schemes and incentives in terms of taxes and duties. Though, a proper strategy supported by policies is required to harness the potential available in the sector.

**Temperature Controlled Warehouses (TCW)**

There are a variety of goods which needs different levels of temperature for their safe storage. Warehouses with temperature–controlled environment are available to fulfil such needs. In a cold storage, as a general practice, the entire warehouse is kept at a constant low temperature. However, in a TCW, each chamber can be maintained at different level of temperature as per the need of different types of goods. Along with temperature, the system also needs to

maintain other parameters like air quality levels, humidity, etc. Products like fresh agricultural produce, frozen foods, photographic films, chemicals and pharmaceuticals are sensitive to temperature change, either due to short shelf–life or their sensitive chemical compositions. In order to avoid damage to such products, it is necessary to maintain a fixed temperature range specific to the product round the clock.

**Controlled Atmosphere Storage (CAS) System**

A controlled atmosphere storage may help in keeping the produce fresh over a longer storage period by regulating the concentration of oxygen, carbon dioxide and nitrogen, as well as the temperature and humidity of a storage room chamber. Both dry commodities and fresh fruit and vegetables can be stored in controlled atmospheres.

**Silo**

Silos are most commonly used for bulk storage of grains and other material like coal, cement, carbon black, woodchips, food products and sawdust. Silos come in a wide variety of shapes (round or angular, standing horizontal or vertical) and can be constructed using different materials. These are generally made of steel or reinforced cement concrete. However, grain silos commonly consist of vertical cylindrical bins having height greater than their diameter. Silos are fitted with necessary equipment and accessories required for lifting, conveying, filling, removing, weighment, sampling, testing, fumigation of material, etc. IS: 5503 (Part-I & II)-1969 reaffirmed 2005 provides detailed specifications about general requirements for silos for grain storage.

**Tank Storage**

Tanks are containers that are used to store liquids (edible oils, petroleum, mineral oils, chemicals, etc.) or compressed gases. The tanks may be of different shapes like, vertical/horizontal cylindrical, open top/ closed top, flat bottom, cone bottom, slope bottom and dish bottom. Large capacity tanks are mostly vertical. These tanks are sometimes mounted on a trailer/lorry called as tanker or on a container called as tank container. The tanks are made of different material like steel/ concrete for general liquid cargo or glass-reinforced plastic, thermoplastic and polyethylene for chemicals. These tanks can be either above ground or

underground. Above ground tanks are the most commonly used storage system for most of the edible/ mineral oils, petroleum products, etc. The tanks are built to sustain liquid pressure and liquid oscillations during transport.

**Container Freight Stations (CFS)/ Inland Container Depots (ICDs) -** CFSs/ICDs are custom-bonded facility with public authority status for handling and storage for containers. These depots are equipped with warehousing space, adequate handling equipment and IT infrastructure. Services of CFS/ ICDs include the followings –

- Loading/unloading
- Receipt/dispatch of goods
- Transit operations by road/rail to and from the port
- Stuffing/de-stuffing of containers
- Customs clearance
- Consolidation and desegregation of Less than Container Load (LCL) cargo
- Temporary storage of cargo and containers
- Repair and maintenance of containers
- Refrigerated warehousing
- Hub-and-spoke services

CFS is an off-dock facility located near the service port. ICD, on the other hand is located in the hinterland. CFSs/ ICDs act as consolidation points, transit storage locations and ease the compliance procedure with local customs, reduce damage/ pilferage, optimise container utilisation and reduce transport/inventory cost. CFS/ ICD provides all the facilities available at the ports and are sometimes also referred as dry ports. Once integrated with multimodal transportation system, they greatly reduce the logistics cost thereby making imports/ exports economical.

**Multi-storey Warehouses**

These warehouses provide solution for storage space in a multi-storey set up per unit of land. These structures are coming up due to pressure of urbanization and increasing population. Multi-storey warehouses are getting popularity in India as

well. A successful multi-storey warehouse has to be integrated with great degree of mechanization and automation.

**Automated Warehouses**

These warehouses are capable of providing an effective system with great deal of technological integration with least human intervention. They perform multiple functions of warehousing like off-loading, conveying, lifting, stacking, de-stacking, sampling, assaying, controlling theft, fire, etc. with intensive use of information technology. All gadgets and devices are fitted with sensors and are connected to each other through internet. This connectivity enables gadgets to coordinate their processes for ensuring seamless operations. Internet, cloud computing, big-data analytics, robotics and automation make these units as intelligent warehouses.

## *Based on ownership/ effective control*

Different models of ownership/ effective control have emerged in warehousing sector due to factor like competition, business opportunities and construction of warehouses being highly capital intensive. Following patterns of ownership/ effective control exist in the Indian warehousing ecosystem.

**Owned Warehouses**

The operator owns the land, building and infrastructure of the warehouse as exhibited by the record of rights of land or a registered title deed in respect of the land on which the concerned warehouse is located.

**Leased warehouses**

Because of highly volatile business dynamics in public warehousing, large number of warehouses are not owned by the operator but taken from the owner of an existing warehouse in return of a mutually agreed consideration often referred to as a lease agreement. A lease is a contractual arrangement in the form of a deed or an agreement between the owner of the warehouse and the user or operator of the warehouse, wherein, the lessee (user) is obliged to pay the lessor (owner) an agreed amount for use of his warehouse.

**Sub-leased warehouses**

In some cases of leased warehouses, the owner of a warehouse allows the lessee to sub-lease or sublet the premises to some other person to make sure that the warehouse is gainfully utilised with continued returns on the property. Depending on the situation, the warehouse operators also find it beneficial to lease space from another lessee which helps in his business in terms of price, location and size. This requires a sub-lease agreement between the lessee and the new person who becomes a sub-lessee. However, the master lease agreement shall allow sublease and other terms and conditions enlisted in the sub-lease agreement. There shall not be any contravening of the master lease agreement between the original owner and the lessee.

**Rented warehouses**

Renting a warehouse provides a better business option to the warehouse operator as he is not required to pay the lease amount in a lump sum but in a deferred way in the form of rent. In such a situation a rent agreement is executed instead of lease agreement. A rent-agreement is an official contract signed between the owner of a property and the tenant who wishes to take temporary possession of the property for an agreed period of time. The agreement contains basic details of the warehouse property, the owner of the property, the renter (or tenant, as he is also called), the term of the rental and the amount of the rent for the said term.

**Warehouses taken on revenue sharing arrangement**

A revenue sharing arrangement is executed when the warehouse owner and the operator wish to enter into a joint venture wherein the owner's contribution is the warehouse and operator's contribution is his investment in terms of other resources for running the warehousing business as outlined in the agreement. A revenue sharing agreement enlists the specific details as to how revenues from a joint venture will be shared between two or more parties. A revenue sharing agreement is an essential document to be developed whenever two or more parties enter into a joint venture project together.

The warehouses have great deal of diversity in terms of ownership and effective control as well as management of operations. A similar kind of diversity

can also be observed in the kind of stakeholders' participation in the warehousing ecosystem. It would be interesting to understand different kinds of stakeholders participating in agri-warehousing sector either as service providers or seekers.

## Stakeholders

### *Farmers*

In India, more than 86 percent of the farmers are operating on small and marginal land holdings. Such farmers are cultivating 44.6 percent of the area with average land holding size of 0.59 hectare. Because of the size of land holdings, crops cultivated, limited production and limited surplus available with majority of the farmers making it difficult to get included in the contemporary market structures like contract farming or direct purchasing. The production for different crops with low-perishability mainly paddy, wheat, nutri/ coarse cereals, pulses, oilseeds and cotton has increased continuously in recent past (Table-5.) highlighting the need for warehouses/ storage spaces allowing farmers and other stakeholders to hold the commodities for a longer period and avail market advantage in term of realisation of better price. The storage facilities may not only help farmers realise better price but also facilitate stabilise the price and ensure availability of agricultural produce round the year.

*Table 5. Change in production of major crops during 2020-21 over 2010-11*

| **Crops** | **2010-11** | **2020-21** | **Change (%)** |
|---|---|---|---|
| Paddy | 95.98 | 124.37 | 29.58 |
| Wheat | 86.87 | 109.59 | 26.15 |
| Nutri/Coarse Cereals | 43.40 | 51.32 | 18.25 |
| Pulses | 18.24 | 25.46 | 39.58 |
| Oilseeds | 32.48 | 35.97 | 10.75 |
| Sugarcane | 342.38 | 405.40 | 18.41 |
| Cotton | 33.00 | 35.25 | 6.82 |

Source: https://static.pib.gov.in

Similar progress has also been observed in case of area and production of horticultural crops in recent past (Table-6). The area under horticulture crops increased from 21.83 million hectares during 2010-11 to 27.59 million hectares during 2020-21, an increase of 26.39 percent. The production during the same period registered even a better growth of 37.63 percent because of improved

productivity. Such growth trends also highlight the need for investment in cold storages and other temperature-controlled logistics vehicles for smooth movement of perishable crops from producer to consumer with minimum post-harvest loses.

*Table 6. Progress of horticultural crops during 2010-11 & 2020-21*

| **Items** | **2010-11** | **2020-21** | **Change (%)** |
|---|---|---|---|
| Area (Million ha) | 21.83 | 27.59 | 26.39 |
| Production (Million MT) | 240.53 | 331.05 | 37.63 |
| Productivity (MT/ha) | 11.02 | 12.00 | 8.88 |

Source: Agricultural Statistics at a Glance, 2021

The participation of farmers in post-harvest and warehousing services is also observed to be fairly low. According to a WDRA report, only 5 percent of the depositors involved with WSPs have been farmers. Though, the proportion in some districts have been observed as high as 70 percent which may be the case of traders being disguised as farmers to avail different benefits available to farmers under various schemes and programs of the Government (WDRA, 2021). The majority of farmers for limited surplus continue to follow the conventional marketing method by approaching the regulated wholesale markets. Collateral management companies have also been observed to be favouring traders over smallholders for loan against warehouse receipt due to limited loan requirement of smallholders (Shalendra, et al, 2016). These are some of the factors limiting farmers from using storage facilities to take market advantage and credit facilities. However, government has realised the opportunities available due to trade liberalisation and have come up with various programs to help farmers avail such opportunities. Various programs and policy initiatives of the Government like Kisan Credit Card, Kisan Rath App and eNAM platform have been useful in bringing smallholder farmers of India in the loop of new opportunities and better possibilities (NABARD, 2015). PSL limit for loans against NWRs/eNWRs have also been increased from Rs. 50 lakhs to Rs. 75 lakh per borrower in the wake of expansion of warehousing in agriculture sector (RBI, 2021). This will ensure greater flow of credit to farmers against pledge of agricultural produce. This will also facilitate encouraged use of NWR/eNWR issued by registered warehouses leading to better liquidity in rural areas.

## *FPO*

FPO is a generic term that refers to and includes Farmer-Producers' Organisations incorporated/ registered either under Part IXA of the Companies Act or under the Cooperative Societies Act of the concerned States and formed for the purpose of leveraging collectives through economies of scale in production and marketing of the agricultural and allied sector products. It has been observed that the participation of FPOs in availing storage facilities has been considerably low when compared to other depositor categories as per recent trends. Although, they have an important role to play when it comes to small and marginal farmers facing difficulty in getting their goods to the nearest warehouses due to poor transportation facilities. The services of aggregators (cooperative farmers groups, self-help groups, farmers/ producers' businesses) may be employed in such circumstances. These aggregators may be eligible for some transportation subsidies. At village level, the aggregators can pick-up foodgrains from farm gate or from farmers' homes and transfer the same to nearest storage facility and get NWR issued after following required cleaning, sorting and drying. The produce aggregated through farmers organisation can facilitate participation in platform like commodity exchanges which otherwise may not be available mainly to smallholders due to quality and quantity related requirements for participation. Produce must adhere to the quality requirements outlined by the commodities exchanges and must be kept in licenced warehouses using recognised scientific methods. Such organisations can either sell through exchange approved brokers or it may apply to join the commodity exchanges to engage in trade directly. There are numerous examples where farmers' organisations have been benefited through warehousing either by availing loan or participation in online platforms.

## *Traders*

Warehousing services are used largely by traders mainly for reasons like storage of goods for further processing, exporting later at a higher price after some value addition and for accessing credit to avail financial liquidity till the goods are sold (WDRA, 2015). Policies of the government to encourage liberal trade of agricultural commodities, support to construction of warehouses by private players and a major section of the existing government warehouses used for holding government stocks, create opportunities not only for investment by

private players in storage but also making traders an important players to provide regular business by utilising the capacity .

Warehouses are used by the traders for services like reselling, exchange, exports, hedging or future trading. The level of services availed by them depends upon the kind of commodity they trade in, the consumers they cater to and the supply chain they participate in. Traders holding stocks for processing units may be looking for moderate preservations measures whereas those holding stocks for participation on exchange platforms may prefer the warehouses to follow strict measures for preservation of stock. The warehouses not only enable traders to participate in different supply chains looking for various services but also help the traders with their capital need through access to formal credit facilities which become relatively easy with entry of collateral management service providers. Traders are also the main users of pledge finance with a very small proportion of farmers availing the same (WDRA, 2015).

### *Banks/ Financial Institutions*

Banks and financial institutions are an important stakeholders of the supply chain involving warehouses for their ability to provide financial liquidity till the goods are sold. The farmer/ trader deposits the agriculture produce at a warehouse and a receipt is issued. Depositors takes the receipt to a bank and pledge the commodity so as to avail the loan. Warehouse receipt finance is estimated to be USD 3.0 – 3.5 billion in India which is far from its potential of USD 60 billion. There are generally two primary risks associated with warehouse receipt financing i.e. price fluctuation and stocks either not being available in the warehouse as per the receipt or are of poor quality. The risk associated with price fluctuation is managed by maintaining a margin. Bank will only sanction a fraction of total market value of commodity stored as loan and will always retain a margin which is generally linked with the degree of volatility the commodity is exposed to.

The risk associated with commodity not being stored or is stored but of poor quality is managed by involving a collateral management company. Shri Shubham Logistics, Star Agri, and NCML are a few well-known collateral management companies. Reliance of banks on collateral management companies make them an integral part of pledge financing system. The presence

of collateral management companies in pledge financing business suggests the importance of trust in warehouse service providers. Bank have shown preference to commodities stored in warehouses managed by Central Warehousing Corporation or State Warehousing Corporation due to lower risk because of Government ownership. Taking this factor into consideration mainly in case of private warehouse, the Government has introduced various provisions like registration of the warehouses with the Warehouse Development and Regulatory Authority and electronic maintenance of warehouse receipts with repositories established by the Authority like NeRL and CCRL.

Some banks, like ICICI, have a group called the Commodity Control Management Group (CCMG), which keeps tabs on commodity prices to determine whether the collateral is enough, if not, the farmer, processor, or dealer is requested to provide the bank with extra margin. The physical condition and quality of the commodity, including its location, method of storage, accessibility to and quality of warehousing facilities, commodity quality standards, shelf-life, market pricing, and other factors, also become crucial in this matter.

## *Warehouse Service Providers*

The participation of private players in agri-warehousing sector has increased in recent past owning to various programs and schemes introduced by the Government. Only 17.44 percent of warehousing capacity was operating under private management during 2010-11 which has increased to 47.27 percent during 2020-21. There are Government owned companies like Central Warehousing Corporation and State Warehousing Corporations providing the warehousing services. In addition, there are various warehouses operating under private management with different operational format like warehouse is constructed by individuals for not providing warehousing services directly but to lease it out to Warehouse Service Providers. There may also be individuals having ownership and also providing warehousing services. Regulated Wholesale Markets may also be having their own warehouses like APMC, Nizamabad (Telangana) has constructed a warehouse to offer public warehousing services but responsibility of operations has been outsourced to Telangana State Warehousing Corporation. Public warehouses provide various services like preservation of

agri-commodities, collateral management for pledge financing and storage of agri-commodities for trade on exchanges. The warehouse service providers may offer all or a few of these services like warehouses operating under CWC and SWC don't facilitate exchange based trades but private companies like Shree Shubham Logistics Pvt. Ltd. (SSL), National Bulk Handling Corporation Ltd. (NBHC) and National Collateral Management Services Ltd (NCML) provide all kind of services related to preservation, collateral management and trading on exchanges.

## *Government Agencies*

Government is one of the major user of storage space in India, beside traders. Introduction of price support policies, distribution of foodgrains under PDS and regulation of demand and supply have made government an important players in the agri-warehousing sector in the county. The foodgrains procured by government agencies as part of price support policy is stored in FCI warehouses (owned or hired) and/or storage spaces available with CWC and SWCs. The utilisation of storage capacity by public agencies has been observed as a factor limiting shifting of warehouses towards modernization and discouraging adoption of new concepts like electronic receipts.

# Section – 3. Negotiable Warehouse Receipt

## Registration of Warehouses

The massive growth in private warehousing capacity led the Government to come up with regulatory framework to facilitate development of a credible warehousing ecosystem in the country with ability to make warehouse receipt truly negotiable. Accordingly, the Government of India has enacted the Warehousing (Development and Regulation) Act, 2007 to strengthen warehousing activities in the country and put in place a regulatory framework for negotiable warehouse receipt system. The Warehousing Development & Regulation Act, 2007 came into effect from 25th October 2010 mainly to ensure the development and regulation of warehouses, make warehouse receipts truly negotiable and establish Warehousing Development and Regulatory Authority (WDRA) as the institute to ensure implementation of various provisions as envisaged in the Act. The Authority was set-up by the Government in October 2010 to regulate and facilitate development of warehouses in the Country. The receipts issued by the warehouses registered with Warehousing Development Regulatory Authority (WDRA) would be fully negotiable instrument backed by central legislation. The Negotiable Warehouse Receipts issued by the warehouses registered with the Authority are expected to help farmers seek loan from banks against the pledge of the NWRs and avoid distress sale. The NWRs can be traded as well as endorsed by the holder of the receipt. The NWRs can be beneficial for a number of other stakeholders such as banks, financial institutes, insurance companies, trader, commodity exchanges as well as consumers. The Act provides necessary administrative mechanism and legislative back-up for regulating the NWRs issued by warehouse.

The authority has registered a total of 4256 warehouses as on 31st March 2022 with a total of 2516 active registered warehouses. The information complied in Table-7 (and Figure-3) reveals that more than 46 percent warehouses registered with WDRA are owned by private individual players. About one-third of the registered warehouses are operating under PACSs/FPOs suggesting the importance of registration of warehouses managed by organisations facilitating aggregation of produce at the level of farmers. A slightly more than 23 percent of

the warehouses registered are managed by Central/State Warehousing Corporations. The registration of cold storage with WDRA is still very low at 59 with only 45 active registration.

*Table 7. Registration of warehouses operating under different ownership with the Authority (as on 31.03.2022)*

| Entity | Registration | Active Registration |
|---|---|---|
| Private | 1966 | 830 |
| PACS/FPO | 1242 | 982 |
| SWC | 500 | 315 |
| CWC | 489 | 344 |
| Cold Storage | 59 | 45 |
| **Total** | **4256** | **2516** |

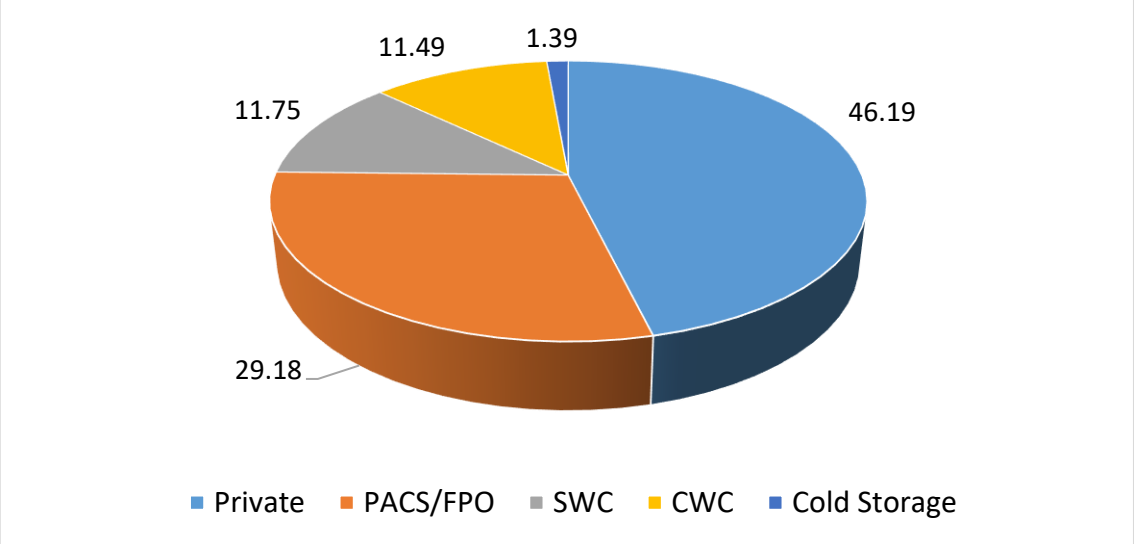



*Figure 3. Warehouses operating under different ownership as percentage of the warehouses registered with the Authority (as on 31.03.2022)*

The progress of registration of warehouses have been relatively better in recent years during 2016-17 to 2021-22 in comparison to 2011-12 to 2015-16 (Figure-4). Though, the increase can be observed in all category of warehouse but the progress has mainly come through increased number of registration under PACS/FPOs and private warehouses.

*Figure 4. Performance of registration of warehouses over years*

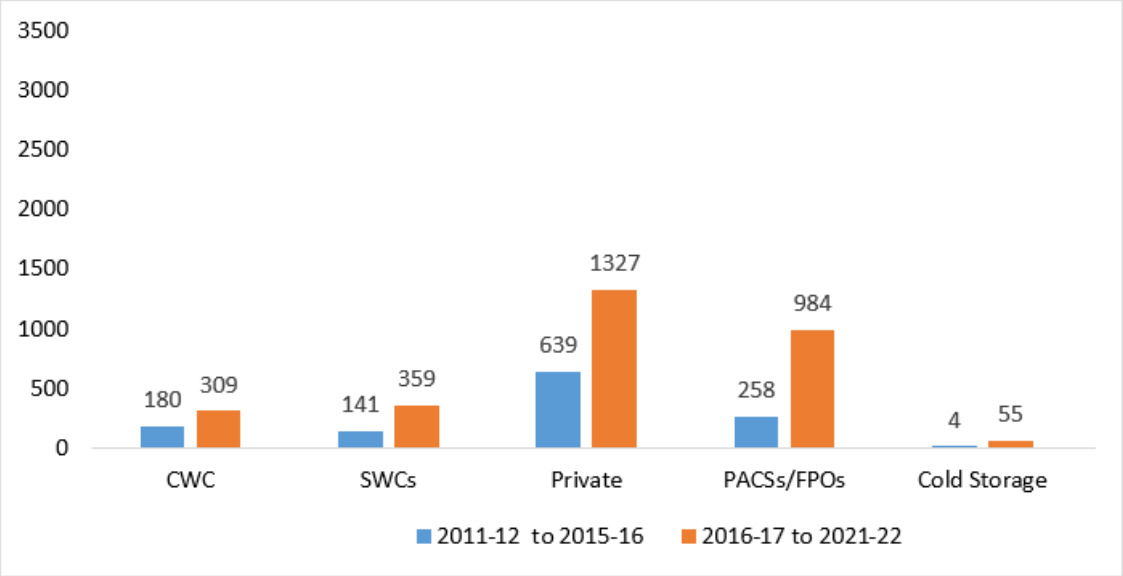
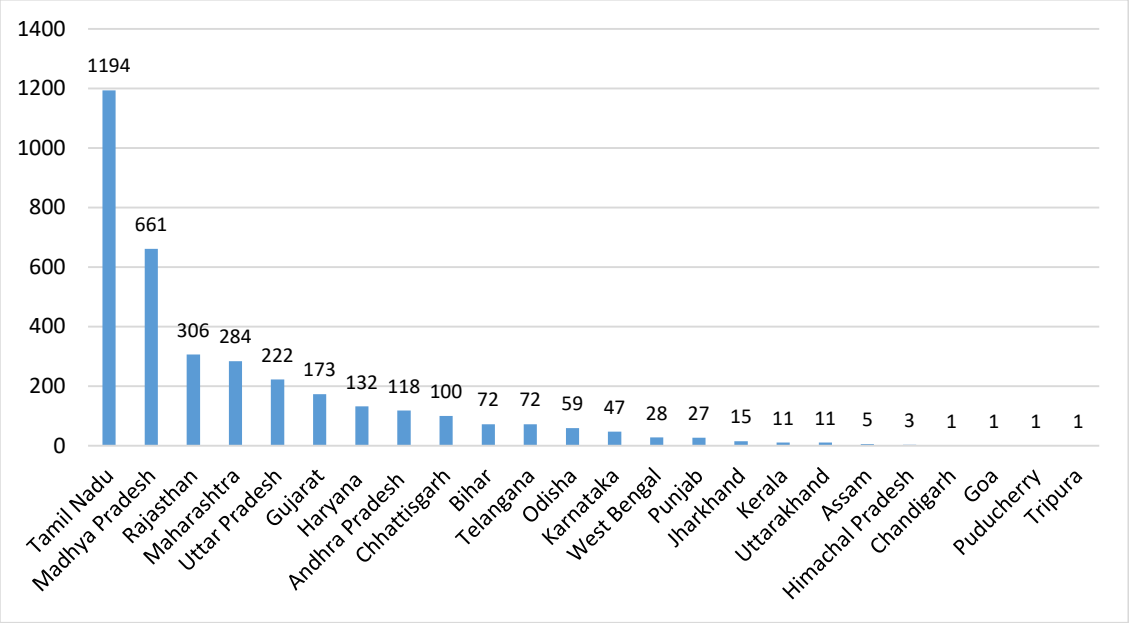



*Table 8. Category wise list of active warehouses registered with WDRA (as on 31/03/2021)*

| Sr No | Category of Warehouses | Year | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | |
| 1. | CWC | 135 | 25 | 15 | 3 | 2 | 5 | 14 | 84 | 21 | 81 | 240 |
| 2 | SWC | 87 | 28 | 9 | 1 | 16 | 44 | 0 | 37 | 59 | 1 | 97 |
| 3. | Private | 18 | 26 | 14 | 81 | 500 | 163 | 241 | 386 | 194 | 141 | 696 |
| 4. | PACS/ FPOs | 0 | 13 | 30 | 145 | 70 | 2 | 1 | 97 | 723 | 84 | 900 |
| 5. | Cold Storage | 0 | 0 | 0 | 4 | 0 | 0 | 5 | 3 | 8 | 30 | 40 |
| | **Total** | **240** | **92** | **68** | **234** | **588** | **214** | **261** | **607** | **1005** | **337** | **1973** |

It is evident form the information compiled in the table that majority of the warehouses registered with the Authority are operating under cooperative structure. The participation of warehouses operating under cooperatives can help in taking the benefit of warehousing sector to the farming community which otherwise is limited in case of private and public warehouse. In terms of registration, cooperative warehouses are followed by private warehouses and public warehouses operating under central and state warehouse corporations.

*Figure 5. State-wise number of registered warehouses active as on 15.01.23*




Out of the 3544 active warehouses registered with the Authority as on 15th January 2023, maximum number of warehouses are from Tamil Nadu and Madhya Pradesh having 1194 and 661 registered warehouses, respectively. In Tamil Nadu, special interest has been observed among the warehouses managed by primary cooperative societies. Considering the interest shown by the Registrar of Cooperative Societies (RCS), Government of Tamil Nadu, special drive was undertaken to register the net worth positive PACSs by organising awareness camps, registration camps and conducting training programs. As a result, 723 warehouses belonging to PACSs with an aggregate capacity of 1.01 lakhs MT were registered during 2019-20. Similarly in Madhya Pradesh, better registration of warehouses with WDRA is mainly due to overwhelming response shown by the private individual warehouse.

## Negotiable Warehouse Receipt (eNWR)

The Authority established under the Warehousing Development and Regulation Act (2007), has set forth monitory performance, legal and infrastructure conditions for a warehouse to be registered with the Authority. Registered warehouses can issue negotiable warehouse receipt which can be used by the depositors (including farmers) as collateral for availing bank loans. The negotiability of the receipt is provided as per the provisions of the Act which will

allow banks and depositors to have increased confidence in the document. Section 11 of the Act gives a broad framework of the contents of an NWR. Section 12 of the Act provides for negotiability of a warehouse receipt. The format of NWR was finalised by the Authority in consultation with the Indian Banks Association (IBA). The NWR books were being issued to the registered warehouses by the Authority to be issued against deposits. The physical NWR books containing various security features were printed by the Security Printing and Minting Corporation of India Limited. The physical NWRs have unique features such as anti-copy, endless text, fine line patterns and micro-printing with rainbow colouring (WDRA). As per the Act, the Negotiable Warehouse Receipts (NWRs) can be in both paper and electronic forms. The system of electronic negotiable warehouse receipts (eNWR) was launched by the Authority on 26th September 2017 (GoI, 2021).

## *Electronic Negotiable Warehouse Receipt (eNWR)*

As per Section 2 of the said Act, 2007, a warehouse receipt has been defined as an acknowledgement in writing or in electronic form issued by a warehouseman or its authorised representative. The Authority launched electronic Negotiable Warehouse Receipt (e-NWR) on 26th September 2017 to be issued by warehouses registered on electronic repository system. The Authority has also notified that with effect from 1st August 2019 all registered warehouses shall issue NWRs only in electronic form. In order to facilitate management of database and support electronic receipts, the registered warehouses have to register with at least one of the repositories namely National E-Repository Limited (NeRL) and CDSL Commodity Repository Limited (CCRL) registered with WDRA. The electronic repository system maintained as per the guidelines developed by WDRA facilitates in overcoming challenges related to paper receipt and associated trade transaction based paper work. An electronic negotiable warehouse receipt must be issued by registered warehouses only in accordance with the WDRA Notifications (Singh et al, 2022). Electronic receipt are maintained in repository accounts similar to holding shared in DEMAT Accounts. Ownership of eNWR can be transferred smoothly through transfer from one account to other. Finance against eNWRs can also be availed easily because of involvement of repository establishing linkage with all possible stakeholders.

## *Salient features of eNWR*

Some of the salient features and benefits offered by electronic negotiable warehouse receipt are presented below –

| Salient features | Benefits |
|---|---|
| ▪ eNWR is available only in electronic form<br>▪ Single source of information for the eNWR is the repository system where eNWR is issued by registered warehouses<br>▪ Confidentiality, integrity and availability of the e-NWR information is provided by the repository system<br>▪ An eNWR has time validity<br>▪ All eNWRs can be traded through off-market or on-market on commodity exchanges platforms<br>▪ An eNWR can be auctioned under certain conditions such as loan not repaid, on expiry and delivery not taken, and on likely damage or spoilage of the commodity in the warehouse<br>▪ e-NWR can be transferred fully or in part | ▪ Avoidance of forgery/ loss/ tamper/ mutilation of a physical NWR<br>▪ Avoidance of multiple financing against the same NWR<br>▪ Reduction of monitoring costs and building credibility amongst market participants<br>▪ Market participants to have secured accessibility to view and manage their warehouse receipts via online portal<br>▪ Easy access to finance by enabling multiple transfers without physical movement of goods<br>▪ Splitting of NWRs for partial sale/ pledge/ withdrawal |

## Superiority of electronic over paper receipt

The electronic negotiable warehouse receipt offers various advantages over present paper dominated receipt system. The physical receipt bases system suffers from various limitations like lack of trust among stakeholders, limited transparency and market access, operational challenges and high cost of transactions. Some of the advantages offered by electronic over physical receipt are presented in Table-9.

*Table 9. Advantages of electronic over paper based warehouse receipt*

| Paper based receipt | eNWR |
|---|---|
| Can be shared with prospective buyer in a one to one mode only | Help farmers/ depositors to have access to a large number of buyers nationwide with better bargaining powers |
| Cannot be split | eNWRs can be split with obligation to transfer only a part of the commodity |
| Prone to loss, mutilation, tampering, fudging of warehouse receipt information | No possibility of any such eventuality |
| Inherent difficulties in efficient clearing and trading in a transparent manner | Promote an efficient clearing, settlement and delivery system with transparency in trading of agricultural produce |
| Difficult to share vital information of the warehouse receipt with multiple stakeholders | Its easy to share vital information of the eNWR with multiple stakeholders like bankers, commodity exchanges, government, etc. |
| No uniformity of information in the receipt | Standard format as prescribed under the Act and Regulation |
| Not regulated | Regulated by a statutory Authority |
| Assaying is not mandatory | Reporting the quality of goods in eNWR is mandatory |
| Risk of issuing of warehouse receipt without receiving goods | Possibility ruled out |
| Risk of issuing a duplicate warehouse receipt without following the procedure | Not Applicable |
| Fraudulent overstatement of the value of goods is possible | Agmarknet prices used |
| No monitoring and surveillance | Regularly monitored by WDRA |
| Problems in transferability of goods in case of transfer/ endorsements due to trade without legal negotiability to the warehouse receipts | Being electronic in nature, multiple transfers are easy and with due backup of the Act |
| Higher litigations in case of non-regulated warehouses | Litigation shall be greatly reduced |

*Source: NeRL (2022) Introduction to Electronic Negotiable Warehouse Receipt (eNWR). Unpublished document by National E-Repository Limited (NeRL), Mumbai*

## Repository system introduced by WDRA

In order to facilitate electronic and transparent maintenance of information, the Authority has introduced an institutional arrangement having repositories in its core. The repository system is an electronic record-keeping system that allows warehouse operators to keep track of and update information about the commodities stored in their facilities. This information is made available to different stakeholders through a central electronic repository maintained by the Warehousing Development and Regulatory Authority (WDRA). The repository system mandates that warehouse operators registered with the WDRA to get registered with at least one of the repositories empanelled by the Authority before starting operations. The Authority has empanelled two repositories namely National E-Repository Limited (NeRL) and CDSL Commodity Repository Limited (CCRL). Once registered, warehouse companies are required to keep accurate records of the goods kept in their warehouses, including details on the kind, quantity and quality of the commodities as well as the names and addresses of those who use the warehouse. This data is then regularly uploaded at the central repository and available for use by relevant stakeholders.

The repository system has several advantages for both warehouse operators and the general public. It helps warehouse operators streamline and automate the process of record-keeping, which can be time-consuming and error-prone when done manually. It also improves transparency and accountability because entire information is accessible by all the relevant stakeholders and can easily be verified. The repository system makes it easier for the farmers and other commodity producers to find and compare different warehouse operators, as well as to check the availability and quality of commodities stored in a specific warehouse. Overall, the repository system aims to improve the efficiency, accessibility and transparency of warehousing and storage industry in India by leveraging the use of technology. This is important for warehouse operators to be able to raise finance against the stored goods, improve marketability of the commodity and increase farmer bargaining power.

## *Registration of Repositories with the WDRA*

The Authority has registered two Repositories namely CDSL Commodity Repository Ltd (CCRL) sponsored by Central Depository Services Ltd. (CDSL) and National eRepository Ltd. (NeRL) sponsored by National Commodity and Derivatives Exchange (NCDEX) for creation and management of electronic Negotiable Warehouse Receipts (eNWRs). Core services provided by these repositories are as given below –

- Enabling safe and accurate creation, maintenance and cancellation of electronic records for eNWR/ eNNWR, based on valid authorisation by the account holder.
- Ensure confidentiality, integrity and availability of complete Information related to e-NWR.
- Enabling the transfer, pledge or removal of the pledge and e-auction of eNWR.
- Enabling delivery of goods in part or full, underlying eNWR/ eNNWR, through the warehousemen.

The Repository system became effective from September 26, 2017. The Authority also issued “Guidelines on Corporate Governance for the Repositories registered for Creation and Management of Electronic Negotiable Warehouse Receipts” on April 23, 2019.

## *Actors involved in the repository system*

1) Repository Participant (RP) – RP is the person associated with the repository and responsible for carrying out necessary activities like account opening, client maintenance and surveillance of different transactions taking place in relation to the repository or eNWR.
2) Warehouse Executive – In-charge of a WDRA registered storage capacity with respect to the management of activities as well as the regulation of transactions taking place in the warehouse. A warehouse registered with WDRA is eligible to become a user of the repository. Warehouse executive can access the repository portal by obtaining the login credential and make regular updates.

3) Depositor – Depositor is one who deposits the commodities in a WDRA registered warehouse. Repository Participant may help a depositor open a Depositor Account for the client after completing the necessary KYD process. Once approved, the depositor is assigned an account number, and can even be provided with login credentials to monitor eNWR/ eNNWR related activities online.

4) Banks/ Financial Institutions – Bank and financial institutions are responsible for providing pledge financing facilities to a variety of eligible depositors participating in the WDRA registered warehouse operated system. Banks and financial institutions can open a pledgee account with the repository or can even start functioning as a repository participant (RP) itself, or even both.

5) Exchange Platform – Wherein eNWRs are exchanged from one holder to another under a formal contract. Such platforms can in association with the repositories as per the guidelines defined to provide services related to eNWR.

6) Auction platforms – Wherein auctions take place as and when required due to the inability of depositor to repay loans or withdraw the stock within the stipulated period as mentioned by the Authority for that particular commodity. These platforms too can be linked with repository portal to carry out eNWR based services under the guidelines prescribed by the Authority.

7) Assaying agent – Person responsible for certifying the quality parameters of the deposited commodity.

## Benefits

The repository maintained eNWR system facilitates integration between different stakeholders like warehouse, bank, exchange, assayer and other participants leading to improved efficiency in operations. The system having online centralised management of records is transparent, efficient and facilitates easy transfer and splitting of receipts. The smooth interaction between different players of supply chain will reduce the need for collateral monitoring and surveillance and therefore, making finance available at lower rate of interest.

## Challenges

The Authority has introduced various measures to strengthen the agri-warehousing sector but it still faces numerous challenges in terms of lack of sufficient infrastructure, limited participation of private sector in proportion to the present liberal business oriented environment, inadequate investment in infrastructures like cold storage though agriculture is diversifying towards high value crops, standardisation and lack of trust and mainly the limited participation by farmers. In order to overcome these challenges, it is important for the government and private sector to invest in infrastructure, technology and capacity building. Developing products and creating awareness about the same mainly among farmers can also play a significant role in building trust and encouraging participation of farmers in the sector.

## Progress of eNWR

The warehouses registered with the Authority are required to register with at least one of the two repositories to be able to issue eNWR. Most of the WDRA registered warehouses were issuing both manual as well as electronic receipts to their respective depositors, but from 1st August 2019, it was made mandatory for all such registered warehouses to issue receipts only in electronic form to all depositors whether public or private. The concept is gradually getting popular as suggested by the number of receipts issued by the repositories during 2020-21. A total of 88480 receipts have been issued by NeRL & CCRL during 2020-21. The progress of the concept in terms of electronic NWRs is presented in Table 10 & 11. The tables suggest a reasonable progress during 2020-21 with more than 88000 receipt issued. However, majority of the receipts issued are exchange based and issued by NeRL. There is also need to encourage the warehouses to get registered with Repositories as only 1820 warehouses got registered during 2020-21 and only 349 issued the electronic receipts.

*Table 10. eNWRs issues by repositories during the year 2020-21*

| Repository type | Exchange based | Others | Total |
|---|---|---|---|
| NeRL | 70008 | 6574 | 76582 |
| CCRL | 11830 | 68 | 11898 |
| Total | 81838 | 6642 | 88480 |

*Source: WDRA Annual Report 2020-21*

*Table 11. Performance of repositories on different aspects associated with implementation of eNWR system*

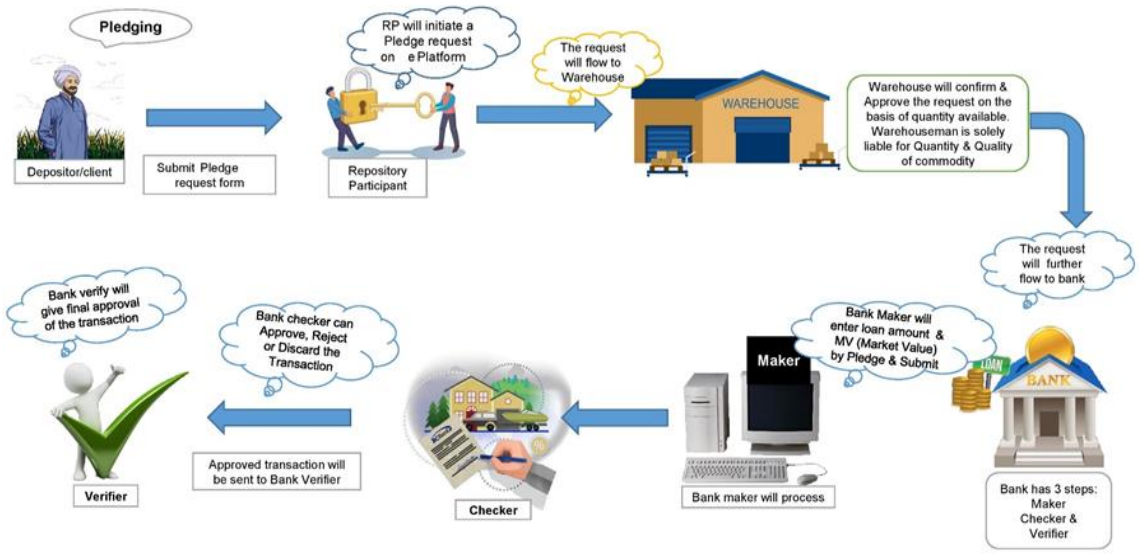
| Sl. No. | Category | Repository | | |
|---|---|---|---|---|
| | | NeRL | CCRL | Total |
| 1. | No. of eNWRs issued | 76582 | 11898 | 88480 |
| 2. | No. of warehouses issuing eNWR | 311 | 38 | 349 |
| 3. | Number of warehouses registered on repository | 1492 | 328 | 1820 |
| 4. | Number of depositor accounts opened | 1757 | 251 | 2008 |
| 5. | No. of RPs added | 2 | 10 | 12 |
| 6. | No. of pledgee (Bank/ FI) on-boarded on repository | 9 | 4 | 13 |
| 7. | Quantity of stocks deposited against eNWRs (in lakH MT) | 7.26 | 054 | 7.80 |
| 8. | Value of stocks deposited against eNWRs (Rs. In crore) | 3044.21 | 771 | 3815.21 |
| 9. | Pledge/ loans against eNWRs (Rs. In crore) | 713.27 | 17.4522 | 730.7222 |

## Pledge Process

The process flow of issuing the electronic warehouse receipt as understood based on the interactions with staff and officials of the sample warehouses operating in Madhya Pradesh, Telangana and Tamil Nadu is depicted in Figure 6 & 7.

*Figure 6. Process flow of pledge finance facilitated by eNWR*

*Figure 7. Pledge process flow*




*Note – The Pledge Process Flow presented above is based on inputs received during discussion with NeRL Officials*

## *e-NWR and e-NAM*

Digital receipts will also facilitate integration with other platforms as has been experienced in case of National Agricultural Market (e-NAM) which is an online platform facilitating wholesale trade at regulated APMC Mandi. e-NAM has now been integrated with e-NWR which allows farmers having electronic receipt from registered warehouses to trade commodities directly on the e-NAM platform without any need to physically bring the produce to market. This will lead to improved marketing efficiency, reduced post-harvest loses and better price realisation by the farmers. This will also facilitate farmers in monitoring the prices and complete the trade transaction when desirable prices are ruling in the market.

# Section 4. Field Observations

## Stakeholders' Profile

This section deals with the profile of different stakeholders considered under the study like farmers, traders, warehouse executives and banks or financial institutions. Attempt has not only been made to capture the basic information of different category of respondents but also to understand their participation in eNWR based agri-warehousing ecosystem. The profile of each category of stakeholders have been compiled separately.

### *Farmers*

Different aspect of farmers investigated under the study covering education level, landholding size, crop grown, use of warehouse services and loan preference have been presented in Table-12. Majority of the farmers are observed to have basic education. Only one-third of the farmers have education up to secondary level or more. Nearly two-third considered under the study are either illiterate (16 percent) or completed schooling only up to primary level (48 percent) suggesting need for sound awareness program to help farmer understand different aspects of warehousing and eNWR which mainly is a post-harvest concept.

Information on landholding size of farmers suggests that nearly two-third of the farmer (65%) comes under small category, one-third under medium and remaining about three percent under large landholdings. Considering the sample of farmers considered under the study with specific objective, there were no farmers under landless and marginal category.

The crops dominant among selected farmers are found to align with the kind of storage facilities available in India. The crops observed to have dominance are foodgrains, oilseeds and high value crops. Though, the high value crops again are confined mainly to spices and horticulture crops. More than 90 percent of farmers considered under the study are observed to have availed storage facilities. The percent of farmers availing pledge finance are also quit impressive at 50.67 percent. However, these responses are based on a sample drawn specifically originating from warehouses considering the objectives the study and may not represent the case in general.

*Table 12. Profile of sample farmers and their warehouse orientation (n=75)*

| Area | Categories | Number | Percent |
|---|---|---|---|
| Education | Illiterate | 12 | 16.00 |
| | Primary education | 36 | 48.00 |
| | Secondary education | 22 | 29.33 |
| | Higher secondary education or more | 5 | 6.67 |
| Landholding Size | Small | 49 | 65.33 |
| | Medium | 24 | 32.00 |
| | Large | 2 | 2.67 |
| Dominant Crops | Foodgrains | 48 | 64.00 |
| | Oilseeds | 10 | 13.33 |
| | High Value Crops | 17 | 22.67 |
| Warehouse Exposure | Warehouse services availed | 68 | 90.67 |
| | Pledge finance availed | 38 | 50.67 |
| Warehouse Preference | Cooperative | 28 | 41.18 |
| | Individual | 21 | 30.88 |
| | Public Warehouses | 17 | 25.00 |
| | WSP (Pvt Organised) | 2 | 2.94 |
| Reason for availing storage | Delayed sale | 9 | 12.00 |
| | Seeds | 32 | 42.67 |
| | Need for money (pledge finance) | 34 | 45.33 |
| Loan Preference | Crop loan | 66 | 88.00 |
| | Pledge loan | 9 | 12.00 |

Type of warehouse is vital in defining the access of farmers to scientific storage. The information presented in the table reveals that warehouses operating under cooperative are relatively more popular among farmers (more than 41 percent) followed by individual private warehouses (more than 30 percent) which may be due to easy access and scale of operations. Public warehouses offering various kinds of benefits to farmers are observed to be preferred only by 25 percent of respondents. Private warehouses (WSP) are having limited popularity among farmers which may be due to commercial orientation of private warehouses. There is need to have small warehouses available close to production area with farmer friendly management like

cooperatives and any other farmers organisations. There is also need to develop farmer oriented warehouse product to encourage access of farmers to organised private and public warehouses.

Storage for seed is still the defining factor for availing storage services by more than 40 percent of the farmers. Though, farmers avail storage services for factors like pledge finance (45 percent) and take advantage of price movement (12 percent) but still there is need for creating awareness among farmer so that they can start looking at warehouse and its associated activities as marketing option. Preference mainly for crop loan (88 percent) suggests that the farmers are still production oriented. It is important for them to understand the role played by market and various policy reforms introduce by the government like warehousing, electronic negotiable warehouse receipt (eNWR) and electronic national agriculture market (eNAM) to strength the agricultural marketing to efficiently operate in a liberal and global trade environment.

## *Traders*

An attempt has also been made to capture different aspects of traders covered under the study and presented in Table-13. It is important to understand the participation of traders for being an important players in the entire warehouse oriented supply chain. The level of education is relatively better in case of traders. More than three-fourth of the traders considered under the study are observed to have secondary education and above. This suggests that it would be relatively easy to expose traders to some of the new concepts like eNWR and pledge finance by virtue of their trade exposure and level of education. Though, it does not undermine the need for a sound awareness campaign to help traders understand different aspects of warehousing and its importance in modern day trade as about one-fourth of them are either illiterate or educated only up to primary level.

The major crops in case of traders are also found to be aligning with type of warehouses dominantly available in India. The major crops are foodgrains, spices and oilseeds. A lot of variation has also been observed in the nature of trade from wholesaling to hedging to exports. The nature of trade will define the use of warehouses. More than half of the traders availed warehouse services.

Limited use of storage by traders may be due to a major section of the traders involved in business of wholesaling. The percent of traders availing pledge finance is also moderate with only one-third availing pledge finance. The information compiled for traders, though suggests about electronic warehouse receipt gaining popularity. This information is based on a limited sample of traders considered under the study and therefore, are required to be seen in the light of that limitation.

*Table 13. Profile of sample traders and their warehouse orientation (n=25)*

| **Area** | **Categories** | **Number** | **Percent** |
|---|---|---|---|
| Education | Illiterate | 2 | 8.00 |
| | Primary education | 4 | 16.00 |
| | Secondary education | 9 | 36.00 |
| | Higher secondary education or more | 10 | 40.00 |
| Nature of Trading | Wholesale | 16 | 64.00 |
| | Hedging | 6 | 24.00 |
| | Export | 3 | 12.00 |
| Dominant Crops | Foodgrains | 13 | 52.00 |
| | Spices | 5 | 20.00 |
| | Oilseeds | 4 | 16.00 |
| | Cash Crops | 2 | 8.00 |
| | Horticultural Crops | 1 | 4.00 |
| Warehouse Exposure | Warehouse services availed | 13 | 52.00 |
| | Pledge finance availed | 8 | 32.00 |
| | Electronic Receipts | 10 | 40.00 |
| Source of Procurement | Regulated markets | 14 | 56.00 |
| | Directly from farmers | 7 | 28.00 |
| | Online platform | 4 | 16.00 |
| Warehouse preference | WSP | 13 | 52.00 |
| | Individual | 10 | 40.00 |
| | Public Warehouse (CWC and SWC) | 2 | 8.00 |
| | Cooperatives | 0 | 0.00 |

The preference for the type of warehouse by traders is observed to be completely in contrast with farmers. Warehouses managed by private organised players (WSPs) are observed to be relatively more popular among traders (52 percent) followed by individual private warehouses (more than 40 percent). Public warehouses managed by organisations like CWC and SWC are not that popular among traders which may be due to availability of better business products with private players and also public warehouses offering services mainly for government procurement. Cooperatives are not at all preferred by traders. Traders are mainly procuring from wholesale market (56 %). Traders may be encourage to purchase directly from farmers by availing services offered through initiatives like eNAM and FPOs integrated with the platform. This will not only help in better price realisation by farmers but also help in reducing the post-harvest losses.

## *Banks/ Financial Institutions*

In order to understand the involvement of banks and financial institutes in the electronic NWR based ecosystem, a total of 25 banks were contacted from the states considered under the study. The information compiled in Table-14 suggests that agri-commodities like foodgrains, spices and oilseeds are crops preferred by banks for offering pledge loan which may be due to limited availability of storage for perishables. The concept of pledge finance is found to be reasonably popular among farmers as suggested by their number in comparison to traders and farmers organisation availing loan against stored commodities. Though, WDRA has introduced a system of eNWR to be issued by registered warehouses, still physical receipt are being issued most likely by warehouses not yet registered with the Authority. The information compiled in the table also reveals lot of variation in the ratio of loan disbursed to value of commodity stored which is influenced by factors like perishability of the commodity stored, variation in its price and perception of associated risk by the bank. The rate of interest charged by some cooperative banks were observed to be as low as 9 percent per annum whereas private commercial banks were charging rates of interest in the range of 12 percent per annum. Public commercial banks also were charging interest rates in the range of 9 – 10 percent per annum. This suggest cooperative banks to be more suitable for farmers for

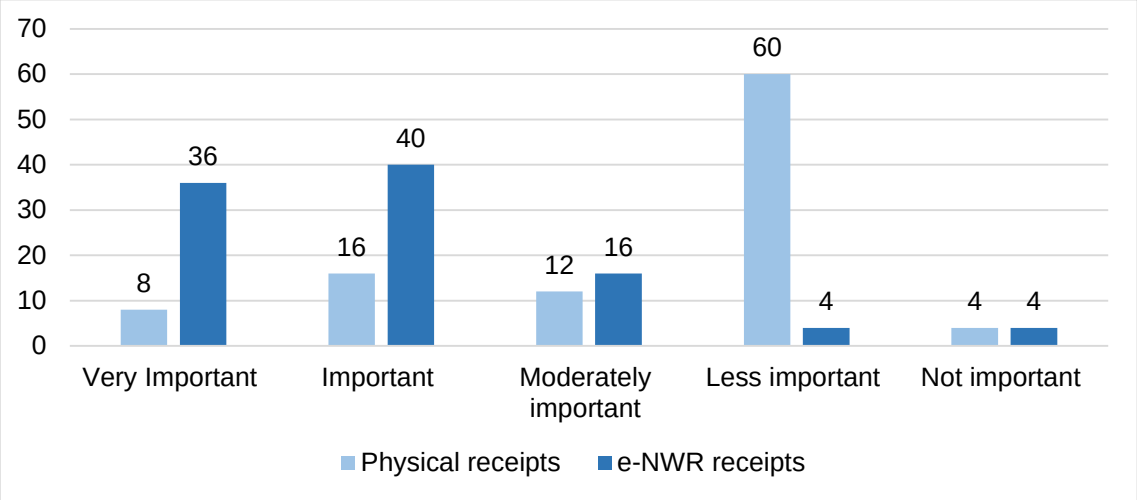
the scale of operation and applicable interest rate. Physical inspection is also an important part of loan disbursed against the stored commodities. Physical inspection were observed to be carried out generally on fortnightly basis at local branch level and quarterly at regional office/head office level. In some cases, quality checks too were conducted with the help of agencies like National Collateral Management Services Ltd (NCML). Such operational costs can be brought down by having a sound integrated eNWR pledge finance system.

*Table 14. Basic information on banks offering pledge finance*

| Area | Categories | Frequency | Percentage |
|---|---|---|---|
| Crops preferred by banks for pledge loan | Foodgrains | 17 | 68.00 |
| | Spices | 4 | 16.00 |
| | Oilseeds | 2 | 8.00 |
| | Kopra | 2 | 8.00 |
| Borrowers availing pledge finance | Farmers | 19 | 76.00 |
| | Traders | 4 | 16.00 |
| | FPOs | 2 | 8.00 |
| Type of receipts | Electronic | 19 | 76.00 |
| | Physical | 6 | 24.00 |
| General profile | Loan to value ratio | 60 – 75 % | |
| | Rate of Interest | 9 – 12 % | |
| | Processing Fee | 0.3 – 0.5 % | |
| | Duration of Finance | 6 – 9 months (max 12 months) | |
| | Commodity Inspections (Physical verification) | Once in 15 days | |
| Interest rates | Private Commercial Banks | 11 – 13 % | |
| | Public Commercial Banks | 9 – 10 % | |
| | Cooperative Banks | 9.0 – 9.5 % | |

The information compiled in Figure-8 on distribution of bankers/financing agencies based on their perception towards importance of physical receipts and electronic negotiable warehouse receipts also suggests that majority of banks (76 percent) have realised the importance of electronic warehouse receipt over physical recipe. There is need to cover all possible warehouse under WDRA Registration to make the warehouses eligible for issuing electronic negotiable warehouse receipts.

*Figure 8. Distribution of bankers/financing agencies based on their perception towards importance of physical receipts and electronic negotiable warehouse receipts*




## Warehouse Executive

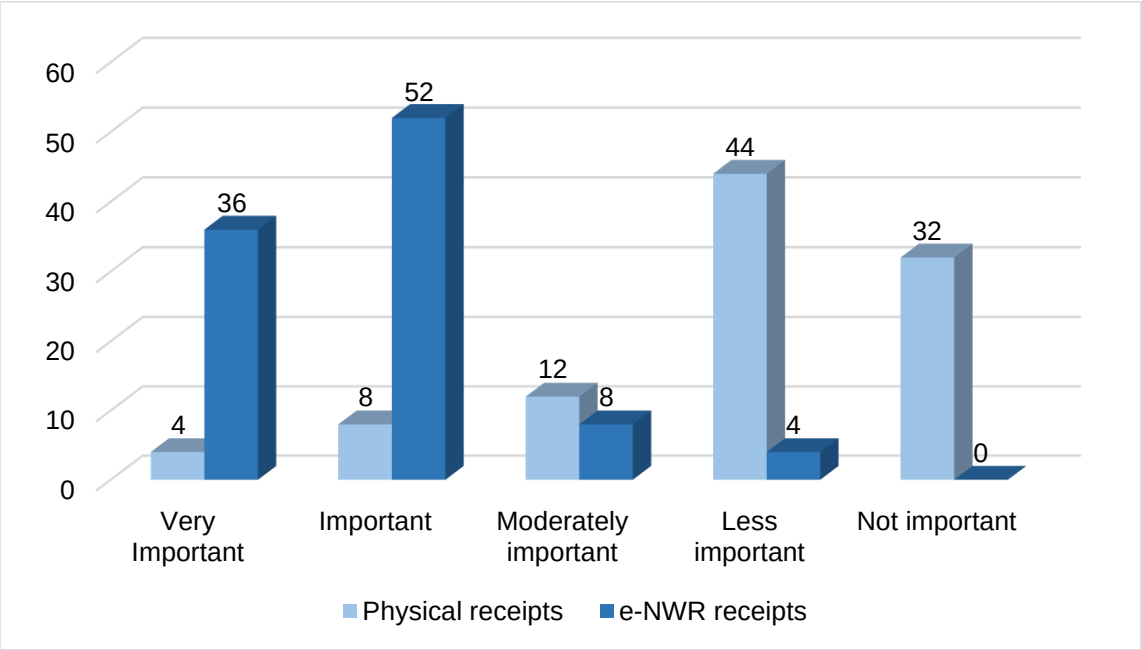
The information on warehouses participating in eNWR system is based on the interaction with 25 warehouse executives, five from each category covering CWC, SWC, WSP, Cooperatives and Individual Private Warehouses. The information compiled in the table suggests that all central warehouse corporation warehouses and cooperative warehouses covered under the study have availed registration whereas same is not true about warehouses operating under state warehouse corporations and individual private warehouses (80 percent each). In case of warehouse service providers i.e. organised private warehouses, only 60 percent warehouses are registered with the authority. There may be various reasons for not availing the registration with the Authority like registration charges, cumbersome process, voluntary in nature and kind of clients served by private warehouses. Warehouse facilities are availed mostly for non-perishables commodities. Roughly two-third of the warehouse services are availed by the public agencies suggesting limited participation of private players and farmers in the system which is important for realising the full potential of the sector. The information compiled in the table suggests that farmers are approaching the stores in good number but have preference for warehouses operating under cooperative structure. The impact of the efforts made by the Government to strengthen agri-warehousing sector is visible through electronic receipt issued by more than 90 percent of the warehouses covered under study, more than three-fourth of the warehouses facilitating pledge financing and popularity of pledge finance among farmers.

*Table 15. Basic information on warehouse executives covered under the study*

| Area | Categories | Frequency | Percentage |
|---|---|---|---|
| WDRA registration | CWC (n=5) | 5 | 100.00 |
| | Cooperative (n=5) | 5 | 100.00 |
| | SWC (n=5) | 4 | 80.00 |
| | Individual (n=5) | 4 | 80.00 |
| | WSP (n=5) | 3 | 60.00 |
| Reasons for not availing WDRA registration | Cost of registration | 15 | 60.00 |
| | Cumbersome registration process | 5 | 20.00 |
| | Voluntary in nature and not required as per the nature of business | 4 | 16.00 |
| | Not making much business sense | 1 | 4.00 |
| Commodities stored | Foodgrains | 17 | 68.00 |
| | Spices | 3 | 12.00 |
| | Oilseeds | 2 | 8.00 |
| | Processed products | 1 | 4.00 |
| | Khopra | 1 | 4.00 |
| | Horticultural crops | 1 | 4.00 |
| Users | Public | 16 | 64.00 |
| | Private | 9 | 36.00 |
| Type of private users | Farmers | 17 | 68.00 |
| | Traders | 6 | 24.00 |
| | Corporates | 2 | 8.00 |
| Type of receipts issued by WDRA registered warehouses | Physical receipts | 2 | 8.00 |
| | Electronic receipts | 23 | 92.00 |
| Pledge financing services | Availed | 19 | 76.00 |
| | Not availed | 6 | 24.00 |
| Stakeholders availing pledge financing services | Farmers | 21 | 84.00 |
| | Traders | 4 | 16.00 |

The information compiled on perception of warehouse executives on the importance of electronic receipts over physical receipts is presented in Figure-9. Similar to bankers, majority of executives (88 percent) covered under the study have suggested importance of electronic warehouse receipt over physical receipt.

*Figure 9. Distribution of warehouse executives based on their perception towards importance of physical receipts and electronic negotiable warehouse receipts*




## Awareness Level

In order to fully realise the potential of agri-warehousing system, it is important for different players to understand various aspects associated with storage like price movement over time, pledge finance, warehouses operating as market yards and also related policies. Accordingly, an attempt was made under the study to capture the level of awareness of different stakeholders on various aspects of storage and same has been presented in Table-16. The bankers were observed to have, in general, better awareness on various aspects. This was followed by traders and warehouse-executives. Farmers were observed to have relatively poor level of awareness mainly for policy issues related to the Authority and its various activities like registration. Awareness on provision like warehouse to operate as market yards was observed to be poor among bankers and farmers, through relatively better in case of traders and warehouse executives most likely due to their relatively prominent presence in the trade cycle. Transportation plays an important role in effective utilisation of warehouse. However, level of awareness is quite low among all categories of stakeholders on Kisan Rath, the App introduced by the Government to improve transportation services in rural areas. It will be difficult to utilise warehouses as a tool to facilitate better income

realisation by farmers without creating awareness among all the relevant stakeholders on different aspects of warehousing to help it immerge as an integrated service.

*Table 16. Awareness about various storage and warehousing aspects among stakeholders*

| Sr. No. | Category | Farmers (n=75) | Traders (n=25) | Warehouse Executives (n=25) | Banks/ Financing Agencies (n=25) |
|---|---|---|---|---|---|
| 1. | Awareness about price movement with time | 85% | 89% | 98% | 96% |
| 2. | Aware that this movement in price can be used to realise better income through storage | 72% | 88% | 96% | 95% |
| 3. | Concept of pledge finance against stored produce | 70% | 71% | 87% | 83% |
| 4. | Negotiability of warehouse receipt/ negotiable warehouse receipt issued by warehouses | 70% | 70% | 76% | 81% |
| 5. | Existence of Warehousing Development and Regulatory Authority (WDRA) | 45% | 69% | 73% | 68% |
| 6. | Concept of electronic NWR (eNWR) issued by the Government | 65% | 63% | 65% | 67% |
| 7. | Registration of warehouse by the Authority to make system more secure | 20% | 65% | 64% | 59% |
| 8. | Provision that warehouse can operate as sub-market yards (Mandi) | 40% | 58% | 56% | 45% |
| 9. | Aware about Kisan Rath App for transportation | 25% | 37% | 23% | 35% |

## Benefits as Perceived by different Stakeholders

This section deals with the benefits as perceived by different stakeholders on issues related to registration of warehouses with the Authority, introduction of eNWR and pledge finance.

### *Farmers*

The information compiled in Table-17 on the benefits as perceived by farmers suggests that farmers are relatively better oriented towards storage charges, safely of the commodities, transparency and better facilities with respect to registered warehouses. In case of eNWR, farmers have understood that electronic form of receipt provide protection against loss of receipt, forgery and multiple financing, regular updates and provision like partial withdrawal. Farmers are also able to relate pledge finance with its ability to avoid distress sale. The orientation of farmers on the benefits of registered warehouses, eNWR and pledge finance is encouraging to push the concept among farmers on a large scale and offer warehousing as an effective marketing tool.

*Table 17. Benefits as perceived by farmers on different warehousing related aspects*

| **Sl. No** | **Benefits as perceived by farmers** | **Percentage** |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Low storage charges as compared to non-registered warehouses | 18% |
| 2 | Low risk of crop/ commodity damage | 14% |
| 3 | More security as compared to non-registered facilities | 13% |
| 4 | Transparency | 11% |
| 5 | Better facilities (preservation, quality assaying, etc.) | 10% |
| 6 | Better support and coordination | 12% |
| 7 | Easy transactions | 9% |
| 8 | Access to stakeholder network (trader, banks, etc.) | 8% |
| 9 | Partial withdrawal | 5% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 10 | Protection against loss of receipt, forgery and multiple financing | 24% |
| 11 | Regular updates via mobile | 20% |
| 12 | Partial withdrawal | 19% |

| | | |
|---|---|---|
| 13 | Transparency | 16% |
| 14 | Access to stakeholder network (traders/ buyers, banks etc.) | 12% |
| 15 | Easy transactions | 5% |
| 16 | Market access (online trading, exchange platforms, etc.) | 3% |
| 17 | Easy tracking | 1% |
| **Pledge financing** | | |
| 18 | Avoid distress sale | 47% |
| 19 | Avail better prices | 17% |
| 20 | Partial withdrawal | 13% |
| 21 | Better market opportunities like online trading of commodities, export, etc. | 9.5% |
| 22 | Access to better inputs | 5.5% |
| 23 | Low interest rates compared to non-secured loans | 3.5% |
| 24 | Elimination of middlemen | 2.5% |
| 25 | Improved livelihood | 2% |

## *Traders*

The information compiled in the Table-18 indicates that traders are able to foresee the trade benefit of registered warehouses in terms of access to better stakeholders' network like banks and ability of such warehouses to offer more security to the stored commodities, partial withdrawal and low transaction cost most likely due to better scale and network. eNWR is also looked upon as an opportunity for providing information more swiftly and have better access to various other market alternatives like eNAM. Pledge financing has also been seen by the traders as a tool to avail better prices and market expansion like export market.

*Table 18. Benefits as perceived by traders on different warehousing related aspects*

| **Sl. No** | **Benefits as perceived by Traders** | **Percentage** |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Access to stakeholders' network (banks, retailers, etc.) | 21% |
| 2 | More security as compared to non-registered facilities | 17% |
| 3 | Low storage charges as compared to non-registered warehouses | 15% |

| | | |
|---|---|---|
| 4 | Partial withdrawal | 13% |
| 5 | Low risk of crop/ commodity damage | 11% |
| 6 | Better facilities (preservation, quality assaying, etc.) | 7% |
| 7 | Transparency | 6% |
| 8 | Better support and coordination | 6% |
| 9 | Easy transactions | 4% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 10 | Regular updates via mobile/ easy tracking | 20%t |
| 11 | Market access (online trading/ eNAM, exchange platforms, etc.) | 18% |
| 12 | Access to stakeholder network (more trust shown by processing units/ buyers, banks, etc.) | 17% |
| 13 | Protection against loss of receipt, forgery, and multiple financing | 16% |
| 14 | Partial withdrawal | 13% |
| 15 | Transparency | 9% |
| 16 | Easy transactions | 7% |
| **Pledge financing** | | |
| 17 | Avail better prices | 23% |
| 18 | Better market opportunities like online trading of commodities, export, etc. | 21% |
| 19 | Avoid distress sale | 19% |
| 20 | Low interest rates compared to non-secured loans | 15% |
| 21 | Partial withdrawal | 12% |
| 22 | Less risky | 11% |

## *Warehouse Executives*

Warehouse executive perceive the benefits from registration of warehouses with the Authority in terms of better implementation of standard practices along with better network for improved business and efficiency in terms of transparency, surveillance and management. Introduction of eNWR will offer benefits like regular updates. eNWR will also help in reducing defaults due to better monitoring and updates. The system of pledge finance will also be more efficient with reduced defaults facilitated by regular monitoring and surveillance.

*Table 19. Benefits as perceived by Warehouse Executives on different warehousing related aspects*

| Sl. No | Benefits as perceived by Warehouse Executives | Percentage |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Standard practices | 28% |
| 2 | Better stakeholder network (Increased trust from banks/ depositors/ online platforms) | 18% |
| 3 | e-NWR / e-NNWR/ online transactions | 17% |
| 4 | More surveillance/ transparency | 11% |
| 5 | Better management and support | 10% |
| 6 | Easy tracking | 9% |
| 7 | Increased number of depositors | 4% |
| 8 | Subsidies/ rebates | 2% |
| 9 | Increased revenues | 1% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 10 | Regular online updates/ easy tracking | 23% |
| 11 | Decreased default rate due to regular tracking | 21% |
| 12 | Better stakeholder network (Increased trust from banks/ depositors/ online platforms) | 18% |
| 13 | Less prone to frauds, loss or damage | 14% |
| 14 | Easier transactions | 11% |
| 15 | Transparency | 10% |
| 16 | Better management | 3% |
| **Pledge financing** | | |
| 17 | Less default rate (Auction can be conducted on bank demand if depositor is reluctant to withdraw in time) | 33% |
| 18 | Regular inspection of commodity (by bank, WDRA, warehouse, etc.) | 27% |
| 19 | Better quality/ quantity assaying parameters/ standard storage and preservation practices | 15% |
| 20 | Increased number of depositors/ better stakeholder network | 12% |
| 21 | Long duration stocks | 9% |
| 22 | Increased revenues/ better capital flow | 4% |

## *Bankers*

The information compiled on bankers also suggests their ability to understand most of the possible benefits offered by registered warehouses, eNWR and pledge finance in terms of accountability, security, standard practices and reduced fraud. The more secure system will help banks in providing secure loan at low cost and with better recovery.

*Table 20. Benefits as perceived by bankers on different warehousing related aspects*

| Sl. No | Benefits as perceived by banks/ financing agencies | Percentage |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Accountability/ security / trust | 22% |
| 2 | Standard practices (storage, assaying, etc.) | 20% |
| 3 | No dependence on collateral management agencies | 19% |
| 4 | Better support and coordination | 12% |
| 5 | Low default rates/ less prone to frauds | 11% |
| 6 | Quick/ easy transactions | 9% |
| 7 | Larger network of stakeholders | 7% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 8 | Less prone to frauds, loss and damage | 26% |
| 9 | Easier tracking/ regular online updates | 23% |
| 10 | Transparency/ more secure | 18% |
| 11 | Less risk of default/ automatic updates after completion of loan duration/ can move on for auction if depositor fails to claim the commodity | 15% |
| 12 | Make unorganized lending difficult, hence more opportunity with borrowers | 9% |
| 13 | Lesser need for manual record maintenance (detailed records on NeRL/ CCRL portal) | 5% |
| 14 | Access to large number of stakeholders (traders, exporters, etc. available on online and other organized platforms, leading to assurance of loan recovery) | 3% |
| 15 | Easy/ quick transactions | 2% |
| **Pledge financing** | | |
| 16 | Short term loans/ quick recovery | 27% |
| 17 | Secured loans (with commodity) | 25% |
| 18 | Easy default recovery/ auctions by warehouses | 22% |
| 19 | Less associated risks | 12% |
| 20 | Profitable | 9% |
| 21 | Large network of stakeholders | 5% |

## Challenges

In order to make the agri-warehousing based provisions like eNWR, pledge finance and warehouses operating as market accepted among different players all along the supply chain, it is important to understand the challenges as perceived by them. An attempt has been made in this section to capture the challenges as looked upon by different stakeholders with respect to registration of warehouses with the Authority, electronic negotiable warehouse receipt and pledge finance.

### *Farmers*

The information compiled in Table-21 suggests that farmers perceive higher storage charges as the biggest challenge with registered warehouses. This is followed by the difficulties associated with online transactions. Farmers also feel unavailability of services at the warehouses even after getting registered with WDRA. Regarding eNWR, farmers were apprehensive about the availability of technology required for managing eNWR based system for issues related to server being down and delay in delivery of OTP. Difficulty in understating the technology based process was also an important challenge highlighted by the farmers. Some of the challenges highlighted by farmers on pledge financing were related to stringent documentation process and high interest rate.

*Table 21. Challenges as perceived by farmers on different warehousing related aspects*

| **Sl. No** | **Challenges as perceived by farmers** | **Percentage** |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | High storage/ repository charges | 32% |
| 2 | Online transactions/ technical difficulties | 18% |
| 3 | Unstable hamali charges | 15% |
| 4 | Lack of proper facilities (preservation, quality assaying, quality inspections, transportation, etc.) | 12% |
| 5 | Stringent regulations | 11% |
| 6 | Time taking/ slow transactions | 7% |
| 7 | Poor support and coordination | 3% |
| 8 | High risk of crop/ commodity damage | 2% |
| | | |

| Electronic negotiable warehouse receipt (e-NWR) | | |
|---|---|---|
| 9 | Technical delays (server down, OTP delay etc.) | 23% |
| 10 | Technical illiteracy (difficulty in understanding the process) | 19% |
| 11 | Difficult to approach unorganized stakeholders (traders, lenders, etc.) | 16% |
| 12 | Step-by-step authentication | 14% |
| 13 | Stringent regulations | 10% |
| 14 | Poor support and coordination from bank/ financial agency | 9% |
| 15 | Time taking/ slow transactions | 8% |
| 16 | Poor support and coordination from warehouse | 1% |
| **Pledge financing** | | |
| 17 | Difficulty to present required documentation/ stringent documentation process (KYD) | 43% |
| 18 | Lack of rebates/ subsidies | 22% |
| 19 | High interest rates | 13% |
| 20 | Time taking process | 10% |
| 21 | Lack of support from bank/ other financing agencies | 4.5% |
| 22 | Lack of support from warehouse/ storage facility | 3% |
| 23 | Low loan to value ratio | 2.5% |
| 24 | Lack of information | 1% |

## *Traders*

The information compiled in Table-22 suggests that traders perceive time required to complete transaction and stringent regulations as the major challenges with registered warehouses. Traders also expected the registered warehouses to have proper facilities for being registered with the Authority which was not the case. Traders similar to farmers feel that availability of technology required for managing eNWR based system may be a challenge along with difficulties associated with online transactions. The challenges as highlighted by traders on pledge financing were related to absence of any additional benefits offered through schemes or programs of the Government associated with pledge finance and issues related to stringent documentation process.

*Table 22. Challenges as perceived by traders on different warehousing related aspects*

| Sl. No | Challenges as perceived by traders | Percentage |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Time taking/ slow transactions | 22% |
| 2 | Stringent regulations | 20% |
| 3 | Lack of proper facilities (preservation, quality assaying, quality inspections, transportation, etc.) | 19% |
| 4 | Online transactions/ technical difficulties | 13% |
| 5 | High storage/ repository (NeRL/ CCRL) charges | 11% |
| 6 | Unstable labour charges | 7% |
| 7 | Poor support and coordination | 5% |
| 8 | High risk of crop/ commodity damage | 3% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 9 | Technical delays (server down, OTP delay, etc.) | 29% |
| 10 | Technical illiteracy (difficulty in understanding the process) | 26% |
| 11 | Step-by-step authentication/ inconvenience/ time taking transactions | 18% |
| 12 | Stringent regulations | 14% |
| 13 | Poor support and coordination with bank/ financial agency | 7% |
| 14 | Poor support and coordination with warehouse | 6% |
| **Pledge financing** | | |
| 15 | Lack of rebates/ subsidies | 17% |
| 16 | Difficulties in transportation/ logistics resulting in delays | 15% |
| 17 | Low benefit cost ratio | 13% |
| 18 | Difficulty to present required documentation/ stringent documentation process (KYD) | 12% |
| 19 | High interest rates | 11% |
| 20 | Lack of quality warehouses/ storage facility nearby | 10% |
| 21 | Lack of support from bank/ other financing agencies | 9% |
| 22 | Lack of information | 8% |
| 23 | Time taking process | 5% |

## *Warehouses executives*

The perception of warehouse executive on challenges associated with registered warehouses, electronic receipt and pledge finance is compiled in Table-23. The warehouse executives feel that users are not having any preference for warehouse registered with the Authority. The inability of registered warehouses to offer any business proposition is the biggest challenge as perceived by warehouse executives, which is followed by registration charges and complicated registration process. Lack of technological support and limited users having interest in electronic receipt mainly for additional charges are some of the major challenges as suggested by the executives with respect to eNWR. Regarding pledge finance, warehouse executives feel that the presence of limited private players be it traders or farmers availing storage is a discouraging factor for pledge finance. There is need to popularise storage among private users mainly the farmers. Banks have also shown limited interest in pledge finance for various factors like perishability of commodity and lack of trust in the system.

*Table 23. Challenges as perceived by warehouses executives on different warehousing related aspects*

| **Sl. No** | **Challenges as perceived by warehouses executives** | **Percentage** |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Users have no preference for WDRA registered warehouse/ users find WDRA registered warehouses costly | 31% |
| 2 | High registration charges | 27% |
| 3 | Complicated registration process/ need to renew every time | 20% |
| 4 | Not mandated by state laws/ state warehousing license is enough for most matters | 13% |
| 5 | Not many users/ smaller stocks hence cost to benefit ratio is high | 5% |
| 6 | Stringent regulations | 3% |
| 7 | Lack of required capital (needed to make the transformation) | 1% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 8 | Technical delays (server down, OTP delays, etc.) | 30% |

| | | |
|---|---|---|
| 9 | Less number of interested users due to high charges | 23% |
| 10 | Require regular monitoring and maintenance/ need to make updates on company software as well as WDRA software leading to perceived increased workload | 20% |
| 11 | Less number of interested users due to technical illiteracy (difficulty in understanding/ lack of smartphone/ mobile, etc.) | 11% |
| 12 | Lack of trained staff | 8% |
| 13 | Lack of support from stakeholders (banks, financial agencies, etc.) | 6% |
| 14 | Stringent regulations | 2% |
| **Pledge financing** | | |
| 15 | Less private stocks stored | 34% |
| 16 | Lack of support from stakeholders (banks, not willing due to frauds and other malpractices in past or perishability of agricultural commodities and difficulties faced by farmers to repay loans, etc.) | 29% |
| 17 | High risk factor | 13% |
| 18 | High costs accrued (quality maintenance/ preservation) | 10% |
| 19 | Lack of enough trained personnel | 7% |
| 20 | Need for regular quality and quantity checks | 4% |
| 21 | Increased need for record maintenance | 3% |

## *Bankers*

The perception of bankers on challenges associated with registered warehouses, electronic receipt and pledge finance is compiled in Table-24. The limited number of depositors and smaller stock are some of the challenges associated with registered warehouses as perceived by the bankers. Challenges discouraging eNWR integration with banks is the presence of limited number of registered warehouses issuing the electronic receipt and also only a few depositors having interest in getting eNWR issued for absence of additional benefits offered by the Government. Banks perceive that the high default rate and possibilities of fraud with commodity linked loan and limited depositors having interest in pledge finance are some of the challenges limiting expansion of stored commodity based loan.

*Table 24. Challenges as perceived by bankers on different warehousing related aspects*

| Sl. No | Challenges as perceived by banks/ financing agencies | Percentage |
|---|---|---|
| **WDRA registered warehouses** | | |
| 1 | Smaller stocks | 20% |
| 2 | Less number of depositors | 25% |
| 3 | Lack of infrastructural facilities and services | 19% |
| 4 | Low interest rates | 13% |
| 5 | Unfavourable loan value ratio | 11% |
| 6 | High risks involved | 9% |
| 7 | Short-duration finance | 3% |
| **Electronic negotiable warehouse receipt (e-NWR)** | | |
| 9 | Not many WDRA registered/ e-NWR issuing warehouses | 19% |
| 10 | Less number of stakeholders (not many subvention schemes, subsidies, hence less interested borrowers especially among farmer groups) | 28% |
| 11 | Technical delays (server down, delays in OTP delivery, etc.) | 25% |
| 12 | Technical illiteracy among stakeholders | 17% |
| 13 | Lack of technical staff | 7% |
| 14 | Increased workload due to regular updates on NeRL/ CCRL portal | 4% |
| **Pledge financing** | | |
| 15 | High default rate / frauds | 21% |
| 16 | Less number of stakeholders (not many subvention schemes, subsidies, hence less interested borrowers especially among farmer groups) | 19% |
| 17 | High risks involved/ perishability of products/ pest and disease attack/ vulnerability to weather changes | 15% |
| 18 | Difficult recovery process, lack of proper channel for making auctions, etc. | 14% |
| 19 | Need for regular inspections/ quality and quantity checks | 13% |
| 20 | High requirements for verification, documentation and market research/ inability of depositors (mainly farmers) to present necessary documents to prove eligibility | 9% |
| 21 | High dependence on third party service providers (collateral management agencies, warehouse staff, etc) | 5% |
| 22 | Lack of coordination by warehouse staff (for inspections/ auctions) | 4% |

# Section 5. Findings and Suggestions

## General

- Government has introduced various plans and policies to facilitate creation of storage capacity in the country. Some of the major programs and schemes are Private Entrepreneurs Godown, Grameen Bhandar Yojana, Rural Infrastructure Development Fund (RIDF), Pradhan Mantri Kisan Sampada Yojana (PMKSY), Agriculture Infrastructure Fund (AIF) and Agriculture Marketing Infrastructure (AMI) under Integrated Scheme for Agricultural Marketing (ISAM) Scheme of Directorate of Marketing and Inspection
- The participation of private sector in agri-warehousing has increased in recent past. The storage capacity being managed by private sector increased four times from 18.97 million MTs during 2010-11 to 78.56 million MTs during 2020-21 suggesting the conducive environment created through the polies of the Government.
- The policies of the government, trade environment and requirement of different stakeholders have resulted in emergence of a structure of agri-warehousing in India encompassing various kind of organisations and operational structures.
- A major shift in policies of the government was observed with the introduction of Warehousing (Development and Regulation) Act, 2007 suggesting various provisions like negotiability of warehouse receipt and establishment of Warehousing Development and Regulatory Authority.
- The negotiability of the receipt is provided as per the provisions of the Act which will allow banks and depositors to have increased confidence in the document.
- The Authority launched electronic Negotiable Warehouse Receipt (eNWR) on 26$^{th}$ September 2017 to be issued by registered warehouses on electronic repository system. The Authority has notified that with effect from 1st August 2019 all registered warehouses shall issue NWRs only in electronic form.

- The Authority has introduced the system of repository to facilitate management of database and support electronic receipts. The registered warehouses are required to register with at least one of the repositories (NeRL and CCRL) identified by the authority.
- A total of 88480 receipts have been issued by NeRL & CCRL during 2020-21. However, majority of the receipts issued are exchange based.

## Farmers

### *Profile*

- It was observed that majority of the farmers are observed to have basic education. Only one-third of the farmers had education up to secondary level or more.
- About two-third of the farmers considered under the study had small landholdings and were cultivating foodgrains as their major crop. Other major crop categories were oilseeds, spices, cash crops, khopra, and horticultural crops.
- More than 90 percent of the selected farmers were availing warehousing services with half of the farmers also availing pledge finance. However, this should be viewed in the light of sample drawn specifically as per the requirement of the study and may not represent the general picture.
- The elementary interaction with farmers revealed that many of the farmers were not availing the warehouse facilities due to lack of awareness, limited surplus, time-consuming process of documentation, lack of warehousing facilities nearby, home storage and lack of trust among farmers regarding warehousing facilities.
- Warehouses operating under cooperative were found to be relatively more popular among farmers followed by individual private warehouses which may be due to easy access and scale of operations. Public warehouses offering various kinds of benefits to farmers are observed to be preferred by limited respondents. Private warehouses (WSP) are having limited

popularity among farmers which may be due to commercial orientation of private warehouses.

- Storage for seed is leading factor encouraging farmers to avail storage facilities. Preference suggested by farmers mainly for crop loan indicate that the farmers are still production oriented.

## *Benefits*

- The benefits as perceived by farmers on various aspects of storage and negotiable warehouse receipt suggests that the farmers are relatively better oriented towards issues like storage charges, safety of the commodities, transparency and better facilities with respect to registered warehouses.
- Protection against loss of receipt, forgery, and multiple financing, regular updates and provision like partial withdrawal are some of the benefits as perceived by farmers out of the concept of electronic negotiable warehouse receipt.
- Ability of farmers to relate potential of pledge finance in addressing distress sale is encouraging to place more emphasis on popularising storage in rural areas.

## *Challenges*

- The biggest challenges in use of warehouses registered with WDRA as perceived by farmers are higher storage charges and difficulties associated with online transactions. Farmers also feel unavailability of services at the warehouses even after getting registered with WDRA.
- Farmers were also observed to be apprehensive about the availability of technology required for managing various processes associated with eNWR based system for issuing receipt.
- Stringent documentation process and high interest rate are some of the major challenges highlighted by farmers on pledge financing.

## Traders

- Most of the traders were observed to be reasonably education with educated up to secondary level or more. Most of the traders considered under the study were involved with the business of wholesaling followed by hedging and export sales.
- More than half of the traders considered under the study were dealing with foodgrains followed by spices, oilseeds, cash crops and horticultural crops in same order.
- Most popular source of procurement for traders was regulated markets responsible for more than half of the procurements. Procurement directly from farmers was also observed to be a popular source which may be due to the reforms introduced by the government. This was followed by online platforms introduced recently by the government.
- Traders were observed to be utilising warehouse services (52 percent), pledge finance (32 percent) and recently introduced concept of electronic negotiable warehouse receipt (40 percent). Private Service Providers (WSP) were found to be relatively more popular among traders followed by individual private warehouses and public warehouses (CWC and SWC).

## *Benefits*

- Access to better stakeholders' network and ability of such warehouses to provide relatively safer storage were the benefits from registered warehouse as perceived by the traders. Partial withdrawal and low transaction cost are the other benefits observed by traders.
- Swift information which is very important for trade and better access to online market alternatives like eNAM are the perceived benefits from eNWR.
- Pledge financing has also been seen by the traders as a tool to avail better prices and market expansion like export market.

### *Challenges*

- Stringent regulations and failure of the warehouses to offer proper facilities in spite of registration with Authority are some of the major challenges as perceived by traders with registered warehouses.
- Availability of technology required for managing online system based receipts and absence of any additional benefits offered by the Government on pledge finance are some of the other challenges as observed by traders.

## Warehouse Executive

- The information compiled under the study suggests that WDRA registration has been availed by all the warehouses operating under central warehouse corporation and cooperative management. Whereas, only 80 percent of the warehouses operating under state warehouse corporations and individual private warehouses have been registered with the Authority. In case of private organised warehouses (WSPs), only 60 percent warehouses are registered with the authority.
- Registration charges, cumbersome process, voluntary in nature and kind of clients served mainly by private warehouses are some of the major reasons for discouraging the management to avail registration with the Authority.
- Storage is mainly utilised for non-perishables commodities. More than two-third of the storage space was used by foodgrains given to their large cultivated area and low perishability. Foodgrains are followed by spices (mainly turmeric), oilseeds, processed products, khopra and horticultural crops.
- Roughly two-third of the warehouse services are availed by the public agencies suggesting limited participation of private players and farmers in the system which is important for availing the full potential of the sector.
- Farmers have shown preference for warehouses operating under cooperative structure.

- It was found that 76 percent of warehouses considered under the study were issuing electronic receipts (eNWR/ eNNWR).
- It was observed that 76 percent of the warehouses had depositors availing pledge financing services. Among these depositors, 84 percent were farmers and the remaining 16 percent were traders.
- It was observed that 88 percent of warehouse executives rated e-NWRs to be important, whereas 76 percent of warehouse executives did not find physical receipts important.

## *Benefits*

- Major benefits related to WDRA registration as observed by warehouse executives were standard practices, better network with different stakeholders and increased trust from banks/ depositors, provision to issue electronic receipt, more surveillance and transparency, better management and support and improved efficiency in terms of transparency, surveillance and management.
- Major benefits related to pledge financing as suggested by warehouse executives were reduced rate of default on account of regular inspection of the stock by concerned parties like bank, WDRA and warehouse management, better parameters for assessment of quality and better business because of increased number of depositors and better network.
- Major benefits related to eNWRs as recorded by warehouse executives were regular online updates allowing easy tracking of all transactions taking place, decreased default rate due to regular tracking, better stakeholder network (due to increased trust from banks/ depositors/ online platforms), reduced possibility of damage, better transparency and opportunity for better and effective management of different activities.

## *Challenges*

- Major concerns related to WDRA registration as suggested by warehouse executives relate mainly to cost associated with the process and same not getting translated into any preference by users for registered.

- Major concerns about e-NWRs have been observed to be related with apprehensions about delays due to technical support like server functioning, delay in delivery of OTP, etc., limited number of interested users due to NeRL/ CCRL charges, need for regular monitoring, maintenance and making time-to-time updates leading to increased workload, technical illiteracy (difficulty in understanding the electronic concept and limited access to smartphone) and stringent regulations as per the norms stated by WDRA.
- Major concerns related to pledge financing as expressed by warehouse executives relates to limited volume of stocks offered by private users for storage, lack of support from stakeholders, high risk factor as perceived by banks, high costs accrued due to quality maintenance, lack of enough trained personnel, need for regular quality and quantity checks and increased need for record maintenance due as per the requirement of the electronic system.

## Banks

- Foodgrains were preferred by the banks for pledge finance over other crops like spices and oilseeds.
- The average loan to value ratio offered by most banks was in the range of 60-75 percent. Factors like perishability and volatility in prices are considered to work out the ratio. The interest charged by most of the banks ranged between 9 – 12 percent, through the private commercial banks were at the highest end of the range and cooperative banks at the lowest end suggesting a suitable choice for the farmers.
- The average duration of finance was 6 – 8 months which may to up to 12 months in some commodities like spices with low-perishability.
- Regular inspection is an integral component of finance again agri-commodities. Physical verification is observed to be carried out on fortnightly basis by local branch to secure the loan disbursed. It was complemented by quarterly inspections conducted by the head office. In some cases, quality checks were also conducted with the help of agencies like National Commodities Management Services limited (NCML).

- Documents required by most banks to ensure security for pledge financing purposes were identity proof (Aadhar card, PAN card, etc.), land document, VAC certification (Village Administration Office Certification), access to Godown from warehouse (for facilitating regular inspections/ surprise visits) in writing and agreement from bank for the said loan arrangement.
- Among different categories of borrowers availing pledge loans, 76 percent were farmers, 16 percent were traders and remaining 8 percent were FPOs. Out of the total number of farmers availing pledge loans, 63 percent were small farmers and remaining 37 percent were medium farmers.
- Among total number of banks involved in the study, 83 percent showed a preference towards WDRA registered warehouses as compared to the non-registered ones.
- It was observed that 76 percent of total banks showed a preference for electronic receipts. In line with the same, 76 percent of banks rated eNWRs as important.

## *Benefit*

- Major benefits related to WDRA registered warehouses as observed by banks/ financing institutes were accountability, security, increased levels of trust in the system, maintenance of standard practices (storage and assaying) decreased dependence on collateral management agencies, better support and coordination with the warehouse and quick and easy transactions in the same order.
- Bankers also observed that introduction of electronic receipt system in warehousing will provide various benefits related to better control on the system through efficient management of information and monitoring. The bankers were also able to visualise the ability of the system to provide access to large number of stakeholders.
- Issues related to quick recovery due to short duration of the loan, security as ensured by a more transparent and robust system and facilities for auction for recovery in case of default are some of the major benefits as perceived by bankers with respect to pledge finance.

## *Challenges*

- Small stock and only a limited number of depositors interested in availing the bank related facilities even if the warehouse is registered with the authority are the major concerns expressed by bankers with registration of warehouses and their ability to create value for banks.
- Integration of eNWR with banks is curtailed for various factors like presence of limited number of registered warehouses issuing the electronic receipt and also only a limited number of depositors showing interest in getting eNWR issued for absence of additional benefits offered by the Government.
- Some of the challenges preventing the expansion of stored commodity based pledge finance are possibilities of fraud with commodity linked loan and limited depositors having interest in pledge finance.

## Suggestions

- There is need to create awareness among registered warehouses on the benefits of issuing electronic negotiation warehouse receipt. It is equally important to educate them on the complete ecosystem of issuing electronic receipt and bank integration to build their confidence in the system.
- There is need to have a sound policy to cover all possible warehouses under the registration offered by the Authority as majority of the stakeholders involved in the warehouse oriented supply chain are broadly able to identify the benefits available.
- A good number of farmers having only basic education up to primary level suggests the need for a sound awareness campaign to help farmer understand different aspects of warehouse ecosystem and avail benefits of the policies of the Government.
- Farmers face difficulties in visualising the storage as a tool with ability to provide alternative marketing options which facilities integration with eNAM and concept like eNWR. This is required to be addressed through a comprehensive awareness campaign. In the absence of which, farmers

will not be able to visualise warehouse as a tool to facilitate better income realisation and market integration.

- A comprehensive awareness campaign covering all the stakeholders like farmers, traders, warehouse executives and bankers will also help in improving the understanding related to various online process involved with execution of eNWR as technology required to manage such a system has been highlighted as one of the major challenge by all the stakeholders. An awareness campaign is also required as all the stakeholders are broadly able to visualise the benefits offered through such an integrated system.
- More than half of the farmers availing warehouse services have also availed pledge finance. This indicates the importance of encouraging farmers to get integrated with warehouse orientated market channel. Though, this may require special provisions for farmers in terms of storage charges to encourage them to avail the facility as higher storage charges have been highlighted as one of the biggest challenges as perceived by farmers in availing storage.
- Traders are observed to generally procure from wholesale market. Traders may be encouraged to purchase directly from farmers by availing services offered under initiatives like eNAM and farmers organisations integrated with the platform of national market.
- The warehouses operating under cooperative sector are relatively more popular among farmers for their proximity to production, scale of operation and better interest rate if pledge finance is availed. Efforts are required to be made to encourage cooperative societies mainly those having focus on marketing to have their own storage structure constructed with the support provided by the government under different schemes.

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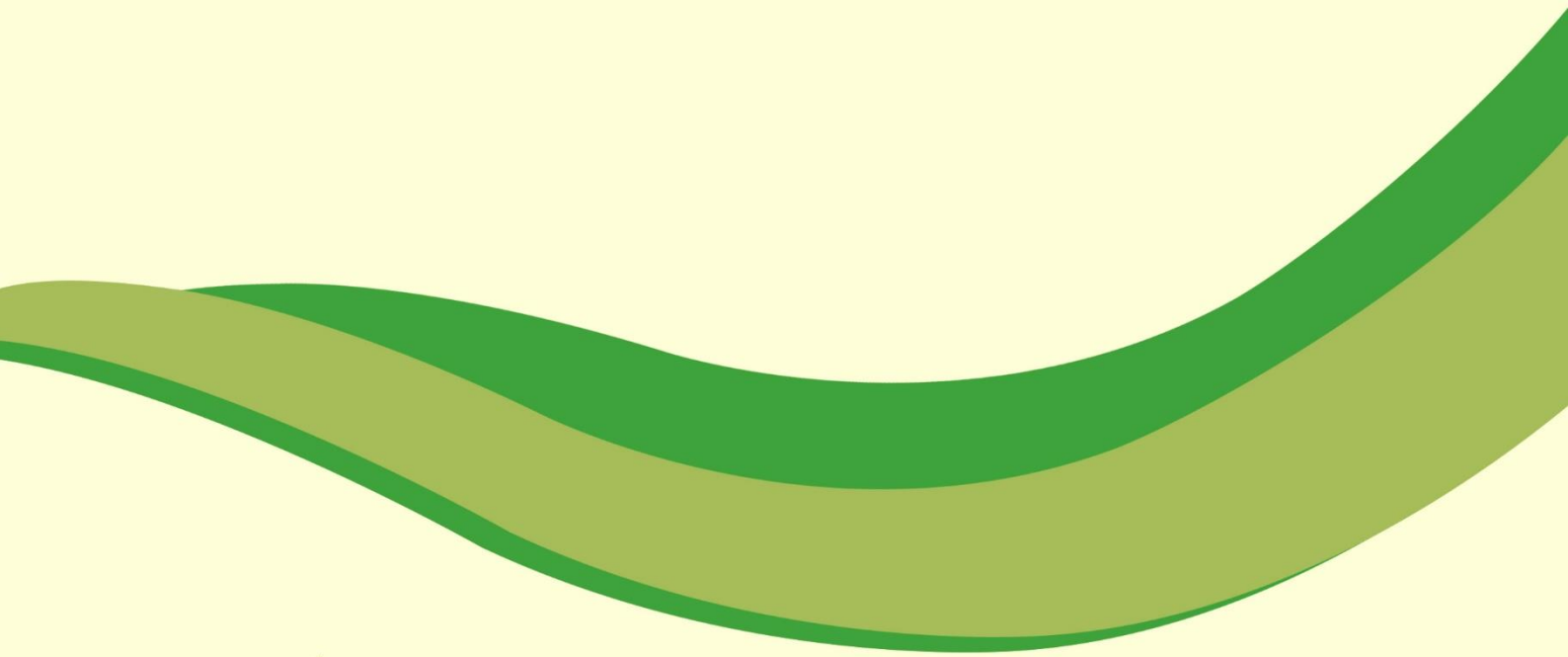

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