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## **A Review of Availability of Capacity in India for storing foodgrains**

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**Abstract:** *Agricultural land held by India is second highest in the world having 179.9 million hectares under cultivation. The country has emerged as a major player in agriculture in the global scenario. Agriculture accounts for 15% of GDP and 9.4% of India's total exports in 2017-18. In 2016-17, estimated total food grains production in India reached an all-time high of 275.68 million tonnes (MT). Rice and wheat production stood at 110.15 MT and 98.38 MT respectively. The government has to procure food grains from the farmers to fulfil the requirement of supply in PDS but lacks adequate space to store it. The Food Corporation of India (FCI) being central nodal agency has to depend on other agencies like SWC/CWC to meet requirement of storage space. Further, India has insufficient number of grain silos (modern storage facilities), and covered godowns with adequate storage capacities. Due to lack of storage space in critical states like Punjab Haryana particularly Wheat as the procurement for the same is limited between 30-45 days, hence, wheat has to be stored in unscientific storage locations for 30-120 days. Although, the quantum of such storage of grains at such locations is 1-3 million MT which is around 2.5% of the total production but needs proper attention of the preserving authorities to avoid any damage to foodgrains. Besides this, there are certain open storage locations called CAP storage (Cover and Plinth) across the country. Obviously, such storage of grains is at the mercy of the vagaries of the nature like unexpected rainstorms and weather makes matters worse. Therefore, food supply chain in India needs huge investment in providing proper storage facilities. The warehousing capacity available in India, in public, cooperative and private sector is around 925 million MTs and as per Government's estimates, additional 35 million MTs warehousing capacity is required during the 12th Five Year Plan period for the storage of all major crops. The objective of this paper is to explore the issues and challenges being faced in the storage of food grains and attempt to find possible solutions. The study is based on secondary data available on the current demand and supply scenario in the backdrop of key Acts/Policies in this sector.*

**Keywords:** *storage infrastructure, demand and supply, potential, challenges. SWC, CWC, PDS, MSP*

### **I. Introduction**

It has been estimated that about 65% of their total produce are held by the farmers for their consumption and use which is stored in a crude and unscientific method. The quantum of post-harvest wastages and losses of agricultural produce are due to inefficient supply chain management. The reason for such huge post-harvest losses mainly attributes to lack of scientific storage facilities and improper transportation, poor front end infrastructure, such as inadequate warehousing facilities, redundant food processing technology and farmers' inaccessibility to value-added services.



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The quantity of foodgrain particularly wheat & paddy brought by farmers to the designated market places is procured by the central agency & state agencies on behalf of central govt. for central pool and are shifted to the nominated storage depots. The stock stored in the warehouses particularly in the states like Punjab & Haryana remain in storage for longer period say up to 1 year & beyond due to want of off-take of stock by allottees like Targeted public distribution system (TPDS). Such long storage, if not taken proper care of, causes damage to the stock. Since the stock stored in the warehouse is not lifted, the storage space cannot be utilized for fresh arrivals of the ensuing season. For want of covered storage space, FCI and other storage agencies are resorting to CAP storage (Open storage) of food grains. As per the scientific storage policy laid down for open storage, the stock is required to be turned over every six months and under no circumstances should food grains be stored under CAP cover for more than a year.

## **II. Literature review**

The problem of wastage of food grains in a country like India where 22 percent of Indians fall below the official poverty line is nothing but criminal. Even with less than 60% crop yield, the storage capacity in the country is woefully short. As in June 2018, FCI was holding 68.03 million MT of wheat and rice against the buffer and strategic norms of 41.12 million MT (incl. 5 million MT as strategic reserves) of food grains. This is against the backdrop of an increased production of principal food grains approximately to 275.68 million MT in 2016-17, an increase of around 25% during the decade. With increased procurement of food grains by Food Corporation of India (FCI), the nodal agency of central govt. entrusted with the task of feeding the millions of Indians, the storage losses tend to increase. The losses are due to both non-availability of covered storage facilities with the agencies and also due to poor management of available storage at the farm level and the longer storage period at organized storage levels.

The post-harvest losses in India amount to 12 to 16 million metric tons of food grains each year, an amount that the World Bank stipulates could feed one-third of India's poor. The monetary value of these losses amounts to more than Rs.50,000Cr per year (Singh, 2010). Ramesh (1999) reported that high wastage and value loss are due to lack of storage infrastructure at the farm level.

As per estimates available, the storage gap in warehousing capacity in the next 5 to 10 years is around 35 million MT. There is therefore a need of not only sufficient modern warehousing capacity but also ensuring scientific storage methodology to be followed in the storage facilities existing.

## **III. Objective**

The objective of this paper is to explore the availability of storage space for food grains in the country, the losses which are occurring due to non-availability of proper covered storage and the scientific storage practices which are being flouted in some cases. The motivation to carry out research in this area has been due to lack of storage space in critical states like Punjab Haryana particularly for Wheat as the procurement for the same is limited between 30-45 days,

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leading to storage of wheat in unscientific storage locations though for 30-120 days.

#### **IV. Methodology**

The research is based on secondary data available in the electronic information domain particularly websites of central govt. like FCI, ministry of agriculture & farmers welfare and ministry of statistics & programme implementation and studies carried out by the Comptroller and auditor General of India report on storage management and movement of food grains in FCI. The paper attempts to explore the issues in the food grain storage sector using facts and figures and draw conclusions on the same.

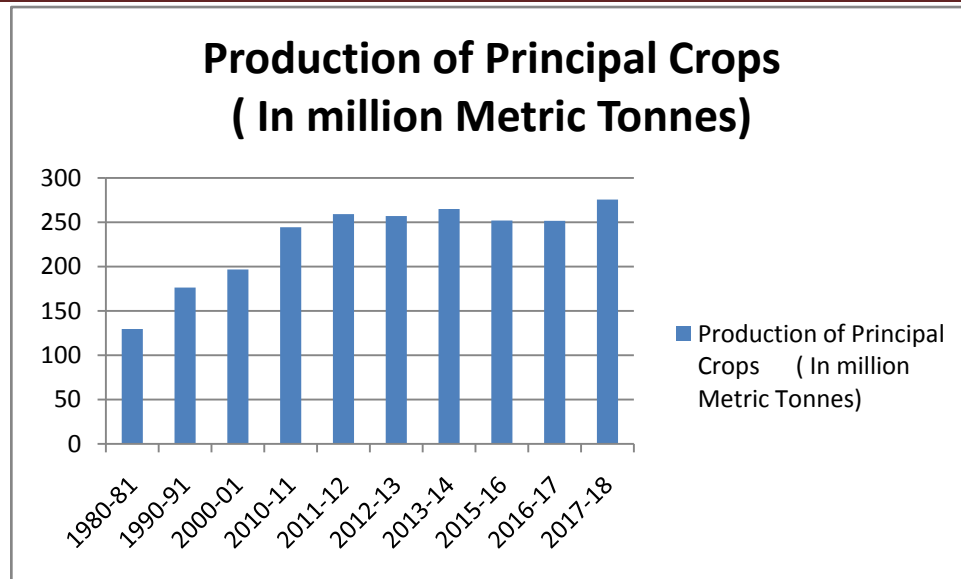
#### **V. Discussion and analysis**

##### **Food grain production in India**

The agricultural sector in India accounts for about 16% of GDP and 10% of export earnings. India's arable land area of 159.7 million hectares (394.6 million acres) is the second largest in the world, after the USA. Its gross irrigated crop area of 82.6 million hectares (202.5 million acres) is the largest in the world. It ranks among the top three global producers of many crops like wheat, rice, pulses, cotton, peanuts, fruits and vegetables. In spite of these achievements, the crop yields in India are still around just 30% to 60% of the best sustainable crop yields achievable in the farms of developed countries. These are likely to be negated in the coming decades due to scientific and technologically improved crop production measures which would increase the quantity of food grains harvested and therefore the storage requirement would further increase.

About 65-70% of the total food grains produced in India is retained by farmers varying from state to state for their self-consumption or meeting their other financial requirements. The food grains at farm level are stored in traditional as well as in modern storage structures. Food grains are stored in bulk in these storage structures, which are neither rodent proof nor moisture proof. There are estimates that substantial quantity of food grains (about 6.0% to 10% of total production) are damaged in these storage receptacles due to moisture, insects, rodents and fungi and also due to transportation.

After harvest, major quantity of the grains are being stored for the central pool by FCI, State government agencies (SGAs). The production of principal crops are depicted in the following chart:



**Fig 1.**Agriculture production of principal crops in India

### **Operational framework of food grainsmanagement**

FCI is the only government agency entrusted with movement of food grains from the procuring states to consuming states through a network of storage infrastructure owned or hired by FCI in the whole of India. These food grains are distributed by the state governments through TPDS and other welfare schemes (OWS). The food grains are also disposed of in the open market through sale under open market sales scheme (OMSS) to contain inflationary tendencies and generating storage space in the states. While four months requirement of food grains for issue under TPDS and OWS are earmarked as operational stocks, the surplus over that is treated as buffer stock and physically both buffer and operational stocks are merged intone and are notdistinguishable.

For distribution of food grains under TPDS and OWS, the GoI makes monthly allocation of food grains to the states and UTs on the basis of their average annual offtake of food grains from the Central pool.



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Year	Procurement ( in LMTs)	Offtake( In LMTs)
2006-07	343	367
2007-08	399	375
2008-09	568	396
2009-10	574	500
2010-11	567	530
2011-12	634	563
2012-13	555	556
2013-14	501	527
2014-15	483	504
2015-16	513	491
2016-17	460	474
2017-18	501	452

**Table 1:** Procurement vis-vis off take of food grains for central pool

From the above figure, it can be seen that even though the procurement increased only marginally from 568 LMT to 574 LMT in 2008-09 to 2009-10, the corresponding offtake was 396 LMT and 500 LMT respectively during the same period. This is leading to lesser storage space being made available for the stock of the ensuing season. Unless the stock allocated is lifted by the states and the UTs, the future stocks would be lying in the open which leads to losses.

### **Storagemanagement**

Storage management is an important link in the whole system of procurement of food grains to its distribution for consumption. At the trader's level and urban organizational storage level, the food grains are stored either in covered storage and open storage. In some cases, proper plinth is not provided, and in the other cases, dunnage is not provided and food grain bags are stacked directly on the ground causing huge damage of food grains. In some cases, the open storage is done in unprotected open ground without compound wall or fencing, resulting in lot of pilferage and damage by animals. Unless adequate storage structures as per the prescribed specifications are made available, the post-harvest storage loss cannot be curbed.

Even though FCI is the main government agency for the procurement and distribution of food grains held in the central pool, it is also responsible for the management of food grains in the central pool held by State government agencies (SGAs) and Decentralized procurement states (DCP). Due to increasing procurement of food grains from 2008-09 onwards, FCI has had to depend on hired space made available from CWC, SWC, SGAs and private parties as its own storage capacity was insufficient to accommodate the central pool stock of food grains. As mentioned earlier, the food grain stock is parked in covered godowns, silos and uncovered godowns called CAP.

The warehousing capacity available in India, with various agencies/sectors is as follows:

( Figs in LMTs)

As on	Storage Capacity with FCI	Storage Capacity with State Agencies	Total
01-04-2012	336.04	341.35	677.39
01-04-2013	377.35	354.28	731.63
01-04-2014	368.9	379.18	748.08
01-04-2015	356.63	352.59	709.22
01-04-2016	357.89	456.95	814.84
01-04-2017	352.71	420.22	772.93
01-04-2018	362.5	480.53	843.03

**Table 2:** Warehousing capacity available in India

The storage capacity available with FCI including hired is as under:

As on	Covered			CAP(Open)			G.Total
	Owned	Hired	Total	Owned	Hired	Total	
31.03.2018	128.42	208.06	336.48	26.02	0	26.02	362.5
31.03.2017	128.19	198.5	326.69	26.02	0	26.02	352.71

**Table 3:** Storage capacity available with FCI (including hired)

With the increasing food grains stock in the central pool held by FCI and SGA excluding the DCP states, the storage gap with FCI has shown an increasing trend as given below:

Year	Central pool stocks minus food grains procured by DCP states (in MLT)	Total storage capacity (owned and hired) available with FCI as on 31 March (in LMT)	Gap in storage capacity with FCI
2007	210.07	252.07	-
2008	298.89	238.94	59.95
2009	419.94	252.79	167.15
2010	468.72	288.36	180.36
2011	541.38	316.1	225.28
2012	667.89	336.04	331.85

**Table 4:** Gap in storage capacity with FCI





### **Storage of food grains in openspace**

Normally storage in open in the form of CAP is supposed to be resorted to during peak procurement seasons. The storage in the CAP should not be more than a year with at least one turn-over of the stock every 6 months to retain the quality of the food grains. Further, for proper aeration, the cover is to be removed at least 2 to 3 times in a week.

Unfortunately, lot of stock is lying in the open where even the plinths are not available<sup>17</sup>. During procurement season, for want of adequate CAP storage facilities, stocks are simply dumped/stacked on open spaces wherever feasible and much of these stock gets damaged because of seepage of water from the ground in the absence of proper plinth or height of ground or due to floods and rains.

### **Poor condition of storagefacilities**

Utter disregard to safe and scientific storage practices have resulted in excessive damages to food grains in the central pool maintained by SGAs in Punjab and Haryana. In addition, failure to ensure early disposal of damaged stock led to blockage of storage space.

### **Efficient capacityutilization**

For optimum capacity utilization of the existing capacity, timely and proper planning of movement and distribution of food grains across pan India is a pre-requisite. Despite storage constraints in FCI, the utilization of existing storage capacity in various states/UTs was less than 75% in majority of the months during the period 2006-07 to 2011-12. However, the capacity utilization may not be optimal due to reasons of sudden unanticipated increase in offtake for a particular region or due to unanticipated decrease in procurement.

## **VI. Conclusions andRecommendations**

From the foregoing facts and figures, it is concluded that unless some very drastic measures are taken to improve the storage capacity of food grains, the wastage of food grains cannot be curbed which otherwise could be utilized for feeding millions of poor people. From augmenting the existing storage capacity by construction of new ones through various means both public and private including partnerships, the need of the hour is to revamp the existing storage management of food grains in the country and make people and agencies accountable and responsible for their jobs of ensuring food security. Integration of the entire storage business in India through MIS would go a long way in ensuring timely decisions are taken for optimum utilization of the existing facilities. Some of the recommendations, not in any particular order, for ensuring that the storage losses are minimized are discussed asunder:

- With proper foresight and planning in lifting the stock of the central pool in time from SGAs, money paid as hiring charges and carry over charges to SGAs can be utilized for construction of new storagespaces
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- Adequate manpower and supervision is required for scientific and safe storage in CAP storage.
  - To save costs, proper plinths should be constructed in vacant government lands which can be used for temporary storage of food grains during peak procurement seasons.
  - Hiring charges of FCI would continue to shoot up substantially in future unless owned storage capacity is augmented proportionately as against creation of storage capacity for guaranteed hiring by FCI
  - Alternative route like Private Entrepreneurial Guarantee (PEG) scheme to be encouraged vigorously.
  - Need of the hour is to create a central data base with daily updates from all warehouses as to the availability of covered, CAP storages and silos to better manage the stocks with adequate responsibility and accountability accorded with adequate and competent manpower with high level supervision and quick decision making freedom and delegation of powers given to the nodal heads.
  - Timely and systematic evacuation planning can lead to utilization of vacant storage space and minimize payment of carry over charges to SGAs which can come in handy for construction of covered storage
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- Adequate planning well in advance for requisitioning of railway rakes can lead to minimization of losses and increase the economic and efficient utilization of available storage spaces.
  - Proper integration of all regions with an efficient and robust MIS manned by efficient and competent professionals will definitely bring about the much needed change in the storage sector.
  - Intervention of state governments in identifying and handing over land for construction of covered storage spaces without undue delay in obtaining of various clearances will speed up addition of storage capacity.
  - FCI is yet to implement the transportation of food grains from farm to silos by specially designed trucks which was an important element of modernization and up gradation of bulk grain handling infrastructure

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