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Growth Pattern of Food Grain Storage Capacity in India: An Agency-wise Analysis

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Abstract

The study examines the trend and growth pattern in food grain storage infrastructure in India, with special emphasis on Punjab, the leading state in grain production in the country. Secondary data were extracted from authentic and published reports like WDRA, CWC, FCI and Punjab Statistical Abstracts. The paper highlights that while the total warehouse capacity of the country increased progressively from 300 to more than 1000 lakh metric tonnes between 2010-11 and 2023-24, growth across different agencies varied considerably. SWCs led with the highest growth of 7.33 per cent, while FCI and CWC followed with 1.31 per cent and 1.03 per cent respectively, indicating merely a moderate expansion in central storage infrastructure. In Punjab, the warehousing capacity recorded a marginal decline of -0.65 per cent CAGR during the same period, indicating stagnation and uneven growth between state and central agencies. CWC has made reasonable progress in the state, while other agencies, such as the Punjab State Warehousing Corporation and the Punjab State Civil Supplies Corporation, have shown a decline. The findings underscore the pressing need for policy intervention to establish decentralised, technology-enabled and farmer-accessible warehousing systems, thereby reducing post-harvest losses and strengthening national food security.

Keywords: Food grain storage, Warehousing, CAGR, FCI, Post-harvest losses

JEL Classification: Q13, Q18, C22, L60

Introduction

In India's vast agrarian landscape, postharvest grain storage always involves implications for the stakeholders. Storage at farm level, particularly in grain-surplus states like Punjab; is that narrow window of opportunity between harvest and market, between sowing and safety. Without proper facilities, the gap between food availability and agricultural production widens into a chasm of wastage and economic vulnerability. When grains are eaten by insects or wasted in godowns before reaching consumers, it is not only a technical failure but a systemic failure that can be found throughout the country's food security system (Kashish and Dhawan, 2016; Guru and Mridula, 2021). Almost 10 per cent of food grains have been reported to go waste annually after harvesting due to improper storage and transportation (Sharma et al*.,* 2023). India's overall warehousing capacity in the public and private sectors has increased, but it is hardly proportionate to the expansion in agricultural production. Moreover, majority of the godowns are poorly ventilated, lack pest control, and any digital monitoring systems (Sendhil et al*.,* 2024).

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Grain storage structure in India has national players such as the Food Corporation of India (FCI), state players like the State Warehousing Corporations (SWC), the Central Warehousing Corporation (CWC), and even private godown operators; however, there are overlaps, gaps and inconsistencies. Each of them has its own specific role in the system of post-harvest in India, and they do not work as a unit.

Food Corporation of India (FCI) since its establishment in 1965, has taken over the procurement of food grains, storage and transportation of these to all corners of the country so that no Indian goes to bed hungry. The agency also has certain storage facilities, as well as rented godowns, and outsources the services of loading, quality inspection and pest control to third parties. The other key component is the CWC- Central Warehousing Corporation. It is another important pillar in this storage framework. Unlike FCI, which is more policy and procurement-focused, CWC is more like a business entity. It has over 400 warehouses in India, consisting of scientific godowns equipped with grading, cleaning, and fumigation facilities. It also caters to the needs of the government as well as farmers, traders, and agri-exporters. CWC warehouses are of better quality than most of the public godowns, making them reliable in long-term storage (Rath et al., 2021). But these facilities are inaccessible and unaffordable to most of the smallholders, especially those who are located in remote villages. Then there are the State Warehousing Corporations (SWCs). They are state-level extensions of the CWC to meet regional demands. To enhance the involvement of private players, the Warehousing Development and Regulatory Authority (WDRA) has facilitated issuance of the negotiable warehouse receipts (NWRs) by them so that farmers may pledge them when taking loans. The majority of private godowns are found in semi-urban areas and are built for commercial clients. Small farmers who are mostly located in remote villages are not aware of these facilities. Also they cannot afford the charges. Patowary and Sarma (2025) emphasised that the benefits of the democratisation of private warehousing can only be enjoyed bya few large-scale producers and agri-firms until accessibility becomes democratic. Their godowns are in good condition as private operators are likely to maintain them well, since their reputation is at stake. Government godowns, on the other hand, are more likely to become poor due to unfriendly manpower and bureaucratic red tape. Junaid-ur-Rehman et al. (2023) contended that if India intends to reduce the amount of grain loss and enhance the shelf life, there is a need to enhance the maintenance funds of government godowns and monitor them separately.

The setup of grain storage in India though gigantic, is not adequate from farmers' side. FCI is for food security, but chokes with bulk. CWC and SWC are for facilities, but not available to all farmers. Private storage though modern is expensive. So, this paper was designed to see the overtime changes in number and storage capacity of warehouses in India. The study also tried to highlight the region wise as well as agency storage capacity of warehouses in India in general and Punjab state in particular.

Data Sources and Methodology

The present study is based on secondary data from year 2010-11 to 2023-24. The information pertaining to storage capacity, number of warehouses and agency wise storage capacity and their number in India as well as region wise were collected to fulfil the objectives of the study. The information were collected from various published sources like the Annual Reports of Warehousing Development and Regulatory Authority (WDRA), Annual Reports of CWC, various issues of Agricultural Statistics at a Glance, and Statistical Abstracts of Punjab. The sources were chosen on the basis of their relevance, authenticity, and sufficiency in providing data related to food grain storage, capacity, and distribution at both the national and state levels.

Analytical Tools

Descriptive statistics like averages and percentages were calculated. Apart from these, Compound Annual Growth Rate (CAGR) was examined to see the progress and over time performance of different warehousing agencies in India as well as at region level.

Compound Annual Growth Rate (CAGR)

To measure the steady, long-term growth pattern of important agricultural data pertinent to food grain storage, CAGR was obtained. This figure is the geometric mean rate of change over the study period and the storage capacity of warehouses would have increased had the growth been smooth and compounded each year. CAGR is formulated as:

$Y_t = ab^t$

Log transformation of the above function is

$\text{In } Y_t = \text{In a} + t\,(\text{In } b)$

$\text{In } b = \text{In } (1 + R)$

$b = 1 + \text{r}$

$\text{r} = \text{b} - 1$

$\text{r} = [\text{Antilog (In } b) - 1]$

The compound growth rates were calculated by using the formula

CAGR (%) = r × 100

where,

Y_t = area/production/productivity in year t

a = intercept

b = regression coefficient

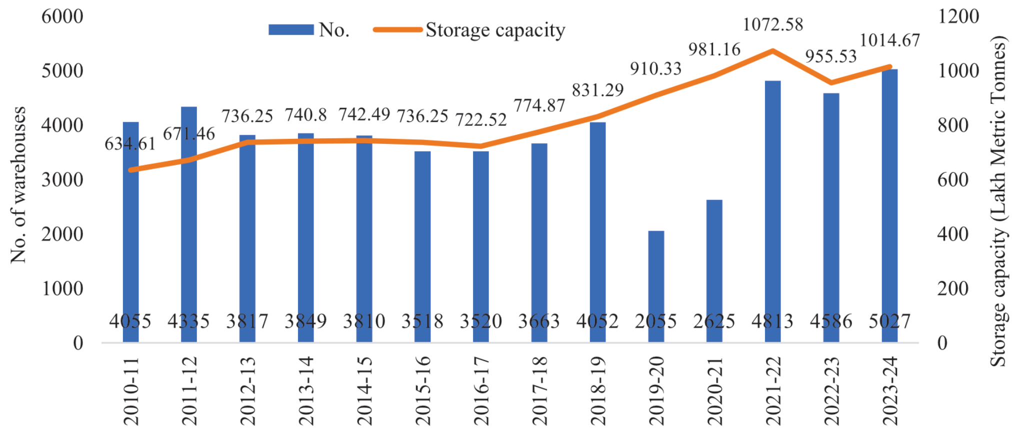
r = CAGR

Results and Discussion

Warehouses are the backbone of the supply chain by minimising post-harvest losses, price stabilisation through regulated storage and smooth trade within and abroad. In India, the expansion of warehousing facilities has been shaped by rising agricultural output, cropping pattern diversification, growing industrial goods storage requirements and policy initiatives to enhance logistics and supply chain management. This section highlights the overtime changes in the number and storage capacity of warehouses in India in general and agency wise storage capacity of warehouses in India in particular. The study also highlighted the region wise storage capacity of warehouses in India.

Number and storage capacity of warehouses in India

Figure 1 highlighted the trends in the number of warehouses and their storage capacity in India from the period 2010-11 to 2023-24. The data reveals fluctuations in the number of warehouses over the years but the overall storage capacity has depicted a relatively steady growth. In 2010-11, there were around 4000 warehouses with a storage capacity of 634.61 lakh metric tonnes in India. The number of warehouses has increased to 4335, accompanied by a rise in storage capacity to 671.46 lakh metric tonnes in the next consecutive year 2011-12. Although, the number of warehouses declined during from 3852 in 2012-13 to 3520



Source: Various Annual Reports of CWC and FCI, and indiastat.com

Fig 1: Number and storage capacity of warehouses in India

in 2016-17, but storage capacity remained relatively stable and even improved thereafter and reachedat 742.49 lakh metric tonnes in 2014-15 and declined marginally to 722.52 lakh metric tonnes in 2016-17. A recovery phase began in 2017-18, with warehouses increased to 3,663 and storage capacity also increased to 774.87 lakh metric tonnes. In the year 2021-22, the storage capacity peaked at 1,072.58 lakh metric tonnes, while the number of warehouses rose sharply to 4,813. During the year 2023-24, the number of warehouses reached at highest level with a value being 5027, with storage capacity increased to 1,014.67 lakh metric tonnes. Overall, the trend indicates a long-term expansion of storage capacity alongside structural adjustments in warehouse numbers. The Department of Food and Public Distribution (GOI, 2023) also demonstrated a similar trend, saying that the total covered storage under FCI, CWC, and SWCs increased significantly after 2015 because of the launch of the Integrated Scheme for Agricultural Marketing (ISAM) and the Private Entrepreneurs Guarantee (PEG) Scheme.

State wise number and storage capacity of warehouses in India

The information pertaining to state wise storage capacity of warehouse in India is depicted in Table 1. It indicates major differences at the regional level in terms of warehouse infrastructure. The states like Punjab, Madhya Pradesh, and Haryana continue to be major players in terms of production as well as storage capacity at the national level, although each state witnessed varying growth patterns. In TE 2023, Punjab recorded the highest storage capacity at 143.83 lakh metric tonne, despite a decline from 231.58 lakh metric tonnein TE 2021, reflecting an overall negative CAGR of 1.89 per cent per annum. The storage capacity of warehouses in Madhya Pradesh was 62.33 lakh metric tonnes in TE 2015 which increased to 154.89 lakh metric tonnes in TE 2018 but in the recent most study period it declined to 102.11 lakh metric tonne. The storage capacity of warehouses in Haryana was 76.74 lakh metric tonnes in TE 2015 which sharply increased to 105.67 lakh metric tonnes in TE 2018 and further increased to 125.08 lakh metric tonnes in TE 2021, but in TE 2023 it again declined at reached at 76.52 lakh metric tonne. The storage capacity of warehouses in Uttar Pradesh showed a continuous decline from 83.92 lakh metric tonne in TE 2015 to 52.77 lakh metric tonnes in TE 2023, with negative growth of -5.50 per cent per annum. Andhra Pradesh also experienced a steep contraction, falling to 25.22 in TE 2023, with a -9.57 per cent CAGR, indicating a significant decline. Chhattisgarh, with 22.62 in TE 2023, remained broadly stable over time and showed no significant growth over the time. Tamil Nadu recorded 21.76 in TE 2023 and maintained relative stability with a positive CAGR of 1.76 per cent. Overall, while Punjab and Madhya Pradesh continue to dominate in absolute terms, several states exhibit declining trends, highlighting regional disparities and structural shifts over time.

Agency wise number and storage capacity of warehouses in India

Table 2 exhibits the agency wise number and storage capacity of warehouses in India from 2010-11 to 2023-24. The total number of warehouses in the country has increased from 4055 in 2010-11 to 5027 in 2023-24, although some fluctuations were observed during the mid-2010s. The total number of CWC warehouses in India ranged between as low as 412 to as high as 564. The number of warehouses under CWC has increased from 470 in 2010-11 to 564 in 2023-24. State Warehousing Corporations (SWCs) remained the dominant agency throughout the period, with the number of warehouses rising steadily from 1595 in 2010-11 to 2,216 in 2023-24 and storage capacity more than doubled from 216.04 to 515.78 lakh mt during the above mentioned period. Conversely, the number of FCI warehouses increased from 2000 in 2010-11 to 2236 in 2011-12, but declined to 1,265 in 2016-17, and then recovered consistently to 2247 in 2023-

Table 1: State wise storage capacity of warehouses in India **(Lakh metric tonnes)**

States/UTs	TE 2015	TE 2018	TE 2021	TE 2023	CAGR (%)
Punjab	196.92	234.71	231.58	143.83	-1.89^NS
Madhya Pradesh	62.33	154.89	139.54	102.11	-1.75^NS
Haryana	76.74	105.67	125.08	76.52	2.84^NS
Uttar Pradesh	83.92	60.48	57.01	52.77	-5.5***
Andhra Pradesh	62.36	26.51	27.29	25.22	-9.57*
Chhattisgarh	23.65	19.67	25.55	22.62	0.00^NS
Tamil Nadu	21.78	29.04	29.96	21.76	1.76^NS
Maharashtra	45.29	32.57	26.43	18.21	-9.95***
Telangana	-	21.92	26.45	17.89	-
Rajasthan	34.72	21.52	22.48	17.73	-7.94***
West Bengal	18.00	18.01	14.46	14.93	-4.02^NS
Bihar	11.07	18.82	18.54	13.56	3.28^NS
Karnataka	26.14	18.35	11.24	10.55	-11.06***
Odisha	14.33	12.43	12.97	9.02	-4.06*
Gujarat	15.13	9.12	8.31	8.57	-6.88***
Kerala	7.98	6.20	6.47	7.26	-1.41^NS
Assam	6.03	4.98	4.12	5.41	-2.62^NS
Jharkhand	2.25	3.04	3.27	4.97	5.31^NS
Delhi	4.66	3.67	3.40	3.27	-4.31***
Uttarakhand	3.08	2.65	2.60	2.82	0.54^NS
Jammu & Kashmir	1.75	2.62	2.60	2.24	3.85**
Nagaland	0.42	0.46	0.47	0.97	7.02**
Himachal Pradesh	0.47	0.45	0.68	0.90	8.25***
Manipur	0.31	0.32	0.50	0.64	8.96***
Puducherry	0.56	0.00	0.61	0.50	-
Tripura	0.65	0.57	0.62	0.48	-3.92^NS
Arunachal Pradesh	0.25	0.30	0.32	0.41	5.73***
Mizoram	0.26	0.62	0.39	0.32	0.81^NS
Meghalaya	0.37	0.23	0.22	0.29	-3.61^NS

Source: Various issues of Agriculture Statistics at a glance
*Notes: *,**,*** indicate the level of significance at 1,5 and 10 per cent respectively; ^NS denotes Non-Significant*

24. However, storage capacity of FCI increased overall from 316.10 to 371.30, peaking at 461.50 lakh mt in 2021–22. Central Warehousing Corporation (CWC) warehouses remained relatively stable in number, while their storage capacity showed a gradual increase from 102.47 to 127.59 lakh mt from the year 2010-11 to 2023-24. Consequently, the total storage capacity increased significantly from 634.61 to 1,014.67 lakh mt during the entire study period, indicating strengthening of warehousing capacity over time, despite inter-year variations. On balance, the trend suggests that although SWCs are dominant players in terms of warehouse storage capacity, CWC has shown steady growth, while that of FCI has fluctuated more in recent years. This implies a slowly building shift towards dependence upon state-level warehousing corporations for the management of storage infrastructure in India.

Agency wise and region wise storage capacity of warehouses in India

i. Central Warehousing Corporation (CWC)

The Central Warehousing Corporation (CWC) is an important public sector organisation tasked with offering

Table 2: Agency wise number and storage capacity of warehouses in India

Year	Number				Storage, Lakh Metric Tonnes			
	SWCs	FCI	CWC	Total	SWCs	FCI	CWC	Total
2010-11	1595	2000	470	4055	216.04	316.1	102.47	634.61
2011-12	1631	2236	468	4335	234.61	336.0	100.85	671.46
2012-13	1659	1689	469	3817	250.93	377.3	108.02	736.25
2013-14	1689	1689	471	3849	266.96	368.9	104.94	740.8
2014-15	1699	1647	464	3810	270.95	356.6	114.94	742.49
2015-16	1723	1347	448	3518	270.03	357.8	108.42	736.25
2016-17	1820	1265	435	3520	270.04	352.7	99.78	722.52
2017-18	1929	1299	435	3663	308.77	362.5	103.60	774.87
2018-19	2145	1485	422	4052	340.83	388.6	101.86	831.29
2019-20	2093	1900	412	2505	397.24	412.0	101.09	910.33
2020-21	2203	2000	422	2625	439.12	417.5	124.54	981.16
2021-22	2190	2199	424	4813	502.60	461.5	108.48	1072.58
2022-23	2205	1923	458	4586	504.01	337.4	114.12	955.53
2023-24	2216	2247	564	5027	515.78	371.3	127.59	1014.67

Table 3: Region wise storage capacity of CWC in India, TE 2023-24

(Lakh metric tonnes)

Region	Owned	Hired	Open	Total
Hyderabad	12.68	0.48	2.78	15.95
Chandigarh	12.47	0.21	1.96	14.64
Mumbai	6.72	4.13	1.93	12.78
Lucknow	10.20	0.23	0.26	10.65
Bhopal	9.13	0.03	0.04	9.20
Chennai	7.22	0.65	0.99	8.86
Kolkata	4.72	2.00	0.96	7.68
Ahmedabad	4.09	1.37	1.76	7.22
Jaipur	5.76	0.61	0.77	7.15
Bengaluru	4.79	0.56	0.47	5.83
Delhi	3.45	0.98	0.43	4.86
Bhubaneshwar	4.00	0.36	0.17	4.53
Patna	2.18	0.35	0.66	3.19
Guwahati	1.20	0.36	0.38	1.95
Kochi	1.93	0.00	0.00	1.93
Panchkula	0.00	0.00	0.00	0.00
Raipur	0.00	0.00	0.00	0.00

Source: Various Annual Reports of CWC

scientific storage and warehousing services all over India. It is charged with the mandate of ensuring safe storage and efficient handling of food grains and other agricultural products. The information pertaining to region wise storage capacity of CWC warehouses in India during the period TE 2023-24 is portrayed in Table 3. Among the different regions, Hyderabad region accounts for the highest total storage capacity at 15.95 lakh metric tonnes, largely dominated by owned warehouses (12.68), followed by Chandigarh with 14.64 lakh metric tonnes. Mumbai ranks third with 12.78 lakh metric tonnes, where hired storage forms a substantial share (4.13), indicating greater reliance on hired facilities in this region. Some regions such as Lucknow (10.65) and Bhopal (9.20) also exhibit predominantly owned storage capacities with minimal dependence on hired or open storages. Chennai (8.86), Kolkata (7.68), Ahmedabad (7.22), and Jaipur (7.15) represent mid-level capacity regions with a mixed composition of owned, hired and open storage. Lower storage capacities are observed in Bengaluru (5.83), Delhi (4.86), Bhubaneswar (4.53), and Patna regions (3.19). The North-Eastern region, represented by Guwahati, has a relatively limited capacity of 1.95 lakh metric tonnes, while Kochi records 1.93 lakh metric tonnes entirely under owned storage.

ii. State Warehousing Corporation (SWC)

State Warehousing Corporations (SWCs) are the state-level equivalents of the Central Warehousing Corporation, jointly created by the respective State Governments and the Government of India. SWCs significantly assist in decentralising storage infrastructure so that food grains and other commodities are well stored and efficiently handled nearer to the hubs of production and consumption. Table 4 depicts the region-wise storage capacity of State Warehousing Corporation (SWC) in India. Madhya Pradesh accounted for the highest total storage capacity at 240.86 lakh metric tonnes, with a predominant reliance on hired storage (178.35), followed by constructed (24.39) and plinth storage (38.12) during TE 2023-24. Punjab ranks at second position with the storage capacity of 50.81 lakh metric tonnes, largely supported by constructed storage (27.09), while storage capacity in Uttar Pradesh was 37.69 lakh metric tonnes, also dominated by constructed capacity. States like Chhattisgarh (23.89), Telangana (23.46), and Maharashtra (19.83) exhibit moderate storage capacities, with Telangana showing a relatively higher dependence on hired storage structures. Haryana (18.73), Karnataka (18.20), Rajasthan (16.09), and Andhra Pradesh (15.35) form the next tier, primarily

Table 4: Region-wise storage capacity of SWCs in India, TE 2023-24

(Lakh metric tonnes)

Region	Constructed	Hired	Plinth	Total
Madhya Pradesh	24.39	178.35	38.12	240.86
Punjab	27.09	22.33	1.39	50.81
Uttar Pradesh	26.62	11.05	0.02	37.69
Chhattisgarh	20.16	3.73	0.00	23.89
Telangana	5.35	18.11	0.00	23.46
Maharashtra	16.73	3.10	0.00	19.83
Haryana	17.31	1.42	0.00	18.73
Karnataka	17.87	0.33	0.00	18.20
Rajasthan	15.55	0.54	0.00	16.09
Andhra Pradesh	8.40	6.95	0.00	15.35
West Bengal	1.37	7.71	0.00	9.08
Bihar	5.20	3.02	0.00	8.22
Tamil Nadu	7.39	0.31	0.00	7.70
Gujarat	3.95	2.50	0.00	6.45
Odisha	5.20	0.03	0.00	5.23
Kerala	2.01	0.36	0.00	2.37
Assam	1.76	0.17	0.00	1.99
Uttarakhand	1.05	0.24	0.00	1.29
Meghalaya	0.18	0.00	0.00	0.18

Source: Annual Reports of CWC

Table 5: Region-wise storage capacity of FCI in India, TE 2023-24

Region	Storage Capacity (Lakh Metric tonnes)
Punjab	112.60
Uttar Pradesh	46.08
Haryana	45.43
Maharashtra	17.86
Chhattisgarh	15.48
Telangana	13.31
Tamil Nadu	11.68
Rajasthan	11.14
Andhra Pradesh	10.31
West Bengal	10.22
Bihar	10.01
Karnataka	8.91
Gujarat	8.23
Madhya Pradesh	6.45
Kerala	5.97
Odisha	5.78
Assam	5.36
Jharkhand	3.85
Delhi	3.27
Jammu & Kashmir	2.45
Uttarakhand	1.79
Himachal Pradesh	0.89
Manipur	0.62
Nagaland	0.57
Tripura	0.49
Arunachal Pradesh	0.42
Mizoram	0.32
Meghalaya	0.31
Sikkim	0.11

Source: Annual Reports of the Department of Food and Public Distribution

characterized by constructed warehouses with minimal hired capacity. Lower storage capacities are observed in West Bengal (9.08), Bihar (8.22), Tamil Nadu (7.70), Gujarat (6.45), and Odisha (5.23). The remaining states like Kerala (2.37), Assam (1.99), Uttarakhand (1.29), and Meghalaya (0.18) recorded relatively marginal capacities.

iii. Food Corporation of India

The Food Corporation of India (FCI) is the main organisation entrusted with the procurement, storage, and distribution of food grains in India. FCI was formed in 1965 under the Food Corporations Act and has an important responsibility to execute the policies of India's food policy, namely to ensure food security, maintain buffer stocks and price stabilisation.

Punjab region accounts for the largest share of FCI storage capacity at 112.60 lakh metric tonnes, reflecting its central role in procurement and buffer stocking operations (Table 5). The storage capacity of FCI for Uttar Pradesh and Haryana regions was about 46 lakh metric tonnes each for the both the regions during the year TE 2023-24. In the Maharashtra and Chhattisgarh regions the storage capacity of FCI warehouses was about 17.8 lakh metric tonne and 15.48lakh metric tonne in the year 2023-24. Moderate storage capacities were observed in Telangana (13.31), Tamil Nadu (11.68), Rajasthan (11.14), Andhra Pradesh (10.31), West Bengal (10.22), and Bihar (10.01) regions. Some regions such as Karnataka (8.91), Gujarat (8.23), and Madhya Pradesh (6.45) recorded relatively lower but significant capacities. The remaining states, including Kerala (5.97), Odisha (5.78), Assam (5.36), and Jharkhand (3.85), show modest storage capacities.

Agency wise storage capacity of warehouses in Punjab

Tables 6 and 7 are giving the storage capacity of Punjab shared by different state and central agencies from 2010-11 to 2023-24. The overall storage capacity within the state fluctuated throughout the years between 226.33 lakh tonnes during 2010-11 and 192.54 lakh tonnes during 2023-24. Among the state entities, the Food and Supplies Department and MARKFED Punjab had positive but statistically insignificant growth rates (CAGR of 2.98% and 3.53%, respectively), while the State Warehousing Corporation and Punjab State Civil Supplies Corporation had a significant fall with compound annual growth rates of -3.36 per cent and -5.1 per cent, respectively. The Marketing Board, though with a minor proportion in the total capacity, had a significant positive growth rate of 15.9 per cent. For the central agencies, FCI recorded a marginal but notable growth of 2.01 per cent, whereas CWC recorded a significantly higher growth of 26 per cent, reflecting considerable improvement in its warehousing facilities over the study period. Punjab Agro Industries Corporation, on the contrary, recorded a notable fall of -7.79 per cent in its storage facilities. On the whole, the overall warehousing capacity of Punjab showed a marginal but statistically insignificant negative compound annual growth rate (-0.65%), indicating stagnation in the overall state-level storage facility during the period of study.

Conclusions and Policy Implications

The study shows that India's food grain storage capacity has increased significantly over the last decade. The total storage capacity has increased from about 300 lakh metric

Table 6: Agency wise storage capacity of warehouses in Punjab with state agencies

(Lakh tonnes)

Year	Food and Supplies Department	MARKFED Punjab	State Warehousing Corporation	Punjab State Civil Supply Corporation	Marketing Board	Punjab Agro Industries Corporation
2010-11	18.38	44.34	16.57	32.37	0.24	29.92
2011-12	23.36	43.30	19.24	33.36	0.22	29.92
2012-13	18.38	41.03	19.75	33.26	0.21	20.39
2013-14	25.66	29.18	18.93	31.56	0.07	23.31
2014-15	29.32	0.88	20.80	30.79	0.08	20.25
2015-16	46.50	0.74	20.64	29.44	0.07	18.86
2016-17	46.50	13.61	17.57	29.44	0.49	18.86
2017-18	34.30	32.67	17.00	28.64	0.49	10.93
2018-19	42.61	40.95	18.80	28.10	0.33	18.86
2019-20	36.91	39.91	17.82	28.22	0.64	14.82
2020-21	32.23	37.29	16.57	25.56	0.64	-
2021-22	33.37	28.54	12.84	20.46	-	-
2022-23	33.15	28.54	12.84	20.46	-	-
2023-24	21.34	20.41	11.10	12.87	-	-
CAGR (%)	2.98^{NS}	3.53^{NS}	-3.36***	-5.1***	15.9*	-7.79***

Source: Statistical Abstracts of Punjab
*Notes: *indicates the level of significance at 1 per cent; ***indicates the level of significance at 10 per cent; ^{NS} indicates non-significant*

Table 7: Storage capacity of Punjab with central agencies

(Lakh tonnes)

Year	FCI	Central Warehousing Corporation
2010-11	83.22	1.29
2011-12	83.96	0.68
2012-13	103.20	0.35
2013-14	117.04	0.09
2014-15	111.80	7.03
2015-16	109.53	7.06
2016-17	112.79	7.13
2017-18	115.06	7.02
2018-19	115.88	7.02
2019-20	124.74	7.02
2020-21	125.00	7.02
2021-22	111.72	7.02
2022-23	104.55	7.02
2023-24	119.80	7.02
CAGR (%)	2.01***	26.00***

Source: Statistical Abstracts of Punjab
*Notes: *indicates the level of significance at 1 per cent; ***indicates the level of significance at 10 per cent; ^{NS} indicates non-significant*

tonnes in 2010-11 to more than 1,000 lakh metric tonnes in 2023-24. This growth reflects greater government focus on scientific storage, improved logistics and reducing losses after harvest. However, the expansion has not been uniform across agencies or regions. State Warehousing Corporations (SWCs) played the most important role in increasing storage capacity and emerged as the largest contributors. The Central Warehousing Corporation (CWC) also recorded steady growth, suggesting better management and improved quality of storage facilities. In contrast, the Food Corporation of India (FCI) showed uneven trends, indicating changes in procurement practices and storage strategies over time. At the regional level, large differences continue to exist. The states like Punjab, Haryana, and Madhya Pradesh still accounted for a major share of the country's storage capacity because of their high food grain production. However, several of these states, especially Punjab, have shown stagnation or even a decline in recent years. Punjab recorded a small negative growth in overall storage capacity, mainly due to a fall in capacity under state-level agencies, even though CWC storage increased. This indicates a gradual shift from state-managed storage to greater dependence on central and semi-commercial agencies. Overall, the results highlights that there is need for better policy support to develop decentralised, modern, and farmer-friendly warehousing systems to reduce losses and improve food security.

References

Department of Food and Public Distribution (DFPD) 2023. Annual Report 2022-23. New Delhi: Ministry of Consumer Affairs, Food and Public Distribution. Retrieved from https://dfpd.gov.in

Government of India 2022. *National Food Security Act implementation and storage statistics*. Ministry of Consumer Affairs, Food and Public Distribution. Retrieved from https://pib.gov.in

Guru P N and Mridula D 2021. Safe storage of food grains. ICAR-central institute of post-harvest engineering and technology, Ludhiana (Punjab). *Technical Bulletin No.: ICAR-CIPHET/Pub./2021-22/01*, *32*. DOI: 10.5958/2822-0430.2016.00054.8

Junaid-ur-Rehman S 2023. Cereal Grains: Composition, Nutritional Attributes, and Potential Applications, 103.

Kashish and Dhawan V 2016. Withering procurement system of Punjab- A matter of concern. *Indian Journal of Economics and Development* **12**: 139-144. https://www.researchgate.net/profile/Vikrant-Dhawan/publication/301663640_Withering_Procurement_System_of_Punjab-A_Matter_of_Concern/links/57da44e008ae6399a39aee06/Withering-Procurement-System-of-Punjab-A-Matter-of-Concern.pdf

Parameswaran B, Pavithra D, Sabarinathan R, Saravanan M A and Shahid Afridi A 2024. IoT Based Food and Grain Condition Traceability and Controlling System in Warehouses. *International Conference on Advancements in Power, Communication and Intelligent Systems (APCI)* pp 1-6.

Rath R, Saxena R, Sood N and Gupta S 2021. Safe Grain Storage-Post Harvest Technology: An Indian Perspective. *Vantage: Journal of Thematic Analysis* **2:** 38-54. DOI: 10.52253/vjta.2021.vo2i02.04

Sarma H H, Sonowal S, Dutta S K, Bora M, Goswami A and Talukdar N 2024. Exploring various natural and organic approaches for storage and preservation of food grains. *International Journal of Research in Agronomy* **7:** 265-70. DOI: 10.33545/2618060X.2024.v7.i5d.689

Sendhil R, Soni K and Acharya K K 2024. Marketing and Storage of Wheat–Recent Developments.

Sharma S, Semwal A D, Murugan M P, Khan M A and Wadikar D 2023. Grain storage and transportation management. In *Cereal Grains* pp 269-296 CRC Press.

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