CHAPTER II

REVIEW OF LITERATURE

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REVIEW OF LITERATURE

2.1 INTRODUCTION:

The primary objective of laws and regulation of warehousing industry is to ensure a sound and foolproof system of warehousing that will meet the needs particularly of the farming community in India. It is the duty of the warehouseman to see the goods deposited by warehouseman are kept well and are safe, to maintain proper records of the goods kept and generate documents like warehouse receipt which can be utilized by depositors to get required finance from the financial institutions.

Limited number of studies related to this subject 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 security, scientific grain storage, agricultural marketing, warehouse corporations, logistics system etc. Review of such available literature is presented below.

2.2 REVIEW OF BOOKS:

Datt Rudder and Sundharam K.P.M. (2006)¹

In their book ‘Indian Economy’ the authors dealt with Agricultural Marketing and warehousing. They explained about basic facilities needed for agricultural marketing & defects in it. Features of a regulated market, cooperative marketing, cooperative storage, role of NAFED & NCDC to promote trade of farm produce are discussed by authors. The history of warehousing in India & its development in five year planning period is given by the authors. They informed that in 1960-61, there were only 40 general warehouses in the country with total capacity of less than 0.1 million tonnes. At present, the three public sector units together have a storage capacity of nearly 35 million tonnes. Over 52,600 primary agricultural cooperative societies and most of the marketing cooperatives in the country now own and operate godowns funded by NCDC. Author asserts that taking an over-all view, at the macro level, there is no shortage of capacity of food grain storage. However, there is a mismatch at the micro level, especially for rural public distribution system, hilly, remote and inaccessible areas therefore efforts should be directed to bring about balance at the micro level as well.
Dimitris N. Chorafs (1974)

In his book ‘Warehousing’ author dealt with planning, organizing and controlling the storage and distribution of goods. In four parts he described about warehousing fundamentals. The warehouse and its environment. Advanced warehousing concepts and the role of the computer. The author asserts that, in the planning stages of a warehousing development, the alternatives arise because of compromise in the requirements and condition which should be met where these warehousing alternatives are meaningful in terms of providing different capabilities at different costs with benefits to the company’s business. It is necessary to array the estimated cost and the anticipated benefits so that the company’s management can be made aware of the available options.


In his book ‘Supply Chain Strategy’, the author dealt with evolution and role of logistics in business. The warehousing is an integral part of supply chain in business noting this, the author described various warehouse operations in detail which includes warehousing fundamentals, warehouse activity profiling, warehouse performance measures, receiving principles put away, storage operations, order picking operations, shipping principles, warehouse management system and warehouse workforce design and Development. He divided warehouse performance measures into four parts viz. warehouse financial performance, warehouse productivity performance which includes put away, inventory, picking & shipping accuracy, warehouse cycle time performance which includes Dock-to-stock time and warehouse order cycle time.


In his book ‘State of the Indian Farmer : Post-Harvest Management ’the author summed up that even through much attention has been paid to evolving appropriate technologies and method for handling the commodities in the post-harvest phase, most of the produce is sold with a minimum of processing and within reasonable distances or time of their production. Poor infrastructure and little application of technology dictated such patterns in the pre independence days. In the last 50 years, substantial progress has been made in case of several commodities, but the prevailing pattern has not altered dramatically on the whole.
There are inefficiencies at every stage, and due to outdated cleaning, grading, storage, handling, and packaging losses of high order continue.

**Ray Reuben (1997)**

In his book ‘Store Management’, author addressed the design of the new generation store systems and touches upon in depth transport and material management that raise companies to twenty-first century world class stature. The first five chapters, seventh and ninth chapter describes store systems concepts. Chapter eight describes operations in specific environment. Chapter 6 discusses the salient points for good inventory management while chapter 10 explains the various ways to dispose off old equipment, obsolete, scrap, surplus material. The warehouse manager’s responsibility and value in routing inbound freight is explained in chapter 11. The author asserts that consumer will be the primary beneficiaries of the efforts of industry managers in developing stores management of high speed and low cost delivery. He says store net works are complex, and that is where a good deal of opportunities lies. The science of warehousing, has not reached its zenith and there is always room for improvement. Misplaced goods and inaccurate inventory status information are two chief problems facing stores and materials management. The building blocks of the store of the store of the future are the containers in which goods are received, stocked, issued, sorted and shipped. The readers of this book may consider alternatives to old business practices and operations as a prerequisite for discovering their own visions of the future.

**Saxena J.P. (2006)**

In his book ‘Warehouse Management and Inventory Control’ author tried to update with the recent practice, procedures and systems for effective management of warehouse and control of inventory. He has made attempt to provide procedures compatible to computer applications. In his twenty chapters the author has dwelt with aspects of planning, organizing, execution and control of activities of warehousing and inventory control. The book also addresses the requirements for conformance to ISO standards. Author stressed need of performance evaluation of stores activity. He prepared the performance
parameters and performance indicators based on the domains of store keeping as a service function, quality assurance cost reduction and inventory control.

**Stock James and Lambert Douglas (2001)**

The book ‘Strategic Logistics Management’ basically deals with logistics and supply chain management. In a chapter ‘warehousing’ the author described nature and importance of warehousing, its types, warehousing, operations, tasks and functions. Author described the importance of warehousing in the logistics system. Economies of scale, costs and customer service are the most important considerations. The types of options available to a firm include public (rented) and private (owned or leased) warehousing. Logistics executives must understand the advantages and disadvantages of each option in order to make optimal warehouse management decisions.

The major functions of warehousing are movement, storage and information transfer. Movement consists of receiving, transfer, order selection, and shipping. Storage can be temporary or semi permanent. Information transfer is the link between all of the activities that take place in the warehouse. Such activities can take place domestically or internationally.

### 2.3 REVIEW OF Ph.D. THESIS:

**Dr. Bramhankar E. B. (1968)**

In his Ph.D. thesis “The Problems of Warehousing Agricultural Products With Special Reference to the Warehousing Corporation in India” the researcher brought out the clear picture of major warehouse functionaries in India. They are Central Warehousing Corporation and State Warehousing Corporations. In his research work he described about how Indian warehousing industry evolved, functioning, progress & working of CWC & MSWC, problems of utilization, methods of storage & scientific storage, problems of warehousing. In his observations he found that banking and warehousing are complementary activities and much work and responsibilities involved in direct advances by the banks, could be shouldered by the corporations if advances are channeled through warehouse receipt. He also felt the need for effective supervision and control to minimize chances for defalcations and advocated supervision and control by corporations officers by inspection. There is introduction of self-indemnification
scheme in lieu of compulsory insurance of goods in the warehouse. The objective of this was to avoid remote chances of risks and to reduce storage changes. The self indemnification scheme of CWC was guaranteed by central government on the insistence of SBI before it agreed to recognize it.

Suggestions given by researcher were, to strengthen the warehouse corporation as their services are badly needed by the country, private investment needs to be attracted & for that government policies & warehousing structures need to be tuned to the changed circumstances, legal provisions relating to disinfestations measures should be enforced on roller flour mills & grain stockiest, warehousing should be introduced as one of the subjects in the university curriculum for agriculture, economics and commerce. There should be some limit on amount of warehouse receipt, on the lines of bank safe deposit vaults, at a village level, grain bank or grain custody should be started by private or commercial people. A small library is to be set up at each warehouse where technical and popular literature should be supplied for guidance and reference. Corporation can serve as pilot institutions.

Researcher concluded that corporation has made headway in popularizing warehousing scheme in all corners of the rural areas. Objectives of corporation had been achieved with the liberalized ‘Credit control’ policy of RBI. Warehousing Corporations have made a considerable progress in our country by revolutionizing the agricultural economies & by giving a boost to the agricultural activity. The era of organized activity in the sphere of warehousing, sponsored by the government, could, legitimately be considered as an important landmark or milestone in our economic planning.

Yeming Gong (2009)\(^9\)

In his Ph.D. thesis titled “Stochastic Modeling and Analysis of Warehouse Operations” Researcher provided an overview of his research in Stochastic Modeling and Analysis of warehouse operations. Research thesis identified uncertainty sources of warehousing systems and systematically presents typical warehouse operations from a stochastic system viewpoint. Through a comparison between potential and existing stochastic warehouse applications, researcher identified potential in new research applications. This research tried to search optimal batch sizes in a general parallel-aisle warehouse with online order
arrivals. The researcher has shown the existence of optimal batch sizes for a warehousing service provider facing a stochastic demand from the perspectives of customers and total systems.

2.4 REVIEW OF RESEARCH PAPERS/CONFERENCE PAPERS/ARTICLES:

Acharya S.S. (1998) In his paper “Agricultural Marketing & Price Policy in India: The Next Phase” author said that Regulation of the practices of buying and selling was the first type of initiatives taken by the government for protecting the interests of different sections of the society. While before independence, the overriding concern remained at protecting the interests of industry, later the emphasis shifted to the concern for consumers as also for the farmers. Apart from the construction of market yards and sub-yards, considerable public investment has gone into the creation of storage, transportation and communication facilities. The scientific storage capacity which was negligible at the time of independence went up to 391 lakh tonnes at the end of March, 1996. The experience shows that while the state governments and their agencies remain ineffective where the need for price support arises only once in two or three years, the public agencies have not been able to provide effective support to the farmers as they couldn’t tie up with central nodal agency for making necessary purchase arrangements in time. Such failures on the part of the state agencies lead to a setback to the production programmes.

In a liberalized marketing environment, for protecting the interests of growers, apart from the effective implementation of price support policy, it would also be important for the farmers to organize into strong cooperatives. There is a need to redefine the role of APMCs. In the initial phase attention is needed on establishment of market yards, creation of various infrastructures in the yards and evolving systems and procedures for regularization of practices in the yards and sub-yards.

Choudhary Anil K. (2008)

In his paper “Collateral Management: An Indian Perspective” the author asserts that, the concept of collateral management is only a recent phenomenon of last 4-5 years. While warehouse receipt based finance is one of the oldest lending products, it really could never take off in India due to several infirmities and
resultant perception of high risk. The reason of high risk the bank perceives are very low credibility of warehouse management, lack of quality and commodity value appraising skills and concern regarding quality and quantity maintenance of agro commodities, which are perishable in nature, during the loan tenure. The another was lack of proper credible price information.

According to authors opinion various micro and macro level studies indicate that small farmers contribute over 50% of marketable surplus and more than half of it comes through distress sale by these farmers. However with the advent of credible collateral management agencies with requisite knowledge of warehouse and commodity management, warehouse receipt finance is gradually becoming a viable option for both banks and farmers. With this it is author hoped that agriculture will very soon be started to be looked more as commercial proposition rather than as a 'mandate' and the opportunities would be abound.

**Jairath M.S. (2010)**

In his paper “Agricultural Marketing Infrastructural Facilities in India – State Wise Analysis”, the researcher stated the progress made in agriculture storage capacity. According to it the total storage capacity available at the end of 2010 of CWC, SWC & FCI is about 75 million tonnes. It is estimated that about 25 million tones of grains are stored in the form of covered & plinth. The rural godown under NCRG scheme which was initiated in 1979 have constructed rural godowns of 15 million tonnes capacity. Under the Gramin Bhandaran Yojana of GOI, about 67 lakh metric tonnes capacity, have been created in the country up to March 2010. The researcher asserts that keeping in view the agricultural production in the country, the available storage facilities/ capacities are short looking. Looking at the production trends and assuming 70 percent as marketed surplus, a storage capacity of 150 lakh metric tonnes is needed.

**Kaul Sanjay (2008)**

In his paper “Value Added Warehousing in India Using Warehouse Receipts: Issues and Challenges” The author asserted that the most critical section in the 2007 Act is section 11, which defines and gives Warehouse Receipt. He says that this provision is only a necessary legal provision and its operationalization will depend on the credibility of the entire WR system. To
some extent once WR’s become freely transferable, credibility would also get established. Author feels that there are some important issues which need to be addressed through well drafted rules under the 2007 Act. They are- If negotiability is to be ensured then as in the case of the negotiable instruments Act, the rules governing negotiability and transferability will need to be unambiguous and clear and should not have conditional and subject to clauses. The credibility of the system will depend on standardization quality and grading environment in the country. In this electronic age, the time has come to incorporate in the rules that all WR’s will be only in an electronic form. The role of the regulator in the initial years is very critical. The regulator must perceive itself as an important developmental arm for modernizing the entire supply chain and not to be confined to the role of regulation.

Mamta Barnwal(2006)\textsuperscript{14}

In his paper “Rural Infrastructure Issues and Perspectives” The author concluded that developing more warehousing infrastructure is the need of hour, as the population is growing and there is always dearth of food grains and other agri. commodities. As Indian agriculture is dependent on monsoons, there are always cry to arrange the enough food grain for the masses. Warehousing infrastructure will be able to store more unseasonable foods and other items. On the other hand, farmers may also be assured that their produce will be taken care of and get the receipts of stored items, which in turn helps them in getting loans for the future crops. More warehousing infrastructure means more food security to citizens and farmers produce. This is also a long-term investment for agriculture sector and it is praiseworthy that several private sectors, besides public sector, have come forward to develop such warehousing infrastructure. The days are not far, when we will be able to fetch into the significant foreign currency and will be able to increase the global export share as such warehousing infrastructure will be able to match the international quality, desirable by most of developed countries.

Miller Daniel (2008)\textsuperscript{15}

In his paper “USAID”s Experience With and Lessons- Learned from Warehouse Receipts Programmes” the author told about the U.S. Agency for International Development (USAID) has a long history of supporting broad based
economic and agricultural development in developing and transitional economics. In a number of countries, USAID has worked to create warehouse receipt system as a valuable tool in expanding financial services to rural populations. USAID’s programs have worked to help build the legal, regulatory and institutional infrastructure required to make warehouse receipt systems successful including creating & enabling legislation, regulatory bodies and consistency in warehouse performance. In April 2008, USAID helped create the first ever warehouse receipt scheme in Kenya to support maize producers. Throughout the developing world, the lack of access to credit is a severe constraint for many farmers. USAID has found that warehouse receipts are an important and effective mechanism for expanding access to credit in rural areas. In promoting warehouse receipts systems, value chain analysis, is a useful tool to help identify gaps in rural finance and how to address them.

Mukherjee Amit (2010)16

In his paper on “Synergy between APMCs and National Spot Exchanges”, the author informed that, with the functioning of three spot exchanges namely NSEL, NSPOT and NAPMC, there was a significant expansion of spot exchange trading facilities in India. These spot exchanges have created an avenue for direct market linkage among farmers, processors, exporters and end users with a view to reducing the cost of intermediation and enhancing price realization by farmers. They will also provide the most efficient spot price inputs to the futures exchanges. These spot exchanges will also provide a platform for trading of warehouse receipts. Author suggested model named as ‘Synergy between APMCs and National spot exchange’ as a ideal model for forward integration, connecting buyers located across country through electronic terminal. To get synergetic effect he suggest that APMC’ may become member of National Spot exchange(NSEL), NSEL may set-up its trading terminals at APMC market yard, Farmers bringing produce to market yard will be able to observe price in local auction vies a vies price prevailing on NSE terminal, NSEL may have its delivery center & payment counter at market yard itself, where farmer can deliver and get his payment, if he has sold on NSEL platform , NSEL will facilitate loan against pledge of warehouse receipt, NSEL will collect market cess from buyers & pay to APMCs and under this model, NSEL and APMCs will complement each other.
Mukiibi Julion (2009)\textsuperscript{17}

In his research paper “Leveraging the Agriculture Sector Through Trade: Opportunities and Challenges in the EC-EAC EPA” the researcher analyzed the economic partnership agreement between European commission (EC) and East African community (EAC). The researcher says that agricultural sector plays an important role in the East African Community and this sector contributes about 70% of EAC exports to EC. The economic partnership agreement between European Commission and EAC, presents an opportunity for EAC to fully explore and enhance the agricultural sector’s potential through trade. The researcher said that installation of better infrastructure in terms of reliable power supply, well maintained feeder roads and storage facilities would further expand industries across the region and thereby fully exploit the potential in the agricultural sector. At the end researcher suggested specific development provision, like European Commissions’ commitment to reducing or leasing the trade distorting subsidies on agricultural products of interest to the EAC, Development, rehabilitation and improvement of the physical infrastructures in the EAC region. It also includes roads, storage facilities, rail, communication and energy in order to facilitate the smooth and less cost by movement of agricultural products from the farm gate to the market, including value addition, development support for the improvement and widening of the irrigation schemes, support for better organized and functional farmers organizations that would facilitate farmers interests.

Nikhil Raj, Bhatia Jayesh (2008)\textsuperscript{18}

In their research paper “Warehousing Act 2007: Issues and Challenges Perspectives from Basmati Region” researcher seeks to examine some of the challenges that are likely to be faced in the implementation of warehouse Act 2007 in India and capture some grassroots voices on how the small farmers can have an assured and enhanced access to agricultural credit through the proposed warehouses and the issuance of negotiable warehouse receipt under the envisaged system. The paper concentrated on understanding some of the challenges as perceived by the key stakeholders in supply chain of rice drawn from various districts in Haryana-traditionally known to be a green revolution area in India. The researcher estimated the potential returns from basmati cultivation. He calculated the cost of production of cultivation by small and big holding farmers, the average
production and the price they receive after immediate sale. If they use warehouse facility and sell the rice when market price is in the order of Rs. 4000 per quintal, the economic gain is considerably higher which makes worth to use warehouse facility. Along with this the loan on WR’s helps farmer for the expenses in the next cropping season. The researcher has suggested three pronged strategy comprising interventions at the village, mechanisms to elicit greater participation of the adhatiyas and other supporting infrastructural and institutional measures. These things are required to put the warehousing Act 2007 in the fast track.

**Nukenine,E. N. (2010)**

In his research paper “Stored Product Protection in Africa: Past, Present and Future” author concluded that the role of rate of insect proliferation in tropical Africa’s grain storage structures in high because of the warm climate. Annual grain losses of up to 50% in cereals & 100% in pulses have been reported, although average losses stand at roughly 20%. The majority of farmers in Africa store grains in traditional granaries which are flawed by structural and functional inadequacies. The researcher asserts that, the farmers will readily accept a concept or technology that builds up or improves that which they are used to rather than one which imposes a totally new idea. The researcher says that the African scientist should take interest on research concerning the biology and ecology of storage pests. Farmers, who already use improved granaries and experienced less pest damage in storage, should be encouraged to convince their friends to do same. The grouping of farmers into cooperatives and the construction of flawless community warehouses should be given priority.

**Nveen Prakash(2008)**

In his paper “Negotiable Warehouse Receipts: Concept & Implementation” the author expressed about how the enactment of the warehousing (Development & Regulations) act is a right step for having legal mechanism in place which could shield the lender(banks) in event of default by the borrower (depositors). The Act makes the warehouse receipts legally negotiable and therefore tradable. This will have vast significance for the farmers, lenders i.e. banks and financial institutions and commodity trade. The introduction of negotiable warehouse receipt will enable increase in use of credit and insurance
activities in the farm sector and also spur development of quality warehousing. The NWR system has significance for commodity trading both for farmers and commodity processors. The farmer by trading NWRs and the latter by raising finances against their stored produce. The paper examined the concept and structure of the negotiable warehouse receipts as also their usefulness in the farm sector in the country. It concludes that with the setting up of a regulatory mechanism in the NWR business in the country, the confidence level of the various participants in the system of commodity management like producer, financer, warehouse operator, commodity trader and an intermediary is likely to go up significantly. As the commodity markets in the country mature, usefulness of the system is going to be tested in terms of ease of use, reduction in transaction cost and legal remediation for the different players involved.

**Pattanaik B.B. (2008)**

In his paper “The Warehousing (Development & Regulation) Act: Impact on Agri Business” The author said that no economic activity is free from warehousing. Warehousing is closely linked with the development of marketing chain. The author explained about how warehouse receipt is a document of Title. As per section 13(1) of Negotiable investment Act 1881, the warehouse receipt is not a negotiable investment. However section-2 (iv) of the sale of goods Act, 1930 brings it within the ambit of definition of a document of title. In view of the provisions in the state warehouses Act and the fact that Warehouse Receipt is a document of title, it enjoys negotiability. With the introduction of warehousing development an deregulation Act, the framers will have increased confidence due to well laid accountability and penalty clauses for all service providers. This will lead to quick dispute settlement. Agricultural business with the introduction of easy availability of loans, appropriate grading, with the advantage of freedom to choose the warehouse agency, will definitely become a viable business proposition. The agricultural business, therefore be taken as effective resource and instrument to avoid distress sale.

**Ramesh Chand (2003)**

In his research paper ‘Government Intervention In Food grain Markets In The New Context’ researcher came out with the finding that due to high volatility
in international prices and because of residual exporter, India could not use trade options very satisfactorily to stabilize supply of food grains. So it is necessary to rely on efficient supply chain for the proper distribution of food grains of which warehouses are one of the major elements.

**Ranawat N. S. (2009)**

In his paper “Efficient Agricultural Marketing System and Modern Infrastructure Required for Minimizing the Losses while Handling the Agricultural Produce” the researcher identified Marketing infrastructure- Gaps. He concluded that for storage and warehousing in India, 52 million tonnes storage capacity is available, while there is need for creating storages for additional 20 million tonnes, which is now stored in the form of CAP (Covered and Plinth) and the investment required for it is in the tune of Rs.5400 crores. On cold storages he concluded that fruits & vegetables produced are 135 million tonnes with 30% post harvest losses and during next ten years cold storage capacity requirement of Rs. 27000 crores. To expand grading facility Rs. 2000 crores investment is required in the next 10 years, as it is available in only 1321 markets out of 7300 regulated markets. For export oriented Agri-zones & food parks estimated public investment on common facilities is about 200 crores. Presently only 7% value addition & 2% processing is done while target is of 35% value addition and 10% of processing. The requirement of investment is about 150,000 crores.

**S. Jaya Krishna (2007)**

In her paper “Warehouse Management System: The Business Case” The author described about use of Information technology based applications in warehousing industry. The development in the software technology and its convergence with hardware has provided many applications for effective warehousing. A Warehouse Management System (WMS) is a combination of software and hardware, which can provide for tasks such as identification, tracking, labeling, printing and communication technology, which together provide the warehouse personnel with required capabilities for effective warehousing. The author also expressed about the requirements of deploying warehouse management software for warehouse and a project manager has to analyze tangible and intangible returns. The remarkable returns are obtained by
improving labour productivity, inventory accuracy, shipping efficiency, and through space utilization savings.


In his research paper “Economics of Storage of Wheat in East Uttar Pradesh” with analysis researcher found that storage makes it possible to take advantage of the anticipated increase in prices. Processing units like flour mills/rice mills demand wheat and paddy throughout the year. For an efficient running of the mills & for economy as a whole, adequate supply of raw material is essential. This requirement can only be met by good storage system.

Storage also create immense job opportunities in different walks of life starting from labourers to transporters, traders, financers and a variety of government officials required closely to watch and monitor the various functions of a gigantic marketing process. It is thus an instrument of development of a vibrant economy in which a sizable part of population is involved in production trading and various other functions in which storage has a pivotal role to play in the growth and development of a country.

Shunmugam, V. (2008)²⁶

In his paper “WDRA to Streamline Agricultural Supply Chains” author gave reasons for warehousing in India largely remained in the public domain with poor capacity utilization due to reasons of- mismatch between physical locations of facilities and the need for the same, lack of awareness among farmers & traders, small marketable surpluses with producers storing it at their own facility, lack of cost-effective transportation facilities, lack of norms governing maintenance of such scientific warehousing facilities, complicated formalities followed in enabling storage for farmers, traders, other facilities related to storage such as standardization, grading and cleaning and packing are not offered in most storage facilities and lack of incentives to storage due to unpredictable future prices and the immediate economic need for encashing their produce. The author analyzed that WDRA is silent on promotion of cold storage of fruits and vegetables in which Indian production levels are high. Incentives in making warehousing sector tax free or fiscal exemption to revenues generated from such investment or both would in a way helped the act achieve the objective of
boosting investment in to the warehousing sector. The author expressed confidence that the coming into force of the WDRA, and the setting up of Authority besides the rules and regulations which would govern the ecosystem and define the rules of the authority, will no doubt create an efficient warehousing ecosystem that would include quality system testing and certification, standardization and marketing. As the warehousing sector develops with full play of linkages to be created among the players and institutions in the agricultural supply chain ecosystem, it would help achieve the ultimate objective of creating win-win supply chains for the producers, intermediaries and the consumers.

Sinha Anjani (2008) 27

In her paper “Development of Warehousing Infrastructure Issues and Solutions” the author has pointed out the need for a radical thinking to transform warehousing sector. In developed countries bulk storage of food grains and other produce is done in big silos, which saves the handling cost, storage cost, cost of packing and labour cost relating to manual handling. In India, to develop silos system and infrastructure related to it, our country needs investment more than Rs. 1,00,000 crores. As government is unable to go alone for this investment, private entrepreneurs need to come forward for such investment, the author asserted. To enable private entrepreneurs for such investment there should be a system which can guarantee return and a recurring income or assured business. The issue of marketability of investment comes into picture if, private investment comes into creating rural warehousing for the purpose of offering its services to farmers & small traders. The solution given by the author to this is creation of a national level spot exchange. That will implement standardized procedures, which will be uniform across the country.

Suresh Pal and Others (2003) 28

In his research paper ‘Institutional Change in Indian Agriculture’ the researchers concluded that agricultural policy, research and extension organizations are interlinked, and are embedded in a larger framework of institutions or rules. It has highlighted the fact that if technology has to have an impact on sustainable agriculture, then institutional change is essential across all relevant actors/ organizations. It concludes by suggesting that evaluation is an
important research management input which can gradually bring about progressive changes in the institutions governing agricultural policy, researcher and extension organizations. Researcher say that evaluation informs all relevant stack holders about how research leads to technology and technology leads to development.

2.5 REVIEW OF REPORTS:

Department of Food & Public Distribution, Annual Report- (2010-11)²⁹

The chapter IV ‘STORAGE’ of this report informs us about storage of food grains and augmentation of storage capacity in the country. It provides state wise storage capacity of the organizations of FCI, CWC, SWC’s and state government agencies. It provided constraints in augmenting the storage capacity and plight of cover and plinth storage of food grains. It gives details of storage capacity approved by high level committee for construction of godown under guarantee scheme & FCI, which is to be done with private entrepreneurs. The report also informed us about existing capacity, requirement and gap in storage for food grains in North Eastern States including Sikkim in India. National policy on handling, storage and transportation of food grains is also given in this report.

FAO Agricultural Services Bulletin No. 109 (1994)³⁰

This bulletin titled “Grain Storage Techniques, Evolution and Trends in Developing Countries” describes in depth about evolution of grain storage techniques and the trends in developing countries, informs us about economics of grain handling and storage in developing countries. The bio-deterioration of grain and the risk of mycotoxins, quality and grading of grain, grain harvesting, threshing and cleaning, drying methods, storage at farm/ village level and in warehouses, bulk storage, insect control & rodent control. The report gives details of standard warehouse design –it includes foundations & flour, wall, roof, ventilation, doors, illumination, determining the dimensions of a warehouse, the specific volume of the product, ancillary building & structures etc. The report says that mathematical, graphical or computer modeling can be helpful in determining the volume of storage that is required.
Global Agri system Private Limited (March 2005)  
Department of agriculture & Co-operation commissioned Global Agri. System P.Ltd. to evaluate the performance of the Gramin Bhandaran Yojana scheme. The finding of this research is that the scheme has been successful particularly in the development of small & medium godowns. The quality of the constructed godowns met standards laid down on major quality parameters. 95% of godowns are used to store agricultural output, only 5% store both input & output. Commodities stored are mainly local produce. Godown owners are predominantly farmers (70%). Godown owners have benefited from the scheme through reducing post harvest losses, increasing income through higher price realization up to 5 to 15%

Jonathan Coulter and Others (October 2000)  
This consultancy was carried out as part of the World Bank programme aimed at the improvement of the commodity futures exchanges in India. This report deals with three principal objectives of the consultancy assignment they are - Assess the feasibility of the warehouse receipt system in the commodities markets with specific emphasis on edible oilseeds, oils and oil cakes, cotton and jaggery, promote the warehouse receipt system and formulate a detailed and phased action plan for implementation. Consultant concluded that, India can use warehouse receipts to make it more attractive for banks to lend to the agricultural sector, to reduce the cost of public support for agricultural marketing, to reduce transaction costs and to improve price-risk management. Warehouse receipts can also play an important part in new policies which would make Indian agriculture more responsive to market opportunities and more competitive in relation to world markets. The potential net benefits to the economy are very large. The current state of the warehousing industry is that, outside of the ports, the central and the state Governments dominate the warehousing industry, both as client and as service provider (CWC & MSWC). The banks and insurance companies are the “implicit stakeholders” of more that 36 percent of this capacity. The main conclusion includes- 
Warehouse receipts exist and are feasible. There is scope for massive expansion in their use, with correspondingly large benefits, deriving from
increased liquidity in rural areas, lower costs of financing shorter and more efficient supply chains, enhanced rewards for grading and quality development of other productivity-enhancing agricultural services, better price-risk management.

All this will result in higher returns to farmers, better service to consumers (involving lower prices, better quality and greater variety) and macro-economic benefits through a more healthy trade balance in agricultural commodities.

There are major obstacles to getting benefits, which includes:

- Aspects of the policy and legal frameworks
- Lack of warehouse operators enjoying the fiduciary trust of depositors and banks. If banks wish to finance against warehouse receipts, they are either limited to sites operated by the small number of existing operators whom they trust, or they must incur high costs in screening out suitable operators.

Overcoming these constraints requires action in the following areas: (a) policy and legal reform, with particular focus on sales taxation; (b) creation of a rigorous regulatory framework; (c) institution of electronic warehouse receipt systems with central registry. Simultaneous action in all these areas is a necessary condition for the “organised” warehouse receipt system to succeed. If one eliminates part of them there is a danger that the efforts will fail, and that one will arrive at the erroneous conclusion that warehouse receipts are inappropriate for India.

Existing Government warehousing corporations should play a leading role in the development of warehousing. However, they can only cover part of the field, which should be opened up to private operators, particularly those who already provide storage services. Moreover, divestment should be pursued with a view to increasing their private sector orientation and autonomy.

Onumah Gideon e. (2002)33

This research report named “Facilitating Smaller Holder Access to Warehouse Receipt System in Zambia” has given overview of maize marketing by small farmers in Zambia and discussed how the WR system will improve smaller holder crop marketing. It outlines requirements for direct smallholder involvement and shared experience of various smallholder group models in the country. The recommendations done by the researcher are- The programme to involve smaller holders in the WR system should focus at the initial stages on their use of the
system to facilitate integration into the more formal grain market, speculations at the group level should be minimized, farmer-marketing groups should be linked to certified warehouse operators. Intermediaries should be encouraged to provide the link between smaller holders, warehouse operators & buyers, Traders marketing smaller holder crop, particularly those providing input credit, could similarly use the system, aiming for increased volumes rather than higher margins, this being possible because of improved liquidity in their operations as a result of securing W.R.’s finance.


In the Mid-term review of the Annual policy statement for the year 2004-05, Governor, Reserve Bank of India announced constitution of a working group on warehouse receipts & commodity futures with a view to examining the role of banks in providing loans against warehouse receipts and evolving a framework for participation of banks in the commodity futures market. The working groups recommendations are as follows. A system needs to be evolved by which warehouse receipts become freely transferable between holders as it would reduce transaction costs and increase usage. Creation of an umbrella structure which may act as a closed user group(CUG) for everyone engaged in the agricultural commodities business like commodity exchanges, APMCs, commission agents registered with APMCs, warehouses, exporters, importers and domestic users of commodities, banks, insurance companies and producers. The CUG is envisaged as an electronic platform that would offer straight through processing for everyone connected with the commodities. As the farmers are likely to find it difficult to assume positions in future market of their own, the group discussed whether banks can offer non-standard contracts to the farmers and cover themselves in the exchange traded futures.

**Dr. Sukhpal Singh & Others (Jan-2007)**

The report analyzed storage infrastructure of India. Marketed agricultural surpluses have been envisaged based on the projections of agricultural production to assess the adequacy in the present and to estimate future requirement of agriculture marketing infrastructure in the country. It has been estimated that
additional marketed surplus of 138 million tonnes of food grains, 25 million tonnes of oilseeds and 228 million tonnes of sugarcane will arise in the country by 2011-12, for which requisite infrastructure in terms of markets and storage facilities is to be created. Based on above estimates of marketed surplus, the assessment of additional warehouse storage capacity for food grains 3.87 million tonnes, oilseeds 0.74 million tonnes & for sugar 0.10 million tonnes have been worked out. Thus the total storage requirement of food grains, oilseeds and sugar to meet the increased marketed surplus in XI five year plan is 4.71 million tonnes.

2.6 REVIEW OF LAWS, ACTS AND RULES:

To have understanding of Laws, Acts, Rules which controls the warehousing business the Acts and Rules which reviewed thoroughly includes, the Bombay Warehouse Act,1959., the Bombay Warehouse Rules,1960., The Warehousing(Development & Regulations) Act,2007. The regulations which came into being recently under WDRA are for - registration of accreditation agency, negotiable warehouse receipt, electronic warehousing receipts, records & reports, inspection, sale and disposal of goods, grading, sampling & weighing, duties and liabilities of holder, depositors and warehouse disputes, meetings, recruitment control and service condition of staff & warehouse accreditation are also reviewed.


2.7 CONCLUDING REMARKS:

A critical perusal and review of the studies reveal that, these studies were not typically focused on regulatory world of warehousing business. The related areas like food grain storage requirement, trading through commodity exchanges, warehouse receipts, agricultural marketing etc. were studied. But the statistically
designed field surveys were not designed to study the implementation of warehouse laws & rules, by the warehouses and the responsibilities of concerned authority & other stake holders. This study is an attempt in this direction. It is designed to analyze the functions of warehouses according current laws in the study period and the critical analysis of it, also for comparison of new laws & regulations with the existing one.

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