



GRAIN WITHOUT SHELTER: PAKISTAN'S POST-HARVEST STORAGE CRISIS AND THE PATH FORWARD

POLICY BRIEF

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Executive Summary



Pakistan's agricultural sector, contributing 24% to GDP and employing 37% of the labour force, produces adequate quantities of major crops such as wheat, rice, and maize. However, recurring grain shortages, price volatility, and import dependence stem not from production shortfalls but from systemic inefficiencies in storage and distribution. Post-harvest losses exceed \$1.3 billion annually, highlighting structural weaknesses that undermine food security, fiscal stability, and farmer incomes.

The storage ecosystem is fragmented and outdated. Around 60% of wheat is stored at the farm level using traditional methods such as jute bags, mud bins, and open-air ganjis, exposing grain to pests, moisture, and contamination. Public-sector storage, managed by PASSCO and provincial food departments, is both insufficient and deteriorating, with limited capacity for

modern practices like temperature control and effective fumigation. While modern silo storage exists, it is largely confined to private processors and remains inaccessible to farmers and small traders.

A key structural inefficiency lies in the bag-based supply chain, where grain is repeatedly packed, unpacked, and transported. This leads to high handling costs and losses, estimated at \$1.5 billion annually in Punjab alone. Transitioning to bulk handling and modern warehousing could reduce these costs by up to 65%, offering significant efficiency gains.

Smallholder farmers, who dominate the sector, bear the greatest burden. Lacking storage and access to finance, they are forced into distress sales immediately after harvest when prices are lowest. This dynamic shifts value

to intermediaries, particularly aarhtis, who provide credit and storage at high implicit costs. The absence of formal storage and financing mechanisms limits farmers' ability to benefit from price fluctuations.

Efforts to modernize the system through Electronic Warehouse Receipts (EWRs) present a viable solution. EWRs allow farmers to store produce in accredited facilities and access bank financing, reducing distress sales. Institutional progress, including PMEX's acquisition of Naymat Collateral, has strengthened the link between commodity markets and storage. However, expansion remains constrained by regulatory risks, especially anti-hoarding laws, and the limited inclusion of wheat in the EWR system.

The shift from a government-led storage model to a market-based system has been uneven. Historically, public procurement under the minimum support price regime dominated but proved fiscally unsustainable. Its withdrawal, without a developed private storage market, has increased price instability. Proposed hybrid models involving private participation in

strategic reserves have yet to materialize due to policy uncertainty.

Addressing the storage gap requires an estimated 7.9 million tons of commercial warehousing capacity. Reform priorities include expanding EWRs to wheat, leasing public storage to private operators, and integrating aarhtis into formal systems. Medium-term measures should focus on developing aggregation hubs with drying facilities, improving grading systems, and attracting large-scale private investment.

International experience, particularly India's NBHC model, demonstrates that aligning commodity exchanges with warehouse receipt systems can drive rapid transformation. Pakistan has established foundational elements but requires stronger policy support, legal protections, and investment.

Ultimately, Pakistan's storage challenge is institutional rather than technological. With the right policy framework and sustained commitment, a modern, efficient storage system can reduce losses, stabilize markets, and improve farmer welfare.

Background: Why Storage Matters



Pakistan's agricultural sector contributes approximately 24% of GDP and employs 37% of the labour force.¹ Wheat production is around 29-30 million tons, rice production has reached almost 10 million tons (with a record export of 6 million tons in 2024-25), while maize production has surged to 10 million tons per year, driven primarily by poultry feed demand and some export markets. Yet the country faces recurring episodes of grain scarcity, price volatility, and import dependency; not primarily because it does not grow enough grain, but because it cannot adequately store and distribute what it grows. Across the agricultural sector, post-harvest losses are estimated at over \$1.3 billion annually, which is four times the combined federal and Punjab agricultural budgets.²

The 2022 floods offered a stark illustration: thousands of tons stored in open-air facilities and government godowns were washed away or infested. The 2024 wheat import scandal in which the caretaker government imported nearly 3.6 million metric tons at a cost of over \$1 billion despite adequate domestic stocks underscored how poor stock visibility and storage mismanagement can result in catastrophic fiscal damage.³

Grain storage is thus not merely a logistics question. It is a food security, fiscal governance, and farmer welfare issue simultaneously. Farmers who cannot store their grain are forced into distress sales when prices are at their seasonal lows, typically receiving only a fraction of what the same grain fetches weeks later in the market. Middlemen who control informal storage exploit this asymmetry to accumulate windfall gains.⁴

1 Pakistan Economic Survey 2024-25 https://www.finance.gov.pk/survey/chapter_25/2_Agriculture.pdf

2 Former DG Agriculture Extension Punjab <https://www.nation.com.pk/16-Feb-2023/pakistan-can-significantly-reduce-post-harvest-losses-by-adopting-latest-grain-storage-technologies>

3 <https://profit.pakistantoday.com.pk/2024/07/29/how-the-wheat-import-scandal-was-brushed-under-the-carpet/>

4 PIDE Wheat Policy Analysis 2023-24 <https://api.gov.pk/SiteImage/Policy/Wheat%20Policy%20Analysis%20For%202023-24%20Crop.pdf>

Current State of Grain Storage in Pakistan

Types of storage infrastructure

(a) Farm-Level Traditional Storage

Approximately 60 percent of wheat produced in Pakistan is held at the farm level after harvest for seed, household food consumption, and village use, leaving only around 40% available for commercial trade.⁵ At current production levels of around 29 million tons, this means approximately 17 million tons of wheat passes through farm-level storage annually with minimal protection. Farm-level storage relies on gunny/jute bags, mud bins, earthen pots, and metallic bins, with grain held anywhere from a few weeks to an entire season depending on household need.

In the most primitive form, cover-and-plinth (CAP) storage for wheat, known locally as *ganji*, grain is stored in bags (sometimes on raised platforms) covered with tarpaulin. These structures offer limited protection against insect infestation, rodent activity, moisture ingress, or aflatoxin contamination. For wheat specifically, the primary threats are insect infestation (particularly the khapra beetle and grain weevil) and rodent damage, both of which are largely uncontrollable in unsealed storage.

For rice paddy and maize, the problem is compounded further by moisture. A USAID-commissioned feasibility study found that

sun-drying, on which nearly all smallholder farmers depend, can only bring moisture content down to approximately 20% which is insufficient for safe storage.⁶ Rice paddy must be dried to below 14% moisture within 24 to 48 hours of harvest to avoid aflatoxin development; few farmers have access to mechanical drying equipment.

(b) Public-Sector Godowns

The backbone of formal grain storage has historically been large covered warehouse structures (known as house-type godowns) operated by PASSCO and the provincial food departments. At peak, the public sector's rated wheat storage capacity was estimated at approximately 6 million metric tons.

Agency	Estimated Capacity
Punjab Food Department	~2.45 million MT
Sindh Food Department	~0.71 million MT
PASSCO (Federal)	~1.3 million MT
NWFP/KPK Food Dept.	~0.16 million MT
Balochistan Food Dept.	~0.44 million MT
TCP Godowns	~0.83 million MT
Other Agencies	~0.13 million MT

These godowns suffer from chronic structural problems. Many were constructed in the 1970s-1990s and have deteriorated, making them difficult to fumigate effectively. PASSCO's own

5 https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Grain+and+Feed+Annual_Islamabad_Pakistan_04-01-2020

6 USAID / Pakistan Agricultural Coalition, Private Silo Warehousing for Pakistan's Grains (2020) <https://pac.com.pk/wp-content/uploads/2025/01/USAID-Private-Silo-Warehousing-for-Pakistans-Grains.pdf>

website notes that it has covered storage for only 22% of its total requirement, with the remainder historically stored in ganjis.⁷ Standard phosphine fumigation requires airtight conditions which most godowns do not provide. Temperature and humidity control are largely absent. Grain is predominantly stored in jute bags rather than in bulk, which increases handling costs, slows throughput, and limits the ability to monitor or manage stored stock systematically.

(c) Silo Storage

Concrete and steel silos represent the highest standard of grain storage: airtight, temperature-monitorable, amenable to effective fumigation, and capable of storing thousands of tons per unit. In Pakistan, modern silo capacity accounts for approximately 3.4 million tons across Punjab and nearly all of it is captive inside large rice mills, feed mills, and oil mills for their own use. It is not accessible to farmers, traders, or small and medium millers who need it most. Within the public sector, the Punjab Food Department held less than 0.25 million tons of silo storage while flour millers collectively account for an estimated 0.5 million tons of wheat silo capacity.

The private sector has been slow to invest in standalone silo capacity, and understandably so. For most of the past two decades, the government's dominant role in wheat procurement crowded out private investment: why build storage when the government was the guaranteed buyer and storer? Factors like frequent government intervention in agricultural markets, price caps, restrictions on private trade, and, critically, the risk of anti-hoarding raids on stored grain have further deterred foreign and domestic private investment. New

private silo investment has been occurring in the poultry and feed milling sector where maize storage is commercially critical, but this too is captive to the mill.

(d) Alternative and Emerging Storage Technologies

Several intermediate storage solutions have gained traction as more affordable alternatives. Hermetic cocoons, which are large hermetic bags made of multi-layer polyethylene that limit oxygen flow and suppress infestation, have been introduced by the private sector by companies like Kissan Gudam. The company provides hermetic storage for farmers' produce, helping reduce post-harvest losses and allowing farmers to hold stock instead of distress-selling at harvest. Similar to collateralized financing through electronic warehouse receipts (EWRs), farmers storing produce with Kissan Gudam can access financing of up to 70% of the commodity value giving them liquidity while they wait for better market prices.⁸

The Bag-Based Supply Chain: A Structural Problem

Understanding why losses are so high requires understanding the architecture of Pakistan's grain supply chain. At present, it is almost entirely bag-based from farm to mill, which is expensive, loss-generating, and resistant to formal financing. Grain is bagged at the farm, transported to the mandi where it is unbagged to make heaps for auctioning, re-bagged after the sale, transported to intermediate storage where bags are stacked, and finally delivered in bags to the processor. This bag-in, bag-out, bag-delivery arrangement imposes enormous

7 PASSCO Works page. <https://www.passco.gov.pk/works/>

8 <https://kissangudam.com/>

inefficiencies.

Industry analysis puts the excess cost of this system in Punjab alone at approximately \$1.5 billion annually compared to international benchmarks. This figure includes weight losses from leakage and pest consumption, bag depreciation, mandi fees, and the cost of aarhti-mediated financing. By comparison, a modern bulk-receiving, bulk-storage, bulk-delivery supply chain operating through commercial silos would cut these costs by an estimated 45-65%. This is not a marginal efficiency gain; it is a structural transformation of the agricultural economy.

Where Grain is Stored Along the Value Chain

Understanding the staging of grain through the supply chain is essential for identifying where storage interventions will have the greatest impact:



Stage	Who Holds Stock	Storage Mode	Loss Risk
At harvest (farm)	Smallholder & medium farmer	Jute bags, mud bins, open-air ganji	Very High
Farm gate / village	Aarhti/kacha aarhti, large farmer	Informal godowns, bags	High
Mandi/wholesale market	Pakka aarhti, trader, stockist	Hired godowns, bags	Medium-High
Processing facility	Flour mill, rice mill, feed mill	In-house silos, godowns	Low-Medium
Public procurement	PASSCO, Provincial Food Depts.	House godowns, silos	Medium
Port/export	TCP, private exporters	Godowns (e.g. Pipri)	Low

The highest-risk, highest-volume storage happens at the farm and village level, precisely where formal infrastructure is most absent. The further grain travels down the chain toward processing and export, the better the storage conditions become. This is the fundamental inversion that storage policy needs to address.

The Stakeholder Landscape



Farmers

Pakistan's agricultural landscape is dominated by smallholder farmers. According to Pakistan's 7th Agricultural Census 2024, the number of farms has grown to 11.7 million (up from 8.26 million in 2010) while the average farm size has shrunk from 6.4 acres to 5.1 acres due to population growth and land fragmentation. Over 7.5 million farms are smaller than 5 acres, and 97% of all farmers own less than 12.5 acres. These farmers lack both the physical storage infrastructure and the financial resources to hold their grain beyond immediate post-harvest needs. Most are compelled to sell within days or weeks of harvest when prices are at their seasonal lows.

This distress-sale dynamic is not merely inconvenient, it is economically devastating. Farmers typically receive around a portion of the mandi traded price for their grain after accounting for aarhti commissions, transport costs, weight deductions, hidden handling charges, and implicit financing costs from delayed payment. The gap between what the

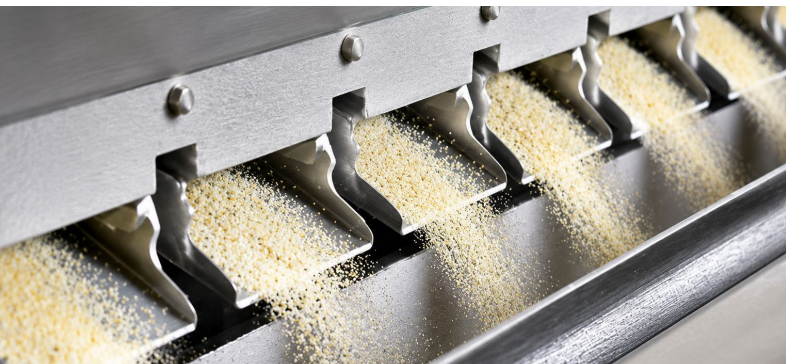
farmer receives and what the same grain fetches at the mill gate or in the off-season market represents a substantial annual transfer of wealth from producers to intermediaries.



The Aarhti System

The aarhti (commission agent/middleman) occupies the central node in Pakistan's agricultural supply chain, ranging from kacha aarhtis at the village level to pakka aarhtis at district grain markets (ghalla mandis), to large wholesalers. Aarhtis charge a commission of 6-10% on the sale price, deducted upfront. More significantly, farmers who have taken informal loans from aarhtis are obligated to sell their produce through that same aarhti to repay debts. The State Bank of Pakistan's Committee on Rural Finance found that growers pay an effective mark-up ranging from 50% to 100% on funds borrowed from informal lenders on top of the commission.⁹ The aarhti also plays an informal storage role while holding grain purchased from farmers in godowns at the mandi level, often for speculative purposes, which is a major source of seasonal price volatility.

9 <https://www.sbp.org.pk/acd/Handbook-Best-Practices-Agri-Rural-Finance.pdf>



Flour Mills

Pakistan has approximately 1,000 flour mills, predominantly in Punjab. Flour mills are the dominant private-sector holders of wheat grain, maintaining in-house storage and managing their own procurement. Since the withdrawal of government procurement in 2024, mills have become the primary price-setting entities in wheat by purchasing directly from farmers and traders at free-market prices. Producers received about Rs. 2,400 per maund for the 2025 crop, compared to Rs. 3,900 per maund in 2023.¹⁰ This price collapse, a direct consequence of removing government procurement without a market-based storage system to replace it, underlines the urgency of developing commercial warehousing as a genuine price discovery and price stability mechanism.

Rice Millers and Exporters

Rice exports reached a record 6 million tons in 2024-25.¹¹ Rice mills, particularly in Gujranwala, Sheikhpura, and Larkana, operate dryers and have some silo capacity. However, the critical bottleneck is at the paddy level: harvested

paddy must be dried within 24 to 48 hours to prevent aflatoxin development, and the absence of mechanical drying at the farm and aggregator level is the primary driver of quality losses. Pakistan's rice exports have faced increasing quality-related rejections at destination markets, particularly for aflatoxin contamination, a problem that originates in inadequate post-harvest drying and storage, not in the rice crop itself.

Traders and Stockists

Large grain traders and stockists hold significant quantities of grain in rented godowns during the off-season to sell at higher prices later. Stockists typically take a one-and-a-half to three-month view on their grain, buying at harvest when prices are low and selling when processors have exhausted their own stocks. The 2024 wheat crisis illustrated how large carryover stocks in private hands can depress farm gate prices below viable levels when government procurement withdraws simultaneously.

PASSCO and Provincial Food Departments

PASSCO was established in 1973 and at its peak procured 1.79 million tonnes of wheat annually in 2023-24, maintaining strategic reserves for deficit provinces and the armed forces.¹² The Punjab Food Department historically managed the largest single block of public storage of 2.45 million metric tons. Under the IMF Extended Fund Facility, neither PASSCO nor any provincial food department conducted meaningful wheat procurement in 2024-25.

10 USDA Foreign Agricultural Service, Pakistan Grain and Feed Update (PK2025-0008) https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Grain%20and%20Feed%20Update_Islamabad_Pakistan_PK2025-0008

11 USDA Foreign Agricultural Service, Pakistan Grain and Feed Update (PK2025-0008)

12 USDA Foreign Agricultural Service, Pakistan Grain and Feed Annual (PK2025-0003)

Naymat Collateral and the EWR Ecosystem

Pakistan's first collateral management company, Naymat Collateral Management Company Limited (NCMCL), was incorporated in 2020 under the SECP's Collateral Management Company Regulations 2019, spearheaded by Pakistan Agricultural Coalition with sponsors including HBL, MCB, Faysal Bank, National Foods, K&N's, etc.

The EWR regime gives farmers three options: safekeeping to avoid distress sales, using the EWR as collateral for bank loans at 70% of commodity value, and trading EWRs on PMEX. The State Bank has amended prudential regulations to recognize EWRs as acceptable collateral, and selected banks have disbursed EWR-backed loans within 24 hours of EWR issuance which is a dramatic improvement on the traditional 6 to 8-week agricultural lending process. The regime has been commercially operational for paddy, rice, and maize. Wheat, despite being the most important crop, has remained outside the commercial EWR regime due to decades of government price controls and procurement, although efforts were made to pilot EWR-based wheat storage in as part of the government's wheat sector reform package, covering warehouse rental and bank mark-up

for small farmers for four months post-harvest.¹³

Two structural barriers continue to limit wheat's full integration into the EWR regime. The first is the anti-hoarding risk: government officials retain the power to raid private warehouses under essential commodities laws, and this reputational risk deters serious private investment in wheat storage, even though the transparency that EWRs create is, in practice, the most effective anti-hoarding tool available. The second is the year-round viability problem: wheat is the major winter crop harvested in April-May, meaning a standalone warehouse operator that stores maize and paddy has no commodity for roughly half the year, making the business model unviable without wheat storage.

In a significant structural development, PMEX acquired a majority stake in Naymat Collateral in November 2025 with SECP approval.¹⁴ This directly addresses the "broken chain" problem that has constrained EWR scale-up. With PMEX as the institutional owner of the CMC, the commodity exchange and the warehouse receipt infrastructure are now aligned under one roof, creating the conditions for a liquid secondary market in EWRs that has so far been missing.

¹³ <https://www.brecorder.com/news/40360019/wheat-sector-reforms-in-pakistan-punjab-electronic-warehouse-receipts-regime-to-the-rescue>

¹⁴ <https://www.nation.com.pk/22-Nov-2025/secp-approves-pmex-acquisition-ncmcl-boost-pakistan-s-ewr-agri-market-ecosystem>

The Storage Gap



Production vs. Storage Capacity

Pakistan's cereal production reached a record approximately 52 million metric tons in aggregate, including approximately 29 million tons of wheat (2024-25), 13 million tons of rice paddy, and 10 million tons of maize.¹⁵ Against this, the formal storage capacity accessible to farmers and small traders is a fraction of what is needed.

Pakistan's wheat consumption requirement is approximately 31-32 million tons per year. A functioning buffer stock system would need to hold 2 to 3 months of consumption (roughly 5 to 6 million metric tons) in formal storage at any given time. Public-sector formal capacity was approximately 6 million metric tons at peak with a large majority of it being open storage. With public sector withdrawal, effective formal storage accessible to farmers has collapsed further.

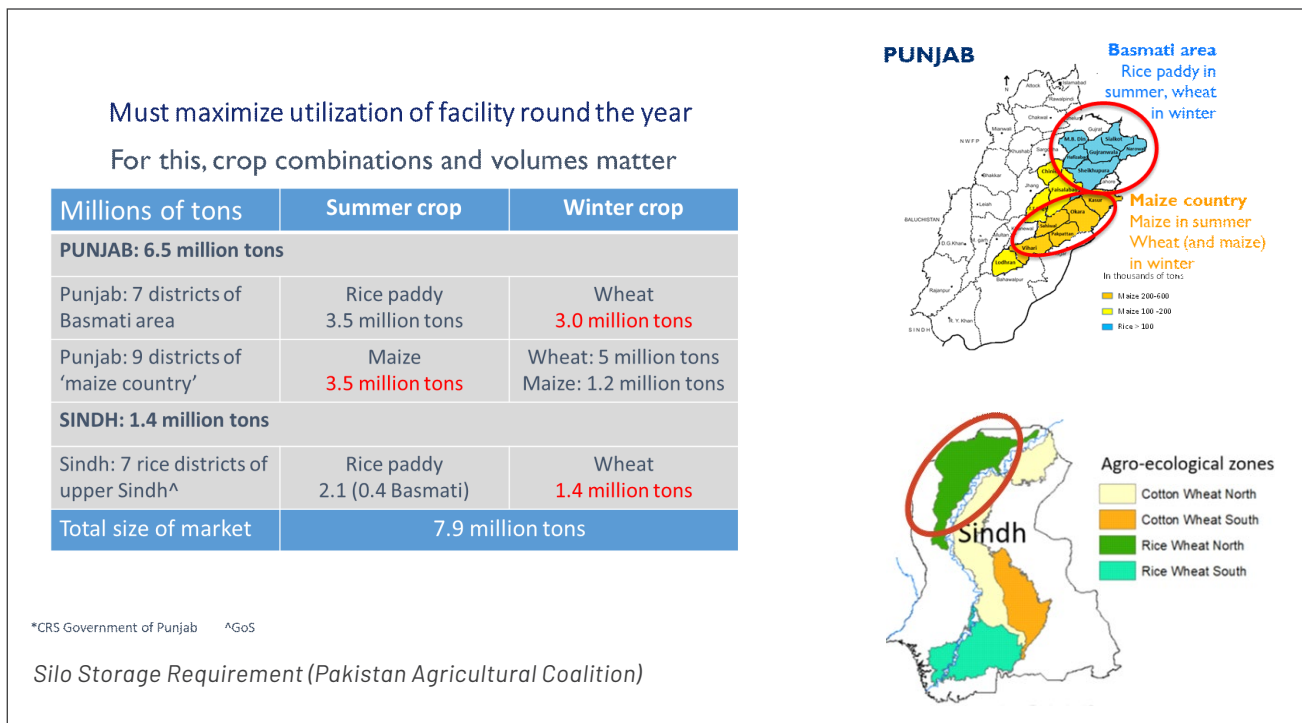
15 USDA Foreign Agricultural Service, Pakistan Grain and Feed Annual (PK2025-0003)

This does not mean that grain storage has disappeared: it has just retreated further into the informal economy. Middlemen, traders, and stockists continue to store grain in rented godowns, private sheds, and even private residences, outside any formal regulatory or quality framework. The problem is not the absence of storage per se, but the absence of storage that is of sufficient quality to preserve grain, accessible to farmers to increase their holding power, and bankable enough to support formal financing.

Post-Harvest Loss Profile

Post-harvest losses in Pakistan range from 10-20% for different grain crops. According to the State of Pakistan’s Agriculture 2023 report, wheat, rice paddy, and maize alone have a combined farm-gate value of approximately \$12 billion, and nearly \$1 billion is lost annually to poor drying practices, substandard storage, exploitative market practices, and inefficient logistics.¹⁶

Quantifying the addressable opportunity for formal commercial warehousing, Pakistan Agricultural Coalition estimates a requirement of 7.9 million tons of warehousing capacity across the rice, wheat, and maize growing regions of Punjab and Sindh (see figure below). This figure reflects the commercially viable market, i.e., the volumes that flow through mandis and processors in regions where crop combinations allow year-round warehouse utilization.



16 <https://www.pbc.org.pk/wp-content/uploads/The-State-of-Pakistans-Agriculture.pdf>

Regulatory and Institutional Framework



The Old Framework: Government-Centric

For nearly six decades (1968-2024), Pakistan's grain storage system was organized around a government-centric model. The federal government set a minimum support price (MSP) for wheat, PASSCO and provincial food departments procured at that price, stored the grain in their godowns, and released it to flour mills at subsidized rates. The costs of this intervention were staggering. Provincial

governments borrowed heavily from commercial banks to fund procurement operations, and routinely failed to repay on schedule. By 2020, government involvement in wheat marketing had generated a circular debt of Rs. 757 billion.¹⁷ The MSP system, for all its cost, primarily benefited large landowners, flour millers, and middlemen; research consistently shows that small farmers, who could not access government procurement directly, sold through middlemen at well below the support price anyway.¹⁸

17 PIDE 2020 <https://pide.org.pk/research/does-free-market-mechanism-offer-a-win-win-situation-to-wheat-consumers-and-the-government/>

18 PIDE 2024 <https://file.pide.org.pk/pdfpideresearch/discourse-2024-04-10-unpacking-pakistans-wheat-crisis-risks-and-realities-for-future-food-security.pdf>

The system's structural insolvency was laid bare long before the IMF forced the issue. The 2024 wheat import issue in which the caretaker government approved imports of 3.6 million tons at a cost of over \$1 billion in foreign exchange was the system's most visible failure. The absence of reliable, independently verified stock data meant that neither the government nor the market had visibility on where grain actually was, how much of it existed, or what condition it was in. The result was a collapse in farm gate prices that affected the same farmers the system was designed to protect.

The New Framework: Market Transition

The rapid and largely unplanned transition of no MSP for wheat and no government procurement in 2024-25 led to significant fluctuation of prices. A Wheat Policy 2025-26 was subsequently developed to provide for 6.2 million metric tons of strategic reserve procurement at international import parity prices. The proposed mechanism: the private sector would be invited to obtain credit lines and procure wheat at an announced price, with the government paying a service fee to participating buyers to prevent them from

profiteering on price increases. The government would then regulate the gradual release of this stock to flour millers through the year, using it as a price stabilization tool by releasing stock whenever private hoarding pushed prices up, thereby disciplining the market.

The model was sound in principle. In practice, it hasn't materialized so. Many private sector participants who initially expressed interest backed out, citing reservations over certain clauses and concerns about the anti-hoarding enforcement environment. Without a credible strategic reserve under government or government-mandated private management, the consequences were predictable. As of late April 2026, with the harvest not yet complete and seasonal arrivals at their peak, wheat prices had already risen from approximately Rs. 3,300 to Rs. 3,700 per 40 kg (or even higher in some areas). The government's response has been to conduct raids on private warehouses under anti-hoarding laws; the very intervention that deters serious private investment in formal storage and undermines the credibility of the EWR regime it is simultaneously trying to build.

The Indian Experience: What Pakistan Can Learn



The most instructive case study for Pakistan's grain storage reform is the rise of National Bulk Handling Corporation (NBHC) in India; and it is instructive precisely because of how it started. NBHC was incorporated in 2005 as the warehousing arm of Multi Commodity Exchange of India (MCX), India's largest commodity exchange. It was not conceived as a standalone storage business. It was created because a commodity exchange needed a trusted, national-scale warehouse operator to underwrite physical delivery settlement on futures contracts. The commodity exchange created the demand for credible warehouse receipts, the warehouse receipt created the demand for professional warehouse management, and professional warehouse management created NBHC.

From early 2006, NBHC grew rapidly, reaching US\$2 billion under collateral management in just two and a half years, with over 1,000 warehouses established across India's major mandis. Initial growth came from leasing existing flat storage near mandis at low cost as NBHC did not build from scratch. Revenue came from bank commissions for securing lending business against warehouse receipts, and from commodity exchange delivery fees. Several factors drove this trajectory: the availability of state-owned warehouses at mandis available for long-term lease, a strategy to capture the broader warehouse receipt financing market well beyond commodity exchange deliveries, leadership recruited from India's largest bank (SBI) who understood and spoke to banks' risk

concerns, and a visible demonstration effect as NBHC's model attracted imitators and deepened the market.

A critical strategic choice NBHC made (and which holds a direct lesson for Pakistan) was to deliberately reduce its dependence on government procurement business and focus on private commercial warehousing and collateral management.¹⁹ This deliberate pivot from public sector agent to private market enabler (for more stable revenue and the ability to build genuine market infrastructure) is exactly the transition Pakistan's future warehouse operators will need to make as government withdraws from the market.

NBHC later shifted from a capital-intensive model of leasing and owning warehouse space to a franchise model by providing management services, quality standards, technology, and accreditation to existing warehouse owners rather than owning facilities itself. This dramatically improved operating margins and enabled far faster geographic expansion. For Pakistan, where most existing storage sits in aarhti-owned godowns and private sheds, this franchise/accreditation model is probably the

most realistic near-term scaling path: upgrading and formalizing what already exists rather than building anew.

Today, NBHC operates over 1,000 warehouses across 17 states with a total warehousing capacity of 75 million metric tons, over 31 quality assurance laboratories, more than 175 mobile labs covering approximately 170 commodities, and collateral management relationships with leading banks. Its cumulative assets under management have exceeded US\$ 8 billion.²⁰

The Pakistan analogy is direct. PMEX must be the anchor demand for Pakistan's EWR system in the same way MCX was for NBHC, and the November 2025 acquisition of Naymat Collateral majority shares by PMEX is precisely the structural alignment that makes this possible. Naymat today is where NBHC was in 2007. What it now needs is a credible private operator, and the franchise infrastructure to accredit and activate existing storage across Punjab and Sindh. One serious player entering this space would have the same demonstration effect in Pakistan that NBHC had in India two decades ago which resulted in other warehouse operator companies springing up like StarAgri, NCML, etc.

19 <https://www.freepressjournal.in/business/nbhc-expects-double-digit-growth-in-the-value-added-services-category>

20 <https://www.nbhcindia.com/milestones>

Where Pakistan Needs to Go: A Reform Agenda

Short-Term (1-2 years): Bridging the gap

Fast-track EWR expansion for wheat. The Government of Punjab has already reviewed EWR-based wheat storage, however, it needs to be implemented in a comprehensive and timely manner. The next step is to move from a government-subsidized pilot to a fully commercial, privately-operated EWR regime for wheat. The SBP should continue to push all scheduled banks actively lending against wheat EWRs as part of their agricultural credit portfolios. The critical remaining obstacle is not regulatory but legal: government officials retain the power to raid accredited warehouses under essential commodities and anti-hoarding laws, creating reputational risk that deters serious private investment. Specific legislative protection for EWR-accredited warehouses exempting them from such raids while providing government real-time stock visibility through the EWR repository would replace the current opacity with transparency, which is precisely what the EWR system is designed to deliver.

Repurpose PASSCO godowns. The government should convert PASSCO godowns into commercially operated, EWR-accredited warehouses through competitive leasing to private operators. The physical network has significant value as the buildings, plinths, and access roads are already there. A guaranteed off-take from the government for strategic reserve stocks would provide the initial viability assurance that private operators need. This

single intervention could add significant commercially accessible, EWR-ready storage relatively quickly.

Integrate the aarhti network. Aarhtis who operate godowns in or around mandis can become licensed warehouse operators and EWR participants. Bangladesh and India's experience shows that integrating existing middlemen into the formal warehouse receipt system is more effective than attempting to displace them.

Medium-Term (3-5 years): Building the commercial warehousing sector

Pakistan needs a commercial, private-sector warehousing industry that does not yet meaningfully exist. It needs a network of standalone, accredited, drying-capable warehouses accessible to farmers, traders, and millers. A 15,000-ton commercial warehouse facility combining flat storage, mechanical drying, and EWR accreditation is financially viable at a utilization rate of approximately 70-80% (meaning year-round operations), particularly when combined with commodity supply agreements with processors.

The SBP's Financing Facility for Storage of Agricultural Produce (FFSAP) provides concessional financing at 6% per annum for up to PKR 500 million per project.²¹ This cap is sufficient for facilities of around 15,000 tons (which costs around \$2 million),²² but does not facilitate larger projects, like a 50,000-ton

21 <https://www.sbp.org.pk/Incen-others/sme-3.asp>

22 USAID Private Silo Warehousing for Pakistan's Grains (2020) <https://pac.com.pk/wp-content/uploads/2025/01/USAID-Private-Silo-Warehousing-for-Pakistans-Grains.pdf>

facility.

Near-farm aggregation hubs with mechanical drying. The government's primary role should be to create a conducive regulatory regime to attract private sector investment in commercial aggregation hubs in key production zones, each with mechanical drying, flat storage, and EWR accreditation. Priority zones: Gujranwala, Sheikhpura, Hafizabad, and Nankana Sahib for rice paddy; Sahiwal, Okara, Kasur, and Chunan for maize; and the major wheat-producing districts of central and southern Punjab. Multilateral development institutions, particularly the ADB and World Bank, both of which have active agricultural programs in Pakistan, should be approached for concessional financing specifically for mechanical drying facilities given the public health and export quality benefits such as reduced aflatoxin contamination.

Commodity grading and standards infrastructure. Pakistan's EWR system requires a robust commodity standards and testing network. Investment in certified testing laboratories, electronic weighbridges, and grain quality monitoring equipment at warehouses is a prerequisite for a functioning commodity exchange and will also reduce the aflatoxin export rejection problem in rice.

Attract a serious commodity operator. Pakistan needs its own NBHC; a credible, technology-enabled warehouse operator/commodity supplier with bank partnerships and commodity exchange linkage. The model is proven. The SBP and other multilaterals should jointly sponsor a roadshow to attract leading business groups into this space, with the explicit offer of: guaranteed off-take from government strategic reserve stocks; tax exemption on warehouse

operator trading gains for five years; preferential FFSAP financing; and Naymat accreditation support. With PMEX now a major stakeholder of Naymat Collateral, PMEX should take an active institutional role in using Naymat as the accreditation and operational vehicle to attract, onboard, and scale a serious private warehouse operator rather than waiting for one to emerge organically. One or two major players entering this space would have the same demonstration effect that NBHC had in India.

Deepen PMEX-EWR integration across all three crops. PMEX has made significant strides in becoming Pakistan's agricultural commodity exchange: maize EWRs have been trading on the platform since December 2022 and physically deliverable rice and wheat futures contracts were introduced in early 2026 following a nationwide roadshow.²³ The foundation is in place. The priority now is to deepen liquidity and widen participation by moving from a handful of sophisticated traders to a broad market that includes millers, exporters, and eventually farmers. This requires a critical mass of accredited warehouses to underpin physical delivery settlement, which remains the binding constraint.

Climate-resilient storage design. As climate change increases temperature and humidity variability, and as floods of the scale seen in 2022 become more frequent, Pakistan's strategic reserve storage must be built to a higher standard. Flood-resilient design for godowns in Sindh and southern Punjab, solar-powered hermetic systems for off-grid rural areas, and controlled-atmosphere silos for strategic reserves should all be standard requirements in any new storage investment program.

²³ <https://www.dawn.com/news/1974970>

Conclusion



Pakistan stands at a critical inflection point in its grain storage history. The rollback of the government-centric procurement and storage model could be a genuine turning point if the transition is managed strategically. The \$1 billion annual loss from post-harvest waste is not an inevitable cost of doing agricultural business; it is a policy failure that modern storage infrastructure, a functional EWR system, and targeted investment can substantially reverse.

The path forward requires the government to resist the temptation to retreat entirely from the storage sector while simultaneously ensuring it does not crowd out private investment. Its proper roles are:

- regulator and standard-setter,
- provider of viability gap funding and concessional capital where markets fail,
- protector of farmer interests in a value chain currently stacked against them, and
- honest broker between the anti-hoarding instinct and the market transparency that EWRs actually deliver.

The building blocks are falling into place. PMEX has launched physically deliverable wheat and rice futures. PMEX's acquisition of shares in Naymat Collateral has structurally aligned the commodity exchange with the warehouse receipt infrastructure for the first time. India's experience, and NBHC's story in particular, shows that once these pieces align around a credible private operator, the market can scale faster than most expect. Pakistan now has the exchange, the regulatory framework, and the market liberalization imperative. What it still needs is the legislative backbone to protect accredited warehouses, the private capital to build the storage network, and the political will to stay the course.

The technology and financial architecture to build a world-class grain storage system in Pakistan already exist. The window is open. Pakistan should walk through it.



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