INTRODUCTION

1.1 Introduction
1.2 Importance of Warehousing in Agriculture
1.3 Contributions of Warehousing to the Agriculture
1.4 The Basic Functions of Warehouses
1.5 Types of Warehouses
1.6 Classification of Warehouses from Structural Point of View
1.7 The Problem under Study
1.8 Rationale and Significance of the Study
1.9 Objectives of the Study
1.10 Hypotheses
1.11 Methodology of Research
1.12 Concepts and Definitions Used in the Study
1.13 Profile of the Study Area
1.14 Limitations of the Study
1.15 Organization of the Study

REFERENCES
INTRODUCTION

1.1 INTRODUCTION:

India is a large nation with more than 100 million population and economic growth rate varying from 4 to 9 percent during the last decade. One of the contributors in economic growth is agricultural sector. Larger parts of India’s agricultural produce especially food grains vary with seasonal variations. Consumption of this produce extends beyond season up to a year or even longer period. Storability of agricultural produce depends on its perishability. Perishability of the agricultural produce varies from one crop to another crop. For these reasons scientific warehousing which can reduce perishability and enhance storability without creating side effects is necessary. Many essential items of these produce like food grains, pulses, seeds, chilly, turmeric, pickles, jaggery, sugar, milk powder, cotton bales, agricultural implements like seeds and fertilizers etc. need to be stocked to ensure regularized supply to the people and industry. With these necessities warehousing has become prominent element in the supply chain link.

Warehousing is a scientific facility for storage of commodities which involves proper upkeep and preservation of goods in quantitative and qualitative terms in a systematic and orderly manner and making them available when depositors need it. It is an economic activity and denotes a dynamic aspect of commercial storage.

1.2 IMPORTANCE OF WAREHOUSING IN AGRICULTURE:

Warehousing is an independent economic activity and is closely linked with production, consumption and trade. Development of agricultural marketing and agro processing industries need strong warehousing system. Warehousing is the important support service for development of trade and industries. Increasing volume of commodity trade, especially of agricultural products, has been one of the major sources of growth of merchandise demand and has seen impressive growth after the formation of the World Trade Organization (WTO) and ratification of GATT treaty in 1995. With many developing countries, having predominance of agriculture in their economy, with their macro growth strategies
and with growth of agricultural incomes and employment, a steady increase in agricultural trade volumes is likely in the coming years.

Normally, small farmers do not have the financial strength to retain the produce with them for getting good returns when prices are high. Absence of scientific storage system leads to post harvest loss, wastage and quality deterioration. Heavy losses to the extent of 25% to 30% in fruit and vegetables is observed. Absence of institutional credit mechanism in rural areas and absence of formal mechanism for securitization of commodities leads to either debt trap and exploitation by money lenders or a compulsion to sell immediately after harvesting. A structured warehousing system backed by warehouse receipt financing mechanism is relevant to solve such issues faced by Indian farmers.

1.3 CONTRIBUTIONS OF WAREHOUSING TO THE AGRICULTURE:
1. Scientific storage leading to reduction in post harvest loss and wastage;
2. Increasing the bargaining power of the farmer by reducing load during harvest season.
3. It converts commodity into a bankable asset, which can be pledged for availing bank finance. This enables the farmers and traders to avail formal bank credit against pledge of commodities stored in the warehouse.
4. It provides a vehicle to the banks and financial institutions to reach out to the farmers and extend secured loan against pledge of goods.
5. It helps regularizing supply and hence it tackles the problem of glut and scarcity.

1.4 THE BASIC FUNCTIONS OF WAREHOUSES:
1. Storage of goods – The basic function of warehouses is to stock large quantities of commodities maintaining quality in it.
2. Protection of goods – warehouses cuts down losses to agricultural commodities due to spoilage and wastage during storage by way of adopting scientific tools like fumigation and pest control. It can make special arrangement for different products according to their nature and protects from loss or damage due to heat, dust, wind, moisture, storms, heavy rains etc.
3. Undertaking the risk - Warehouse takes the responsibility of goods in storage. The risk of loss or damage of goods in store is borne by the warehouse keeper and he is bound to return the goods in good condition to the depositors.

4. Facilitating finance – The depositor gets a receipt for keeping his goods in the warehouse. It is called as warehouse receipt. The negotiable warehouse receipt is a document of title and can be transferred by simple endorsement and delivery. By keeping this negotiable warehouse receipt as a security, depositors can obtain loans from banks and other financial institutions.

5. Value addition activities – If demanded by the depositors then warehouses can go for additional business by providing services like standardization, gradation, processing, branding, mixing, blending, packaging etc. Some warehouses undertake these activities on behalf of the owners, manufacturers, wholesaler or the importer of goods.

1.5 TYPES OF WAREHOUSES:

Based on ownership and uses point of view warehousing infrastructure in India can be classified as –

1. Private warehouse – Warehouses that are owned and managed by private entrepreneurs like agri process industries, traders, exporters etc. For their use they are known as private warehouses. Normally these warehouses are constructed by wholesalers and retailers near their business centres, by processors insides their factories and by farmers near their fields. The design and facilities of such warehouses vary widely according to nature of products and individual requirements of owners. If owners of these warehouses are going to use these for their own captive requirement then warehousing license is not required to obtain.

2. Public warehouses – The warehouses where storage facility is available to public at large on payment of rent are known as public warehouses. For the business of warehousing, warehousing license is required.

3. Government warehouses – These warehouses are owned, managed and controlled by central or state government or public corporations or local authorities. Individuals, farmers, traders, industries & government also use
these warehouses to store their goods.Warehouses of central warehousing corporation and state warehousing corporation come under this category.

4. Bonded warehouses - These warehouses are generally owned by dock authorities are located near the ports. These warehouses are owned, managed & controlled by government as well as private agencies. Private bonded warehouses have to obtain license from the government. Bonded warehouses are used to store imported goods for which import duty is need to be paid.

5. Co-operative warehouses – These are the warehouses owned, managed and controlled under cooperative kind of ownership. Large number of primary agriculture cooperative societies exists in India. Many warehouses which are affiliated to Agriculture produce Market committees are under cooperative kind of ownership. These warehouses normally provide facilities at the most economical rates to the members of their society.

1.6 CLASSIFICATION OF WAREHOUSES FROM STRUCTURAL POINT OF VIEW:

1. Godowns – These structures are constructed with brick walls, tin shed etc. Usually they are rectangular in size and conical shape like a hut on the top. They are used for storage of agricultural produce and implements. Majority of the warehouse structures in India comes under this category.

2. Storage tanks – These are cylindrical in shape, made of steel and used for storage of liquid stuff like edible oil. Most of the importers and exporters have their own storage tanks for their use. Storage tanks can be available on rent and most of them are located near to the port areas which are used by importers & exporters.

3. Silos – Silos are big structures, equipped with modern facilities of conveyor belts, lifts & advanced weighing system etc. which are used for storage of naked grains. Silos structures have lot of advantages over traditional method of food grain storage. Construction of silo is capital intensive but they save lot of cost in handling & storage. Only fungible goods can be stored in silos. Presently few silo structures are in operation in India, but government is looking forward for silo storage for its food grain storage to reduce losses.
Warehousing is an element of agricultural marketing. Agricultural marketing is a process which encompasses all the steps involved from the producer to consumer including pre and post harvest operations such as assembling, grading, storage, transportation, and distribution. Warehousing along with basic activity of storage, can make arrangement for finance, standardization, gradation, packing, labeling etc. By performing these operations it adds value to the produce in terms of time, and form utility. The basic activities of warehousing include receiving, put away, storage, sorting, order picking, accumulation, packing, and shipping etc\(^5\). Some of these functions are optional.

The other reasons why warehousing is essential are- To achieve transportation economies, to achieve production economies, to take advantage of quantity purchase discounts and forward buys, to maintain a source of supply, to support organizations customer service policies, to achieve least total cost logistics, to support just-in-time programs of suppliers and customers etc\(^6\).

Depending on the demand, location and capabilities, services provided by warehouses vary. They are commonly as under-

- Scientifically storing agricultural produce and industrial products,
- Handling and transportation to depositors, facility to avail credit from banks by pledging warehouse receipts (warehouse receipt finance), custom clearance, import export warehouse facility, EDI (electronic data interchange ) service, communication centre and accommodation for shipping lines, quality certification, insurance cover, disinfestations service scheme, pest control service, soil and building fumigation, installation of facilities to get information about online stock of commodity from commodity exchanges etc.

1.7 THE PROBLEM UNDER STUDY:

Things related to farmer are always a cause of concern to the governments in India. The warehouses meant for storing agricultural produce are one of the major elements in supply chain link from producer farmers to ultimate consumers. To regulate and keep control over such important activity state government has a instrument in its hands in the form of law which can regulate warehousing
activity. The ACT which was enacted to regulate the business of warehousing was BOMBAY WAREHOUSE ACT 1959 and BOMBAY WAREHOUSE RULES 1960. It was applicable to the then Bombay province and presently to the state of Maharashtra. Under this law it is mandatory for the organizations who are in the business of warehousing to take license from the prescribed authority every year for doing business of warehousing. The rules framed under the law prescribe how a warehouse should function while doing business. The law provides remedies to the depositors who deposit their goods in the warehouse from malfunctioning of the warehouse management and resulting loss there under.

On the eve of operations of commodity exchanges and growing trade, the importance of warehousing increased tremendously. One of the testimony of it is that, noting the lack of pan India regulating authority which can regulate warehouse receipt finance, physical trade associated with commodity exchanges, for developing base for electronic repository for warehouse receipt trading etc. government of India passed the bill called “The Warehousing Development and Regulation ACT 2007”.

With these developments researcher felt that it was worthwhile to study how these laws and rules were useful to promote business of warehousing and how they act as a effective tool in the hands of government to regulate it. Hence the relevance of this study.

1.8 RATIONALE AND SIGNIFICANCE OF THE STUDY:

Food and agriculture ministry of India has estimated that almost 30% of agricultural produce in India go waste due to improper and inadequate storage, preservation and processing. It is found that rural markets have been operating in a non efficient manner. One can identify the basic minimum need to store the surplus of food grains and to reduce wastage through efficient commodity management. It is well known that the small farmers do not have the economic strength to retain the produce with themselves till the market prices are favorable. A need is felt all over the country to provide the farming community with facilities for scientific storage so that wastage and produce deteriorations are avoided and also to enable it to meet its credit requirements without being compelled to sell the produce at a time when prices are low. A network of
godowns will enable farmers to enhance their holding capacity in order to sell their produce at remunerative prices and avoid distress sales. Accordingly, ‘GRAMIN BHA|DARAN YOJANA’, a Capital Investment Subsidy Scheme for Construction/Renovation of Rural Godowns was introduced since 2001-2002 and is still continued8.

Warehouses are considered as a backbone of commodity exchange. Noting the benefits of futures market in commodities trading for reducing price fluctuations, to know future returns to farmers and industries through commodity exchanges, to support increasing population and growing demand from the industry, to facilitate warehousing as a infrastructural support, government of India is promoting warehouse industry. So it is worthwhile to study things related to warehousing considering it’s increasing importance as an economic activity and huge untapped potential of warehouse receipt finance and trade related to it.

1.9 OBJECTIVES OF THE STUDY:

1. To understand the scenario of warehouse industry in India and adequacy of agricultural produce storage at all India level.
2. To study the existing laws and regulations which safeguards depositors interest and governs / regulates warehousing business in India and particularly in Maharashtra.
3. To study the licensed warehouse capacity growth and potential of other storage structures to work as a warehouse in the study region.
4. To study the actual practice of regulatory mechanism and its implementation in the study region.
5. To study difference in functioning if any, among various kinds of licensed warehouse organizations.
6. To study parameters other than regulatory like warehouse efficiency measures, commodity value appreciation, nature of labor force employed etc. by licensed warehouses.
7. To study the depositors satisfaction for the services received by them from the licensed warehouse.
8. Finally based on the findings make suggestions for developments in laws, regulations and/or in its implementation and functioning of warehouses.
1.10 HYPOTHESES:

1. There is no linear relationship between the increase in the population (Y) of India and the time period (X)
2. There is no linear relationship between the changes in food grain production (Z) of India and the time period (X)
3. There is no linear relationship between the warehouse storage capacity (W) at all India level and the time period (X)
4. There is no linear relationship between the warehouse storage capacity (W) and the Food grains production (Z) at all India level.
5. There is no significant difference in population means of food grain production (Z) and warehouse storage capacity (W).
6. There is no linear relationship between the ratio (V) of warehouse storage capacity to agricultural food grain production and time period changes.
7. There is no linear relationship between the licensed warehouse storage capacity (k) in the study region with respect to time(x).
8. The proportion of implementation/execution of sub rules 1 to 10 of the rule no. 19 of Bombay Warehouse Rules, regarding the points of maintenance in the four types of warehouses are homogeneous.
9. The level of satisfaction for the services received by various types of depositors is homogeneous.

1.11 METHODOLOGY OF RESEARCH:

This being the micro study following methodology is adopted. The area selected for study purpose is Kolhapur, Sangli and Satara districts. The researcher belongs to one of these districts. The licensed warehouses in Maharashtra include many kinds of organizations. Researcher felt that it was necessary to have good number of references and contacts to generate in depth and reliable information from warehouses, especially from private and cooperative kind of organization. So area selected is his native and adjoining districts. Also a kind of homogeneity in these districts is there as they are considered as sugar belt and agricultural land in these districts have both irrigated and rain fed areas, so the researcher felt that it will be useful research to know how this region is responding to the business of warehousing.
The Secondary Data Collection

The study was conducted in two stages. In the first stage, data available from publications like RBI Bulletins, publication of Economics and statistics Department, Maharashtra state Agricultural marketing Board circulars and publications, Annual reports of the central warehousing corporation and state warehousing corporation, publication of federation of Indian chambers of Commerce and Industries, Central and State Government circulars and publications, News reports and related Articles published in leading news papers and journals, magazines, laws & rules on warehousing enacted and published by the government, NABARD reports related to storage and warehousing etc. were collected and critically analyzed. Internet services were also used for collecting the information through websites of related organizations& institutions.

In the second stage, primary data was collected through field survey. Research design plan made for it was as follows-

Sample Design

The study area of the researcher was Kolhapur, Sangli and Satara districts. While collecting the primary data on the initial stage, it had been observed that in all the three districts, the total number of warehouses those had taken license from the prescribed authority for the business of warehousing was 45. This count includes those warehouses who had taken license at least once in the period from year 2000-2001 to 2007-2008.

The total number of licensed warehouses varies from 26 to 30 in the study period, but among these warehouses some had taken license without break i.e. continuous holding of license, some discontinued and some discontinued but again started taking license with one or more years gap. So the total number of individual license holder which had taken license at least once in the study period was 45. This is shown in the table No.1.1
TABLE NO.1.1

LICENSING STATUS OF WAREHOUSES IN THE STUDY PERIOD AND IN THE STUDY AREA

<table>
<thead>
<tr>
<th>Warehouse Licensing Status</th>
<th>Number of Warehouses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous holding of license once taken</td>
<td>23</td>
</tr>
<tr>
<td>License taken for some period, discontinued but again started taking license</td>
<td>07</td>
</tr>
<tr>
<td>License taken for some period but discontinued in the rest of the study period</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
</tr>
</tbody>
</table>

(Source: Field Survey)

As this count was limited, researcher felt that it could be possible to go for population study of these licensed warehouses, therefore population survey of these licensed warehouses was undertaken.

Out of these 45 warehouses, the management authorities of 3 warehouses could not be contacted, while 2 warehouses refused to give information. Information could be sought from remaining 40 warehouses. Though some of them had not taken license in the year when field survey was actually conducted by the researcher; they gave the information about their functioning for the years when they hold the license. The number of these warehouses according to the type of organization from where information could be sought for the study purpose is shown in table no.1.2
There is different state warehousing Acts passed by respective state governments in India to regulate the business of warehousing. The Bombay Warehouse Act 1959 and the Bombay Warehouse Rules 1960 are the Act & Rules (Regulations) serving the same for the state of Maharashtra. For collection of the information from these 40 warehouses the questions asked were based on the sections and rules of the regulations. Some Act and Rules asks for actual observation of godowns of the warehouses from inside. The permission granted for actual observation of the godown from inside was by 30 warehouses. The distribution of these warehouses according to kind of organization is as given below.

### TABLE 1.3

THE NUMBER OF LICENSED WAREHOUSES WHICH ALLOWED OBSERVATION OF THEIR GODOWNS

<table>
<thead>
<tr>
<th>Kind of Warehouse Organization and Their Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWC/MSWC</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

The depositors are the main beneficiaries and customers of these warehouses. It was decided to study these depositor respondents as a base line survey. The estimated population of the depositor in all the licensed warehouses in the study
region in March 2008 was 2859. The category wise composition of these depositor population is farmer -715, Traders -1730, manufacturing industry -220, cooperative units- 55, others -139. The depositors in the ‘others’ category include FCI and the individuals who haven’t mentioned their status like farmers, traders or a firm. The ten percentage (10%) sampling was resorted for study. Thus depositors studied are 287. The category wise distribution of these depositor samples is as below. These respondents are telephonically interviewed as a base line survey.

TABLE 1.4
KIND OF DEPOSITORS AND SAMPLE SIZE

<table>
<thead>
<tr>
<th></th>
<th>Farmers</th>
<th>Traders</th>
<th>Manufacturing Industry</th>
<th>Cooperative Units</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>287</td>
</tr>
<tr>
<td>Farmers</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traders</td>
<td></td>
<td>173</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td></td>
<td></td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative Units</td>
<td>06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td>14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The definition of the ‘warehouse’ is given in the Bombay warehouse Act. It restricts the number of storage structures to be called as ‘warehouse’. Accordingly, researcher felt that it is necessary to study the beneficiary organizations of the Rural Godown Scheme of the central government which is implemented with the help of agricultural marketing board of the state government as a nodal agency. It is necessary to study these storage structures because government promoted this scheme with one of the intention to make these storage structures to work and do business as a warehouse. There were many cooperative service societies, private owners & other organization who have availed this scheme. The godowns built under the scheme ranged from 100 tons to 10,000 tons in their capacity.

To study these godowns researcher stratified the total number of godowns according to their storage capacities in each district. The number of godowns which has got proposal sanctioned under Rural Godown Scheme (as per 2008 list) is 201. Capacity wise category was made and at least 30% sample size was taken in each of the capacity category for the study of these organizations. It is shown in the table no.1.5
TABLE NO.1.5
SAMPLE SIZE SELECTION OF GODOWS SANCTIONED UNDER RURAL GODOWN SCHEME

<table>
<thead>
<tr>
<th>Capacity in metric tonnes</th>
<th>Kolhapur</th>
<th>Sangli</th>
<th>Satara</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-500</td>
<td>23</td>
<td>5</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td>501-1000</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>1001-10000</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>More than 10000</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>9</td>
<td>23</td>
<td>64</td>
</tr>
</tbody>
</table>

Along with this, Agricultural Produce Market Committee (APMC) owned godowns are working in the three districts, which has got potential to do warehousing business. The government of Maharashtra has brought pledge finance scheme to help farmers by financing their agricultural produce by storing it in APMC affiliated godowns. There were 19 APMC’s working in the region out of which 17 had affiliated godowns with them, one of them had taken warehouse license which is studied in licensed warehouse category, out of rest 16 APMC’s, 5 APMC officials with convenient sampling were interrogated as 30% sample size by researcher to know about possible warehousing activities in these APMC affiliated godowns.

To study these large number of storage structures, proportional random sampling was resorted. As there was possibility of overlapping of licensed warehouses which built their godowns under rural godown scheme and the sample selection of rural godown scheme, in such cases random sampling with replacement was resorted. Thus total of 64 plus 5 = 69 organizations having godowns were studied in these categories besides 40 warehouses under population study which had taken license from D.D.R. office. Three(3) officers from District deputy registrar office which is a prescribed authority one from each of the three districts were interviewed. The Cooperative, commercial and public Sector banks were the lenders.
of loan on Warehouse Receipt hypothecation. From each of the three districts 2 bank managers one from each bank, thus total of 6 bank managers were contacted and formal discussion was done. The collateral management Company, National Bulk handling corporation is active in the region. One (1) official of the NBHC was interviewed. One (1) police official who was involved in conducting investigation related to warehouse scam was also interviewed. To know about the benefits of material handling equipment, one (1) textile unit was studied as a case study. So the total respondents studied are 408. It is shown in the table below.

### TABLE NO.1.6
**NUMBER OF RESPONDENTS STUDIED FOR THE RESEARCH**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particular</th>
<th>Size of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Licensed warehouse</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Depositors of licensed warehouses</td>
<td>287</td>
</tr>
<tr>
<td>3</td>
<td>Organizations benefited under Rural Godown Scheme and APMC godowns</td>
<td>69</td>
</tr>
<tr>
<td>4</td>
<td>Prescribed Authority officer</td>
<td>03</td>
</tr>
<tr>
<td>5</td>
<td>Bank managers</td>
<td>06</td>
</tr>
<tr>
<td>6</td>
<td>Officer of collateral management company</td>
<td>01</td>
</tr>
<tr>
<td>7</td>
<td>Textile industry manager</td>
<td>01</td>
</tr>
<tr>
<td>8</td>
<td>Police officer</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>Total Respondents</td>
<td>408</td>
</tr>
</tbody>
</table>

**Pilot Study and Finalization of Questionnaire and Interview Schedule**

A pilot study was conducted for finalizing the questions for the questionnaire to be prepared for warehouse managers. For this Sangli district, native of the researcher was selected. From this district one district directorate official was interviewed. Three warehouses one from public sector, second from private sector, third from cooperative service society which was a beneficiary of rural godown scheme was selected and interviewed using original interview questions. On the basis
of the pilot study, necessary correction and changes were effected to the original questionnaire/schedule prepared for warehouse managers. Interview questions were designed to be asked for the concerned government officials, depositors (customers) of the warehouses and it was used for the field survey.

The Primary Data Collection

The information from the warehouse managers was collected through schedules (Questionnaire with blank space in between to note the responses from the respondents by researcher). The main beneficiaries were depositors, for them structured telephonic interview was conducted to gather information. For the samples selected under Rural Godown Scheme and for officials of APMC affiliated godowns, questionnaire method as well as telephonic interview method was used as per necessity. The structured interview schedule was conducted for the prescribed authority officials. Formal discussions were conducted with bank officials, police officer, collateral management service company officer etc.

The following table is the basis on which the researcher has collected the primary data.

<table>
<thead>
<tr>
<th>Particulars of Research Methodology</th>
<th>Justification/Respondents Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technique applied:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Informal interviews</td>
<td>1. To collect informal information</td>
</tr>
<tr>
<td>2. Informal discussion</td>
<td>2. To collect personal views &amp; ideas</td>
</tr>
<tr>
<td>3. Observation</td>
<td>3. To understand the practical aspect of the phenomenon</td>
</tr>
<tr>
<td><strong>Tools used:</strong></td>
<td></td>
</tr>
<tr>
<td>1. Questionnaire schedule</td>
<td>To collect specific information &amp; opinion about an issue</td>
</tr>
<tr>
<td>2. Application under right to information Act</td>
<td></td>
</tr>
<tr>
<td><strong>Sampling method:</strong></td>
<td>Data from licensed warehouse managers, managers of Rural Godowns, APMC officials.</td>
</tr>
<tr>
<td>Population study, simple random sampling with replacement, convenient sampling</td>
<td></td>
</tr>
</tbody>
</table>
The collected data was analyzed with the help of computers. The package used for the analysis was ‘MS Office 2007’.

**Statistical Tools Used for Analysis**

Statistical tools used are correlation analysis, regression analysis, ratio analysis, Chi-square test.

**Reference Period**

Primarily the study is covering a period of eight years, from 2000-2001 to 2007-2008. To collect the primary data the survey was conducted during the period from April 2008 to December 2009.

**1.12 CONCEPTS AND DEFINITIONS USED IN THE STUDY:**

1. APMC- Agricultural Produce Market Committee
4. CWC - Central Warehousing Corporation, a public undertaking which is in the business of warehousing with all India presence.
5. DDR - District Directorate of Registrar. D.D.R. office is a prescribed authority of the state government to give license to the warehouses for conducting business of warehousing.
6. Licensed warehouse- The warehouse which is been permitted by the government authority to do the business of warehousing.
7. MSWC – Maharashtra State Warehousing Corporation.
8. NWR – Negotiable Warehouse Receipt.
9. PA - Prescribed Authority of Maharashtra government who acts as local regulator.
10. SWC- State Warehousing Corporations of the respective states in India.
12. WR – Warehouse Receipt. This is a document issued by the warehouseman for the goods deposited in the warehouse which act as a document of title to the goods stored.
1.13 PROFILE OF THE STUDY AREA:

The study area constitutes the KOLHAPUR, SANGLI and SATARA districts of south western Maharashtra. The details of these districts which is closely or distantly concerned with the warehousing activities are as follows.

### TABLE NO. 1.7
WAREHOUSES AND STORAGE PROFILE OF THE STUDY AREA

<table>
<thead>
<tr>
<th>Organization</th>
<th>Districts</th>
<th>Kolhapur</th>
<th>Sangli</th>
<th>Satara</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of Units</td>
<td>Total storage capacity (metric tones)</td>
<td>No. of Units</td>
</tr>
<tr>
<td>Central Warehousing Corporation (CWC)</td>
<td></td>
<td>02</td>
<td>31,456</td>
<td>03</td>
</tr>
<tr>
<td>Maharashtra State Warehousing Corporation (MSWC)</td>
<td></td>
<td>02</td>
<td>9441</td>
<td>03</td>
</tr>
<tr>
<td>Maharashtra State Cooperative Marketing Federation</td>
<td></td>
<td>02</td>
<td>18000</td>
<td>02</td>
</tr>
<tr>
<td>Agricultural produce Market committee godowns(owned)</td>
<td></td>
<td>21</td>
<td>81000</td>
<td>05</td>
</tr>
<tr>
<td>Godowns under primary Cooperative service society and sales/purchase cooperatives</td>
<td></td>
<td>693</td>
<td>169700</td>
<td>161</td>
</tr>
<tr>
<td>Godowns under Cooperative Sugar Factories</td>
<td></td>
<td>162</td>
<td>1189300</td>
<td>87</td>
</tr>
<tr>
<td>Godowns under Public District System</td>
<td></td>
<td>22</td>
<td>10450</td>
<td>29</td>
</tr>
</tbody>
</table>

(Source: Collector and D.D.R.Office of the Kolhapur Sangli and Satara District, Maharashtra state cooperative Marketing Federation office, Mumbai, Maharashtra State Agriculture Marketing Board Pune, Office of the sugar commissionerate Maharashtra state Pune, Field Survey.)
Kolhapur District

Kolhapur also known as ‘Dakshin Kashi’ is a land of prosperity. It is located in south western Maharashtra.

For administration, district has been divided into twelve tahasils in four revenue divisions. Tahasils are Karveer, Kagal, Panhala, Shahuwadi, Hatkalangale, Shirol, Radhanagri, Bhudargad, Gadhinglaj, Gaganbawda, Ajra, Chandgad. The total area of the district is 7760 square kilometers, with population density 455 peoples and literacy rate of 77.23%. Geographically this district can be divided into three zones. First is Maval, second is Transition and third is Desh. Maval zone is adjacent to Konkan area of Maharashtra and is a hilly area, where rainfall is around 500 cm. The second transition zones draws 125 to 200 cm of rainfall. The third desh belt gets 75 to100 cm of rainfall. There are as many as nine small and big rivers flowing placidly through the length and breadth of the district and they are amenable to irrigation with the help of which area under sugarcane is expanding. The area under cultivation is about 73.19% of total area. The area under irrigation is 135000 hectares’. The main crops in the district are cereals, oilseeds, sugarcane and cotton. Food grain crops are rice, wheat and bajra.

Maharashtra State Industrial Development Corporation areas are located at six places in the district. They are at Shiroli, Gokul Shirgao, Itchalkaranji, Jaysingpur, Udyamnagar and a five star MIDC at Kagal. Large numbers of industries are established in the district which includes seven projects of worth rupees 13460 lacs of rupees. There are 863 big and medium scale industries working in the district. The expansion of the cooperative movement in the district is remarkable. There are cooperative credit societies, a central cooperative bank, agricultural processing units, cooperative joint farming societies, cooperative lift irrigation societies, cooperative sugar factories etc.

There are 18 cooperatives and 3 private sugar factories working in the district. Transportation is mainly through roads. The district place is situated on NH4 national highway. District has got one airport. If the comparison is made for the year 2000-2001 to 2008-2009 for the sector wise contribution that was made towards GDP, then it is observed that the secondary (i.e. industries) sector
Sangli District

Sangli district is among the advanced districts in India. It is the land of milk, fruit, temples & warriors. Pomegranates and grapes produced in this district have invaded foreign markets, especially in the west. The total area of the district is 8577 sq.km. with a population density 301 and literacy rate 62.42%.

The district constitutes eleven tahasils having three revenue divisions. Tahasils are Miraj, Vita, Palus, Atpadi, Tasgaon, Kavthemahankal, Walwa, Jath, Khanapur, Kadegaon, Shirala. It has got one mahanagarpalika, four nagarpalikas and 705 grampanchayats.

Geographically three distinct parts are identified in the district. They are western hilly and high rainfall region, middle part of plain region where major rivers are flowing with water throughout the year in it, which has got large area under surface irrigation and medium rainfall, and the third eastern side, plain but having low rainfall therefore arid region due to which major land is under rain fed agriculture. The average rainfall in the district is 45 cm. Within the limits of the Sangli district the Krishna forms the main river system, with Varna in the west & Bhima in the east. Other rivers are Yerla, Agrani, Man, Bor etc.

The total area under cultivation is about 75% of the total area. The area under irrigation is 144000 hectares. The land of the district is fertile and it is well served with irrigation facilities having a network of canals & wells. The cultivation of cash crops like sugarcane & groundnut has improved considerably the economic conditions of agriculturists. The cultivation of sugarcane has been increased. Jowar & Bajra are the two main crops which constitute 58.83% of the gross cropped area. Pulses & groundnut constitute 11% each of the total cropped area.

The main crops in the district are rice, jowar, bajra, groundnut, turmeric, soyabean, sugarcane, wheat, grape, and pomegranate.
The district contains nine Maharashtra State Industrial Corporation areas with 748 industries in it. The expansion of the cooperative movement in the district is remarkable. There are cooperative credit societies, a central cooperative bank, agricultural processing units, cooperative joint farming societies, cooperative lift irrigation societies, cooperative sugar factories etc. Fifteen sugar factories are working in the district. The major means of transportation is by road & railways with major Railway stations at Sangli & Miraj. Sector wise composition of Gross Domestic Produce is primary 22.83%, secondary 16.22%, tertiary 60.95% in 2008-2009.

Satara District

Satara also known to be the district of power due to koyna power project and chain of windmills, which dot the mountain ranges. It is a historical place famous for pilgrimage, nature and leisure tourism. The geographical area of Satara district is 10480 square kilometers, with population density of 267 and literacy rate of 78.52%. The district contains 11 tahasils which is divided into four revenue divisions. Tahasils are Satara, Karad, Wai, Mahabaleshwar, Phaltan, Man, Khatav, Koregaon, Patan, Jaoli, Khandala. Geographivally three parts can be identified the western part having hilly region, the middle & dry land with plain ground at a lower altitude which is largely irrigated by Krishna & its tributaries river of Koyna, Wenna, Urmodi, Kudali, Tarli. The total land under agriculture is 7.80 lakh hectar. Out of total geographical area 51% land is under cultivation, the land under irrigation is 181700 hectares. Satara contains some important irrigation works, including Krishna canal. In some of the western parts of the district, the average rainfall exceeds 500 centimeters, but on the eastern side water is scanty, the rainfall varying from 100 cm in Satara town to less than 30 cm in some places of far east. Jowar, Bajara & groundnut are the main crops in rainy season while wheat & gram are the crops of winter. The main commercial crop in the district is sugarcane.

Maharashtra State Industrial Corporation areas are three in the district, they are in Karad, Satara & Wai. The district place is situated on NH4 national highway. The district is traversed north to east by a railway line, which passes 15 km. east of Satara town. The expansion of the cooperative movement in the
district is remarkable. There are cooperative credit societies, a central cooperative bank, agricultural processing units, cooperative joint farming societies, cooperative lift irrigation societies, cooperative sugar factories etc. Eight cooperatives & three private sugar factories are working in the district. Besides sugar factories, 37 large and medium scale factories are in the district. The industrial units which are registered under factory Act are 481 which are functioning by the end of year 2009. Two special economic zone units are proposed to be established in the district at Khandala & Phaltan. Composition of Gross Domestic Produce of the District is 20% primary, 25% secondary and 55% from territory sector in 2008-2009.\textsuperscript{13}

1.14 LIMITATIONS OF THE STUDY:

Even though the study is extensive, unique in certain aspects, it suffers from the following limitations.

1. The selected districts of study area Kolhapur, Sangli and Satara are comparatively agriculturally prosperous area than many of the other regions of Maharashtra. So findings may not be sent percent applicable for other areas like Konkan and some of the arid regions of Maharashtra.

2. The Warehouse managers of licensed warehouses were reluctant to provide data related to food grain losses due to deterioration. Researcher found it difficult to get the reliable data from all the warehouses under study. So proper evaluation regarding taking care of the goods deposited in the warehouse cannot be done.

3. Many of the private and cooperative warehouses have not maintained proper warehouse records. Therefore the details supplied by them from their memories had to be relied upon for this study. It may result into under or over estimation.

In spite of the above limitations, the study provides dependable and useful information and as such the suggestions based on them provide certain guidelines for future planning and successful implementation of warehouse regulations.
1.15 ORGANIZATION OF THE STUDY:

The study will be divided into seven chapters.

1. **Chapter One : Introduction**

   In this chapter, introduction of the topic, types, importance and contribution of warehouses, the rationale and significance of study, the problem under study, objectives of study, hypotheses, details of Research Methodology adopted, limitations of study, concepts and definitions used, profile of Sangli, Satara and Kolhapur districts, presentation of study have been discussed.

2. **Chapter Two : Review of Literature**

   Limited number of studies related to warehousing has been undertaken by few individuals, organizations, groups sponsored by reserve bank of India and ministry of India and others. Most of the studies are related to warehouse receipt system, Infrastructural development, food crisis etc. Review of such available literature is presented in this chapter.

3. **Chapter Three : Scenario of Warehousing Industry in India and Maharashtra**

   This chapter will give bird’s eye view of the activities of warehousing functionaries in India and in Maharashtra.

4. **Chapter Four : Infrastructure Issues and New Developments in the Warehousing Industry**

   This chapter contains information related to warehouse theories, new developments related to warehousing business such as technological advances in facilities, scientific food grain storage, developments in warehouse receipt finance and trading through commodity and spot exchanges etc.

5. **Chapter Five: Laws Governing and Regulatory Mechanism of Warehouses in India and Maharashtra**

   This chapter contains information regarding present laws and regulations created by the governments that govern the activities of
warehousing. Any new Laws and Act’s which have direct or indirect implications on warehouse functioning is discussed.

6. **Chapter Six : Functioning of Warehouses in the Study Area**

Information regarding various kinds of warehouse organizations in the study area their actual working is discussed. The developments related to warehousing industry like collateral management company working, fraud case, case related to materials handling equipment is presented in this chapter.

7. **Chapter Seven : Data Analysis and Interpretation**

Data gathered related to storage capacity, population, food grain production at all India level and for study area is analyzed. Data related to functioning of warehouses according to regulations devised for them and for other parameters like efficiency measures, pledge finance, method of storage etc. is analyzed. Data gathered based on base line survey for parameters like purpose of storing, value appreciation, frequency of utilization etc. and satisfaction of depositors is analyzed. Data collected related to organizations under Rural Godown Scheme and APMC godowns is analyzed. Interpretation of all the analyzed data is made in this chapter.

8. **Chapter Eight : Findings and Suggestions**

In this final chapter efforts are made to draw findings and make suggestions from the data interpretation. Conclusion is drawn and Scope of Research is discussed.

**REFERENCES:**


