

GOVERNMENT OF INDIA
MINISTRY OF CONSUMER AFFAIRS, FOOD & PUBLIC DISTRIBUTION
DEPARTMENT OF FOOD AND PUBLIC DISTRIBUTION

RAJYA SABHA
UNSTARRED QUESTION NO. 2611
TO BE ANSWERED ON 11TH AUGUST, 2026

MODERN TECHNOLOGIES FOR FOODGRAIN STORAGE

2611 SMT. RENUKA CHOWDHURY:

Will the Minister of *Consumer Affairs, Food and Public Distribution* be pleased to state:

- (a) whether Government has adopted new technologies for the storage, preservation and distribution of foodgrains to reduce post-harvest losses and improve food security;
- (b) the details of such technologies, including but not limited to automated grain dispensing systems (such as GrainATMs), hermetic storage technologies, grain moisture meters, smart silos, IoT-based storage monitoring systems and other modern storage solutions; and
- (c) the extent to which these technologies have been adopted across the country, including the number of pilot projects, States covered, storage capacity created and the outcomes achieved so far?

A N S W E R
MINISTER OF STATE FOR MINISTRY OF CONSUMER AFFAIRS,
FOOD & PUBLIC DISTRIBUTION
(SHRIMATI NIMUBEN JAYANTIBHAI BAMBHANIYA)

(a) to (c): The following technologies have been adopted by the Government for storage, preservation and distribution of foodgrains to reduce post-harvest losses and Food Security.

1. Smart Warehouse Project: Under this project, traditional depots are converted into smart warehouses which are equipped with different sensors like smoke sensors, fire sensors & gate opening sensor etc. for monitoring key parameters such as CO₂, phosphine levels, fire hazards, humidity, unauthorized entry and temperature on real time basis.

Smart warehouse system ensures real-time visibility, timely intervention, data-driven decision-making & standardized operations across all depots contributing to ensure safe, secure, and efficient food grain storage and distribution.

All the foodgrain warehouses of Central Warehousing Corporation (CWC) have been transformed into smart warehouses and 150 FCI's owned depots are under transformation.

2. Depot Darpan Portal: Depot Darpan Portal is a digital platform launched by DFPD to enhance the monitoring, transparency and efficiency of food-grain storage depots & warehouses under Public Distribution System (PDS). Key features of Depot Darpan are as under.

- i. Depot/warehouse managers assess the infrastructure of their depots through uploading geo-tagged data regarding infrastructure and operations.
- ii. Portal uses a composite scoring system, assessing depots on two broad categories: infrastructure and operational parameters.
- iii. Based on the scores, depots are graded.
- iv. Validation of data is built into the process via 100% supervisory officer verification.

All the FCI and CWC's owned & hired, foodgrain warehouses are covered under Depot Darpan portal at PAN India level.

3. Silos-Scientific Storage of Foodgrains: Silo storage represents a highly mechanized and modern method of bulk foodgrains storage, ensuring superior preservation and enhanced shelf life. It requires only one-third of the land area compared to conventional storage methods, lowers transit and overhead costs such as those associated with gunny bags, reduces manpower requirements, and ensures consistent quality through scientific handling and storage practices. The system also ensures minimal losses due to theft, pilferage as opposed to foodgrains stored in bags in conventional warehouses. As on 30/06/2026, Steel Silos of 39 LMT capacity at 76 locations are operational in the Country.

4. Installation of CCTV Cameras and use of IoT technologies: This technology transform depot operations by ensuring, Real-time visibility, Timely intervention, Data-driven decision-making and Standardized operations across all depots.

5. Hermetic Storage Solution: Hermetic Cocoon bags are airtight, moisture-resistant storage solutions that preserve grains, pulses, and seeds by creating a low-oxygen environment, naturally preventing insect infestation and mold growth without chemicals. They help maintain the quality, taste, and germination capacity of stored produce over long periods. Easy to deploy and requiring minimal infrastructure, they provide a practical alternative to conventional Covered & Plinth (CAP) storage systems. Their portability and flexibility make them also suitable for remote, hilly, and Northeast regions. CWC has implemented successful pilot projects of the technology from the year 2020 to 2025 at 08 locations.

6. **Grain Dispensing System:** The Grain ATM, branded as Annapurthi, is an automated grain dispensing machine aims to provide an enhanced experience to beneficiaries by offering 24/7 access to food grains with speed, precision and transparency using the existing biometric authentication system. It also aims to enhance access of migrant National Food Security Act / One Nation One Ration Card beneficiaries to their TPDS (Targeted Public Distribution System) entitlements and to ensure exact weighment. The role of the Government of India is limited upto facilitation of willing States. Currently 25 Annapurthi solutions are operational in 4 states viz. 21 in Uttarakhand, 2 in Odisha, 1 in Gujarat and 1 in Meghalaya.
