KWA AFRIKA
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Post Harvest Losses

The African Perspective

MONEDA INTELLIGENCE

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Introduction

Food is essential to life, if we stop eating, quality of life deteriorates, and survival becomes threatened. Therefore, any barrier to accessing safe, nutritious, and sufficient food should be recognized as a critical global concern, one that poses a threat to human existence. The Food and Agriculture Organization (FAO) reported that in 2023, one in every eleven people was unable to secure the quantity and quality of food required to alleviate hunger. Among the many threats to food security, **food loss** and **food waste** stand out as particularly common. These phenomena represent measurable reductions in the quantity or quality of food available for human consumption. Although not new, food loss and food waste remain persistent challenges across the global food system.

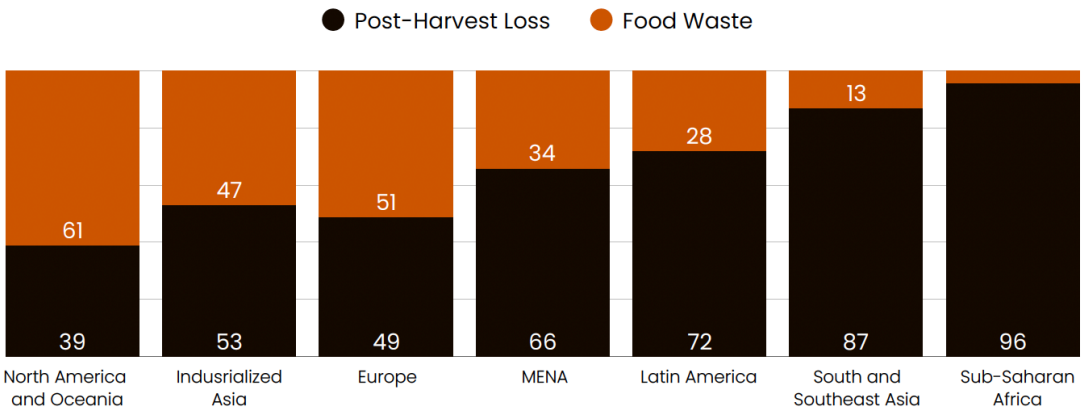
According to the State of Food and Agriculture (SOFA), any food discarded, incinerated, or otherwise removed from the supply chain (after harvest and before retail) that is not used for any productive purpose such as feed, seed, or bioenergy is food loss. Food loss can be categorized based on where it occurs along the agricultural value chain:

- **Pre-harvest losses** occur in the early stages, typically on the farm, before crops are harvested.
- **Post-harvest losses**, which are the focus of this report, take place after harvesting, during handling, storage, processing, and transportation, up until the food reaches the retail stage.

In contrast, food waste happens further along the value chain when the crops have gotten to the consumer, either processed or unprocessed, but are wasted by the retailers, food service providers, and/or consumers themselves.

Food loss and food waste are experienced across the world but manifest differently across regions. In developed countries, like the United States of America, food waste is more prevalent, while for developing countries like Nigeria, post-harvest loss is more significant. While they both pose significant risks, the prevalence of food losses in developing countries is an indication of deep underlying issues. For food waste to occur, the food gets to consumers, thus fulfilling demand to a certain degree. On the other hand, for food losses, the food never makes its way to the consumer, leaving demand unmet and mouths unfed, resulting in **food insecurity.**

Fig 1: Post-Harvest Loss and Food Wastage By Region (% of Kcal lost and wasted), 2009



Source: World Resources Institute- Reducing Food Loss and Waste

The combined effects of food loss and food waste have far-reaching consequences. Approximately one-third of the food produced globally every year, which is about **1.3 billion tonnes of food**, valued at over **US$1 trillion**, is lost or wasted. Beyond the economic implications, this also translates to wasted resources, such as water, land, energy, labour, and capital, that go into producing each kilogram or tonne of food. In addition, food loss and waste contribute significantly to environmental harm, accounting for an estimated **8–10%** of global greenhouse gas (GHG) emissions annually, primarily as a result of methane released from decaying food. A study compared GHG emissions from food loss and food waste against **20 countries** around the world - it was found that the combined effect of food loss and food waste ranks as the third largest GHG emitter, trailing only China and the United States.

With these implications, none is as dire as its direct role in food insecurity. As global population and demand for food continue to rise, addressing these losses is no longer optional, it is a necessity.

Definition of key terms

FOOD LOSS

Food Loss is the decrease in edible food mass (quantity) or nutritional value (quality) of food that was originally intended for human consumption.

FOOD WASTE

Food Waste is the discarding of food that is appropriate for human consumption before or after it spoils.

POST-HARVEST LOSS

Post-Harvest loss is food loss across the food supply chain from harvesting of crops to the sale of the crops in the market, resulting from qualitative loss, and quantitative loss.

QUALITATIVE LOSS

Qualitative loss common in developed countries, is loss affecting the nutrient composition, acceptability, and edibility of a given product or food.

QUANTITATIVE LOSS

Quantitative loss is loss affecting the amount of food, ·often measured in weight or volume, reduced over time and space. It is common in developing countries.

FOOD INSECURITY

Food Insecurity is the condition of not having access to sufficient food, or food of an adequate quality, to meet basic needs. While food loss measures the quantity of food that is not consumed, food insecurity measures the number of people that have no access to food. Consequently, food loss at any stage of the value chain has the potential to cause food insecurity.

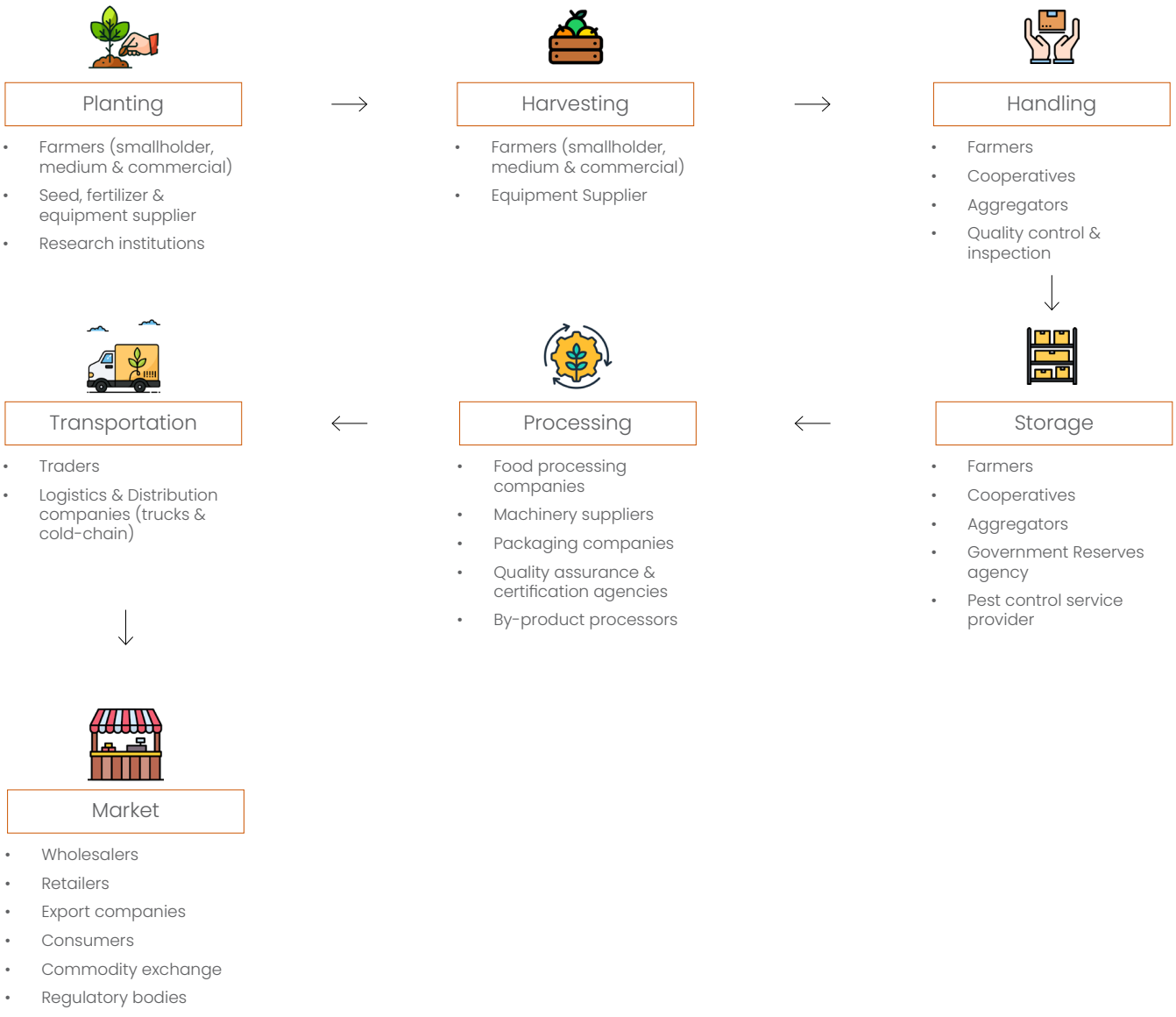
The African Perspective: Post-Harvest Losses

In Sub-saharan Africa, **96%** of unutilized food are as a result of Post-Harvest Loss and only **4%** is as a result of food waste. The wide disparity can be indicative of severe infrastructural issues but a deeper look reveals significantly more. Food loss can be either pre-harvest or post-harvest but unfortunately the scale of preharvest losses remains relatively unknown. **80%** of farmers in Africa are smallholder farmers who contribute **90%** of the food produced on the continent. These farmers have little to no access to technology.

This results in a lack of understanding of the optimal volume that can be accrued from an expanse of farmland, making it virtually impossible to ascertain how much losses were incurred pre-harvest.

Post-harvest losses, on the other hand, have been fairly well researched across Africa, perhaps due to the minor increases in technology utilization as food travels down the value chain. This report aims to expound on the available literature as well as identify new patterns in the key drivers of post-harvest losses within the continent.

Fig 2: Agricultural value chain and their stakeholders



Regional Patterns in Sub-Saharan Africa

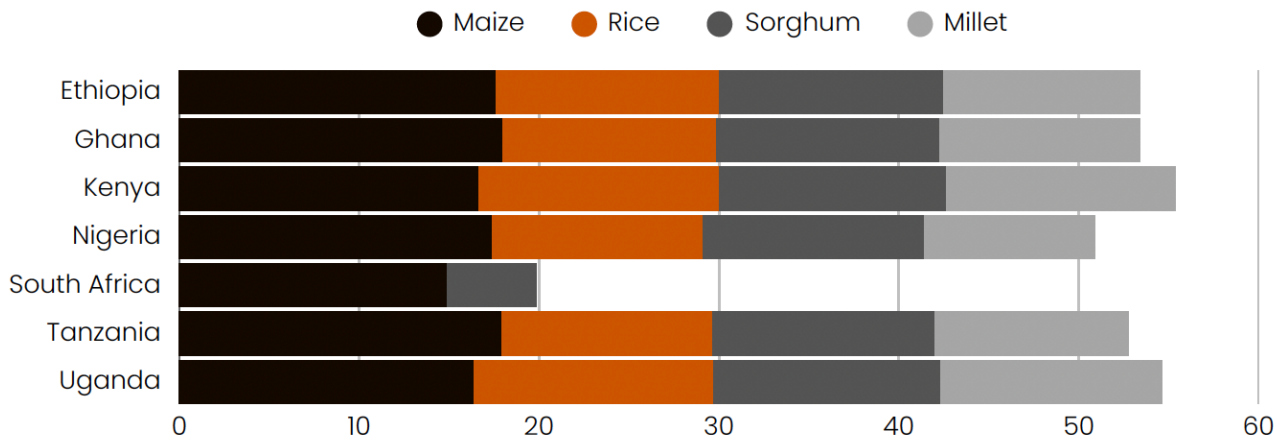
On average, SSA experiences about **37%** post-harvest losses. This is characterized by similar patterns across different countries. In 2022, Nigeria and Ghana experienced **13%** and **13.4%** post-harvest losses, respectively, in grains alone.

South Africa recorded about **7.1%** postharvest losses while Ethiopia, Tanzania, Kenya, and Uganda recorded **12%, 13%, 13.5%** and **13.4%** respectively. Over the last 5 years, the post-harvest losses in grains among these countries have averaged around **15.1%** with the highest experienced by Kenya **(16%)** and the lowest South Africa **(12.5%)**. While these figures look small, the economic implications signal a cause for concern. FAO reports that as of 2011, the value of post-harvest losses for grains alone in Sub-Saharan Africa was estimated at **$4 billion**, which could meet the annual food requirements of over 40 million people and is almost the average annual value of grain imports into sub-Saharan Africa from 2000 to 2007 (ranging between **$3 billion to $7 billion**).

These numbers increase astronomically for fruits and vegetables. In Nigeria, for example, post harvest losses in tomatoes is estimated at about **65%** (**40%** during harvesting & handling; **10% - 20%** during transportation; **5% - 15%** during processing & storage). A study in 2016 showed Ghana's post-harvest losses in mangoes reached **49%**.

In effect, while these selected African countries differ in staple crops, the patterns in post-harvest losses are not vastly different. Together, these countries have accrued an approximate of **$8.58 billion** in government expenditure into the agricultural sector, yet this has failed to yield any results in curbing postharvest losses. Nigeria's budget has been on a steady increase within

Fig 3: Similar trends in dry weight loss of selected crops across Sub-Saharan African countries (%), 2022



Source: APHLIS

that period, rising by **196.4%** over the last 5 years. The same goes for South Africa and Ghana who have recorded **104.17%** and **29.63%** increase in budgets, respectively. These investments have unfortunately failed to yield any lasting effects towards curbing post-harvest losses.

Different driving factors call for differing strategic approaches.

The wide gap between the average post-harvest losses in grains versus PHL in fruits and vegetables is largely attributed to the difference in water content between them. On average, grains possess between **10 - 20%** water content, while fruits contain as high as **75 - 90%** water. Fundamentally, the loss of water in agricultural produce strongly correlates with its spoilage. Higher temperatures will typically expedite the loss of water in agricultural produce, thus accelerating ripening and shortening the time to market. In sub–Saharan Africa with temperatures exceeding **40°C**, the propensity for post-harvest

losses is inherently high. For example, a ripe tomato can begin to spoil within 48 hours in hot and humid regions in SSA, but this significantly increases to 5 days in temperate regions.

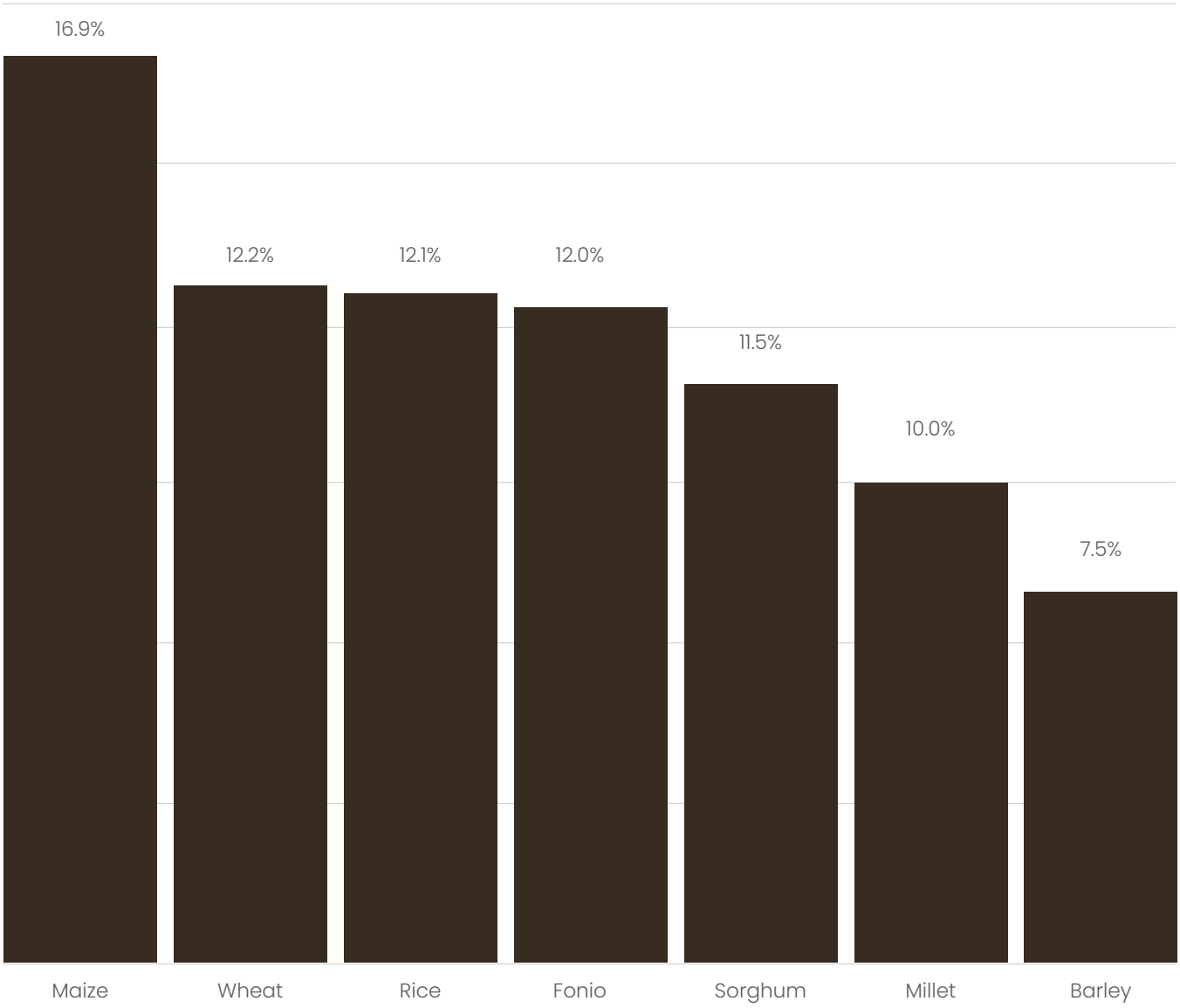
Furthermore, the presence of water encourages microbial growth, which can lead to spoilage, thus impacting food quality and marketability. In addition to this, a breakage in the crops' natural protective covering can further expedite the loss of water and give microbes an easy path to spread across the entire crop. For fruits and vegetables, the most prevalent culprit of post-harvest losses is temperature. For grains, heat plays a less significant role as they tend to last longer than fruits and vegetables due to their low moisture content and hard texture.

Yet these properties that protect them from the effects of high temperatures make them attractive to pests, which can either break their protective covering or directly infect them with microbes. Tuber crops like yam and cassava have the hardest protective covering of all crops. For them, the root cause of post-harvest losses is usually traced to the mechanical handling and harvesting process, which breaks those hard coverings, exposing them to bacteria and fungi that cause rot. In Nigeria, which produces **69%** of the world's yams, farmers in producing regions report post-harvest losses as high as **40%** largely due to bruising or breakage.

Regardless of the stage in the agricultural supply chain, controlling post harvest losses requires the preservation of the crop's water content through

temperature management and preservation of the natural protective covering. The central idea is to manage the crop's time to market i.e. while post harvest losses tend to shorten the time to market, their control measures aim to extend them. Unfortunately, Africa's agricultural supply chain is marred with infrastructural and economic gaps that extend the time to market and the time of exposure to PHL causal factors (heat and pests). Crude handling and harvesting methodologies mean crops are prone to breakage. Insufficient storage facilities mean crops are more exposed to causal factors. Insufficient food processing facilities and high transport costs mean crops need to spend longer in storage. Poor road networks mean crops need to spend more time on the road.

Fig 4: Dry weight loss of grains in Sub-Saharan Africa (%), 2022



Source: The African Postharvest Losses Information System (APHLIS)

Common storage systems for agricultural crops...

Cold Storage

Cold storage systems are temperature-controlled facilities used to extend the shelf life of perishable agricultural products by slowing ripening and microbial activity. Controlled atmosphere storage systems regulate temperature and gas (O2 & CO2) composition for long-term preservation, and refrigerated warehouses maintain low temperatures for short- to medium-term storage.

Warehouses and Silos

Grains and dry commodities are stored in warehouses and silos. Warehouses hold bagged produce horizontally, while silos are vertical, airtight units for bulk storage.

Hermetic Storage

Hermetic storage uses airtight containers to preserve dry agricultural products like grains and legumes by limiting air and moisture exposure. It creates a lowoxygen, high-CO_2 environment that naturally suppresses pests and microbes without chemical pesticides.

Zero Energy Cooling Chamber

Zero Energy Cooling Chamber (ZECC), also known as brick cooling chamber, is a low-cost, eco-friendly storage solution that uses evaporative cooling to preserve perishable agricultural produce. It requires no electricity, making it suitable for rural areas.

Role of Storage in PHL

The Nigerian Case Study

23.5%

Share of agricultural contribution to GDP between 2019 - 2023.

Largest employer of Nigeria's labour force.

31%

N3.5tn

Financial implication of postharvest loss - > 9X 2024 agricultural budget allocation

Total agricultural imports from 2019-2023, 38 times higher than exports in the same period.

N112tn

N826bn

Agricultural budget allocation for 2025, a 127.7% increase from 2024.

Food price inflation as at 34.8% December 2024.

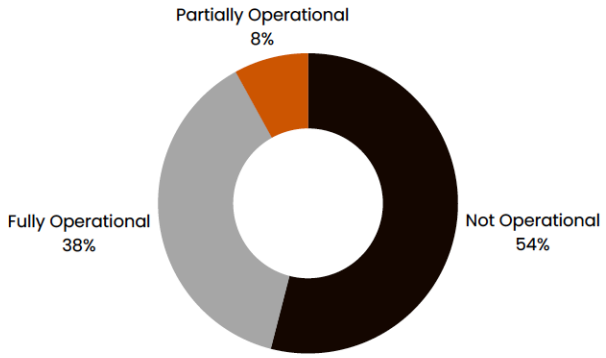
34.8%

* PHL - Post-Harvest Losses

The current state of agricultural storage in Nigeria.

It is general knowledge that silos are revered as being better for grain storage than warehouses. This is because silos save space, provide better storage conditions (with respect to moisture and pest control), and are generally cheaper to operate per ton. In Nigeria, there is no record of a privately constructed silo, all **33** government-owned silos are marred with varying levels of deficiencies. The silos have a combined nameplate capacity of **1,336,000 metric tonnes** (MT) and were primarily built to support the Strategic Grain Reserve Department (SGRD). From equipment vandalization during a civil disturbance to destruction due to a sandstorm, none of the silos are operating at optimal capacity. As a result of these inefficiencies, **17** of these silos (with a total capacity of **636,000 MT**) were concessioned to private companies in 2019 under a 10-year agreement (September 2020–September 2030) in hopes of reviving them, but very little success has been recorded thus far in their attempts at revival. In 2023, the government

Fig 5: Operational status of silos in Nigeria, 2022

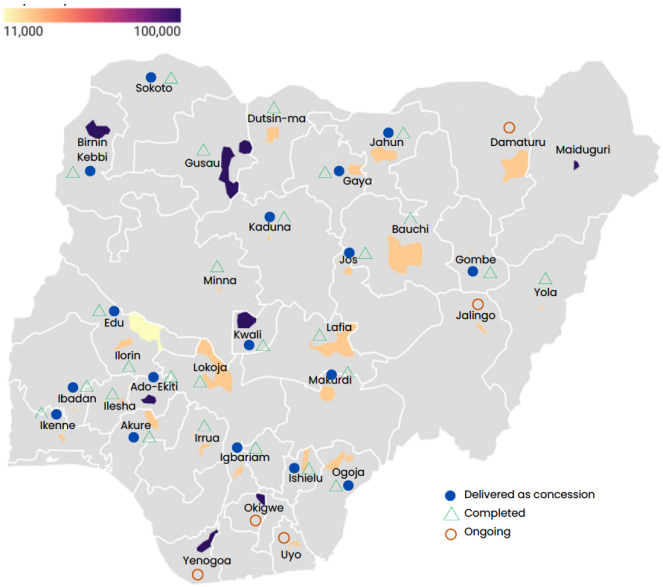


Source: Federal Ministry of Agriculture and Rural Development, Moneda Intelligence

allocated **NGN3.65 billion** for the rehabilitation of eight silos nationwide. However, as of today, there has been no clear public update on the progress or completion of these rehabilitation efforts.

The country has thus largely relied on warehouses for the storage of grains which adds to the cost of storage and provides grains with more exposure to moisture and pests. While the government owns and manages **51** warehouses spread across 19 states with a total capacity of **108,000 MT** (averaging a little over 2100 MT per warehouse). During the 2022-2023 season, Nigeria produced about **21.6 million tonnes** of grains meaning the government storage capacity can only handle **0.5%** of the country's production - barely scratching the surface of the country's needs. In effect, warehouses in Nigeria are largely driven by the private sector, but unfortunately, there is no comprehensive record of the actual number and capacity of private warehouses

Fig 6: Location of the 33 silo complexes by the federal government



Source: Federal Ministry of Agriculture and Rural Development, Moneda Intelligence

available in the country. This is because most of the existing warehouses are unregistered and unregulated. What is known though, is that most of the warehouses are operated by traders who typically hold products for price optimization (on average, **62%** of traders hold grains for more than 9 months according to Federal Ministry of Agriculture and Rural Development (FMARD).

For fruits and vegetables, the story is not different, if anything, it is worse. This is as a result of the need for temperature-controlled infrastructure which can be quite costly. For Nigeria (and most of Sub-Saharan Africa) where most of the players in the supply chain are either small-scale,

Fig 7: Silos at Jahun local government area of Jigawa state

Source: The Guardian

subsistent or both, the acquisition of cold-chain storage infrastructure is not economical. There is currently no government-owned cold storage infrastructure in Nigeria which creates a gap for independent, privately-owned company to offer a "storage-as-a-service" model. Three major operators (ColdHubs, Ecotutu, and Kennie-O Cold Chain Logistics) control much of this market offering farmers storage of agricultural produce on a unit price basis (per crate per day). The three companies have a total of **77 units** and a capacity of about **580 tons**. Cold storage infrastructure depends largely on electricity, which further adds to its complexity within the context of Africa. The complexity is made worse by the fact that the infrastructure is needed in close proximity to the farms. The farms are, however, located in rural areas that are disconnected from the grid. Cold storage operators in Nigeria have resorted to solar energy to power the infrastructure.

While the efforts by the private players to maneuver these challenges are commendable, the gap between the needed and the available infrastructure is staggering. The available **580 tons** of capacity is only **0.014%** of the circa **3.1 million** to **4.1 million** tons of the country's production of tomatoes alone.

These challenges have forced farmers in Nigeria to resort to Zero Energy Cooling Chambers (ZECC) or their equivalent including granaries, mud silos and cribs. These are makeshift, small-scale temperature-controlled systems that are used in preserving perishables. While they suffice, they are nowhere near as efficient as cold chain infrastructure and certainly do not solve the problem of scale.

Fig 7: Silos at Jahun local government area of Jigawa state

Source: The Guardian

Domena is a subsidiary of the Moneda group operating in the Agricultural value chains in Nigeria. Over the last two years, Domena has traded 1,600 tons of grains and has vertically integrated into feed production. In an attempt to standardize their operations, the Domena team share their experience on post-harvest losses in Nigeria...

Obinna Nwaolikpe
Director of Sales Operations, Domena

Hermetic storage is one way to reduce post-harvest losses

"We once sold maize to an offtaker unbeknownst to us that the maize had been badly infected with weevils. A bit of investigation revealed that the infestation happened during storage in a warehouse. We had another incident where about 200 bags of maize were infested with weevils during storage, and we had to salvage and rebag whatever maize was left. To avoid losses like these, we had to invest in hermetic bags which although preserved the grains for longer, further increased our cost of operations."

Emmanuel Chukwuma
Corporate Finance & Supply Chain Manager

Static storage is talked about enough but proper storage in transit should not be overlooked.

"I know of a transaction where tomatoes, cabbages, and carrots were transported from Kebbi to Lagos for sale. Before departure, the products were in good condition but upon reaching Lagos, more than one-third of the entire produce had gotten bad due to improper storage conditions while in transit. Excessive heat damage had occurred, and of course, the products were sold at a loss.

For grains, hermetic bags are great for storage at a location, but they will not work for the transportation of produce from place to place because any slight damage to the bags compromises their integrity. "

A Multi-Stakeholder Approach to Reducing PHL

This report has so far investigated some of the root causes as well as their interaction which have resulted in post-harvest losses (PHL). The impact of PHL, (as well as the overall concept of food losses) has also been elaborated. While several attempts have been made to curb the growing post-harvest losses across Africa, the increasing investments/budgets have failed to yield corresponding results. This report recommends a multifaceted approach towards achieving progress in curbing PHL, and this includes different perspectives for different stakeholders.

The Farmer's Perspective: optimizing time to market.

It has been established that a breakage in the protective covering of crops can significantly shorten the time to market consequently encouraging post-harvest losses. Research has shown that a significant percentage of this breakage happens during harvest and handling. For African farmers, a dearth in sophisticated harvesting equipment makes this a prevalent occurrence. Investment into these equipment can reduce quantitative losses which can make the overall farming operation more profitable. Unfortunately, with the high proportion of small-scale farmers in Africa, access to capital to purchase these equipment may not be feasible. In that case, farmers are encouraged to adopt meticulous harvesting and handling practices. With hand-held tools, being meticulous can further slow down operations, however, farmers must strike the balance between speed and crop preservation.

Also, meticulousness may not completely eradicate the breakage of crop protective covering, but strategic sorting can make up for that gap. Post-harvest, it is recommended for farmers to delineate three categories of their crops in a bid to optimize the time to market:

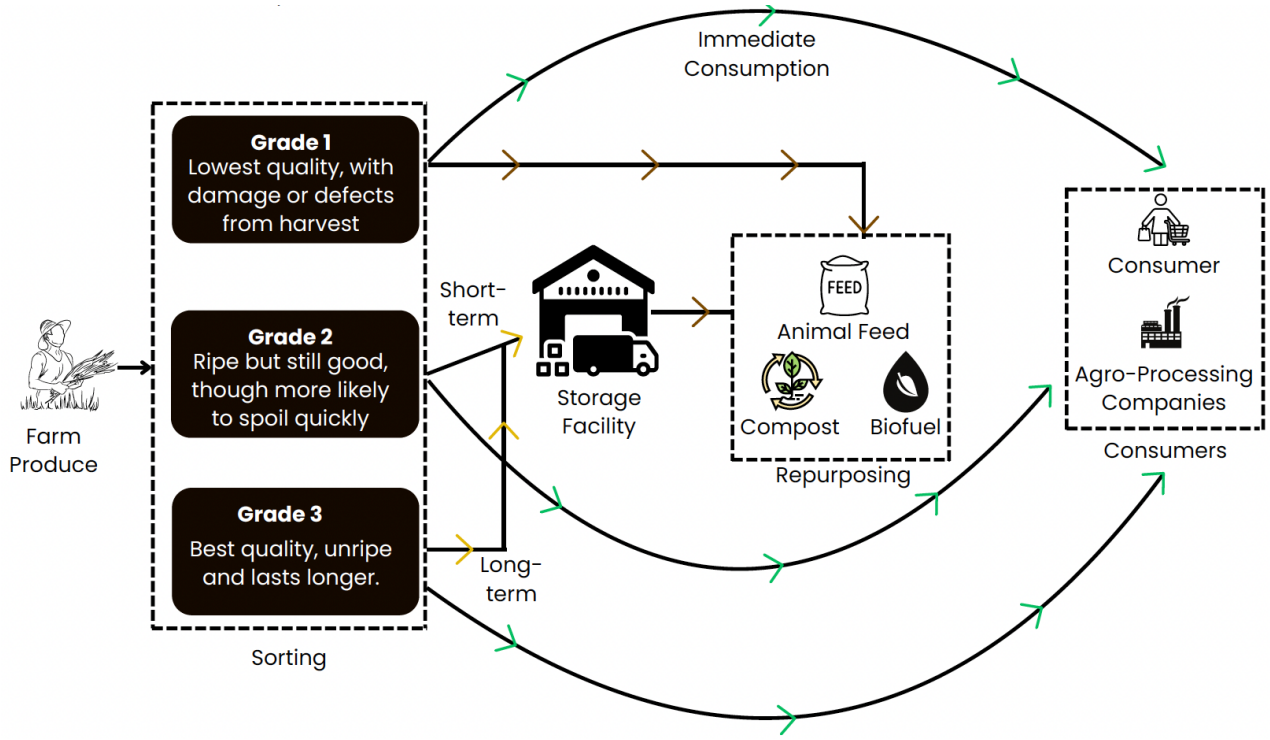
- **Grade 1:** Poor-quality produce with visible defects, bruises, or pest damage. These should be consumed immediately as their time to market is significantly shorter. Consumption can be by eating within the community in which the crop was produced, processing (e.g. animal feed for grains, paste or juice for fruits etc.) within the community in which the crops were produced.
- **Grade 2:** Acceptable quality produce, such as fully ripe crops. These have a longer time to market but a short shelf life and as a result they must be transported to markets within close proximity to the community in which the crops were produced.
- **Grade 3:** High-quality produce with a very long time to market. These are appropriate for long time storage including for off-season consumption, trading and for transportation to markets that are farther from the production location (e.g. exports).

This grading helps reduce cross-contamination and spoilage among stored items as well as optimize time to market. While there are new technologies that can help speed up the sorting process, African farmers will need to spend a longer time achieving it due to lack of access to these technologies. Ultimately, the revenue growth earned from the PHL reduction is enough to make up for the extra time and more.

The Investor's Perspective: Strategic investment and innovative investment models.

Our analysis estimates that **$279 billion** is required to cover the dearth in cold chain infrastructure for fruits and vegetables — **$231 billion** for cold storage infrastructure and **$48 billion** for temperature-controlled transportation. This figure excludes the additional costs needed for agro-processing and rehabilitation of current infrastructure. One thing is clear though, a lot of investment is needed to see visible improvements in post-harvest losses but it remains to be seen where this funding will come from. Government budget is insufficient and private capital is impatient. The Nigerian government has increased its agriculture budget

Fig 8: Ideal post-harvest flow of farm produce



Source: Moneda Intelligence

by **262%** between 2023 and 2025, reaching **NGN826.5 billion ($533 million)** in 2025. However, **81%** of the expenditure goes into three programs - procurement and distribution of fertilizer, the National Special Program for Food Security (NSPFS), and buyer-of-last-resort grain purchase. None of these programmes addresses the root cause of post-harvest losses as investigated in this report. It is important for these expenditures to be strategically invested in storage infrastructure (especially cold storage for fruits and vegetables) as well as improving temperature-controlled transportation equipment.

Private investors should also look to innovative financing models to make solving PHL problems more profitable. Investors should aim to deploy more collaborative forms of financing which promotes joint execution of operations between the investors and players in the agricultural supply chain. The combined effect of investors' modern ideas and the stakeholders' experience can go a long way towards derisking agricultural operations consequently attracting more patient capital especially from institutional investors. Institutional investors should also be encouraged to deploy funding strategically into the parts of the agricultural value chains that are worst hit by PHL (storage and transportation). This can make cheaper financing available to industry players thus improving profitability.

The Government's Perspective: coordinate, regulate & elevate.

The lack of regulation in storage systems has caused more harm than good. Without knowledge of the true storage capacity of the industry, it is almost impossible to enact progressive laws and drive productive strategies. There is also no standardization in the storage infrastructure, which exposes crops to PHL causal conditions.

Strict enforcement of safety, environmental, and standardization policies can go a long way towards reducing post-harest losses. There should be a clear mandate for a regulatory body to manage this aspect, including keeping track of the available storage capacity as well as the enforcement of safety, environmental, and standardization policies for any operating storage facility.

In the Nigerian context, it goes without saying that a revival of the available silos is imperative. The concession of the silos to private companies, while being a welcome idea, has been stuck in bureaucratic hurdles. 6 years after the award of the concessions, some concessionaires are yet to receive access to the silos. There should be strong political will to surmount these hurdles. In addition to this, the government has largely seen the silos as a means for storing grains for the future, but it needs to also see them as a solution to the present. Space allocation should be given to farmers without access to adequate storage and the process should be equitable.

Furthermore, government tax incentives have largely been targeted at agricultural inputs including seeds, fertilizers etc. Government should also consider extending those incentives to investments in storage and transportation facilities. This can significantly improve its profitability for investors and encourage more investments to expand our storage capacity.

Grain stored in a silo

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AFEX Commodities Catalogue

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Appendix

Table 1: Nigeria's Federal Government Initiatives Addressing Post-Harvest Storage in Nigeria (2022, 2023 & 2025 Appropriation Acts) via the Federal Ministry of Agriculture and Rural Development

Project Name	Amount Allocated	Year
CONSTRUCTIONS OF MODERN MARKETS, ABATTOIRS AND SILOS FOR FOOD STORAGE IN SELECTED LOCATIONS IN NIGERIA (MULTIPLE LOTS)	5,000,000,000	2025
REHABILITATION AND COMPLETION OF 8NOS FGN SILO COMPLEXES/ PROJECTS NATIONWIDE	3,365,300,000	2023
DESIGN AND CONSTRUCTION OF ULTRAMODERN AND AUTOMATED WAREHOUSES IN SOUTH EAST ZONE	3,000,000,000	2025
DESIGN AND CONSTRUCTION OF ULTRAMODERN AND AUTOMATED WAREHOUSES IN SOUTH SOUTHZONE	3,000,000,000	2025
DESIGN AND CONSTRUCTION OF ULTRAMODERN AND AUTOMATED WAREHOUSES IN NORTH EAST ZONE	3,000,000,000	2025
DESIGN AND CONSTRUCTION OF ULTRAMODERN AND AUTOMATED WAREHOUSE ACROSS THE SIX GEOPOLITICAL ZONES	3,000,000,000	2025
DESIGN AND CONSTRUCTION OF ULTRAMODERN AND AUTOMATED WAREHOUSES IN NORTH CENTRAL ZONE	3,000,000,000	2025
DESIGN AND CONSTRUCDESIGN AND CONSTRUCTION OF ULTRAMODERN AND AUTOMATED WAREHOUSES IN SOUTH WEST ZONE	3,000,000,000	2025
CONSTRUCTION OF STORAGE FACILITIES TO PREVENT POST HARVEST LOSSES FOR FARMERS IN SELECT LOCATIONS IN THE NORTH WEST (LOTS 1-10)	3,000,000,000	2025
CONSTRUCTION, PROVISION AND INSTALLATION OF 80T/ BATCHPARBOILED RICE PLANT WITH 100T/D RICE MILLING PRODUCTION LINE WITH STEEL SHELTER AND WAREHOUSE IN JANGARU, NORTH CENTRAL ZONE	2,500,000,000	2025
CONSTRUCTION OF SILOS STORAGE FACILITY, FENCING, STORAGE 1000KVA GENERATOR AND GENERATOR HOUSE, INCLUDING SOLAR POWERED BOREHOLE, PEREMETER AND GATE IN JANGARU NORTH CENTRAL ZONE	2,500,000,000	2025
TRAINING OF FARMERS IN POST-HARVEST STORAGE PROCESSES AND DISTRIBUTION OF SEEDLINGS IN SELECTED COMMUNITIES IN NIGERIA (LOT 1-3)	1,500,000,000	2025
CONSTRUCTION OF AGRO WAREHOUSE, MAIZE FLOUR MILL, STEEL SHELTER AND GROUNDNUT OIL PRESS MILL AND MODERN ABBATOIR WITH SOLAR BOREHOLES IN AIRPORT AGRO CITY JANGARU	700,000,000	2025
CONSTRUCTION OF SILOS FOR STORAGE OF GRAINS IN SELECTED LOCATION IN ZAMFARA STATE	500,000,000	2025
TRAINING OF YOUTHS, WOMEN AND FARMERS ON POST HARVEST HANDLING AND STORAGE METHODS IN COCOA AND CASHEW VALUE CHAIN AND DISTRIBUTION OF STARTTER PACKS IN OGUN STATE.	500,000,000	2025

Source: Budget Office of the Federation

Project Name	Amount Allocated	Year
CONSTRUCTION OF SILOS STORAGE FACILITY, FENCING,STORAGE 1000KVA GENERATOR AND GENERATOR HOUSE, INCLUDING SOLAR POWERED BOREHOLE, PERIMETER AND GATE JANGARU NORTH CENTRAL ZONE	500,000,000	2025
CONSTRUCTION OF WAREHOUSE AT LIBERTY FREE ZONE AKWA IBOM STATE	400,000,000	2025
CONSTRUCTION OF WAREHOUSE FOR FARM PRODUCE STORAGE FOR COOPERATIVES FARMERS FOR VALUE ADDITION IN OGUN STATE.	378,000,000	2023
CONSTRUCTION AND PROVISION OF CORRUGATED SHEDS FOR MARKETS AND WAREHOUSES ACROSS KANO MUNICIPAL FEDERAL CONSTITUENCY	250,000,000	2025
CONSTRUCTION OF GRAIN STORAGE FACILITIES FOR FARMERS IN SELECTED FARM COMMUNITIES IN THE SOUTH WEST TO ENHANCE QUALITY AND MARKETABILITY OF FARM PRODUCE	200,000,000	2025
TRAINING ON INTEGRATED FARM PRODUCTS, STORAGE PROCESSING, PACKAGING AND EXPORT	180,000,000	2023
TRAINING AND SUPPORT OF FARMERS IN AGRIBUSINESS AND STORAGE IN THE NIGER NORTH SENATORIAL DISTRICT OF NIGER STATE	141,000,000	2025
PROCUREMENT OF ON-FARM INFRASTRUCTURES (PREFABRICATED CONTAINERS) FOR MOBILE FARMHOUSE AND ONFARM STORAGE IN NALDA FARMS	140,700,000	2025
DESIGN AND DEVELOPMENT OF COMMUNITY SOLAR POWERED COLD STORAGE FACILITY IN BOUNDRY COMMUNITIES OF NORTH EAST	110,500,00	2022
WAREHOUSE PRODUCE SYSTEM FOR COOPERATIVE SOCIETY IN SOUTH SOUTH AND SOUTH EAST	100,000,000	2025
PROVISION OF TRAINING ON POST-HARVEST PROCESSING, PRESERVATION AND STORAGE OF AGRICULTURAL PRODUCE TO REDUCE POST-HARVEST LOSSES ACROSS THE GOMBE NORTH SENATORIAL DISTRICT, GOMBE STATE	100,000,000	2025
STRATEGIC TRAINING AND EMPOWERMENT OF YOUNG FARMERS ON AGRICULTURAL BUSINESSES AND PRODUCE STORAGE IN AKWANGA, NASSARAWA-EGGON AND WAMBA, NASARAWA STATE	100,000,000	2023
TRAINING AND EMPOWERMENT OF YOUTHS AND WOMEN IN GARDENING AND SAFE STORAGE IN SIDDA, YAKUWA AND SABUMMA COMMUNITIES IN KATSINA STATE.	100,000,000	2023
COMPLETION OF DILAPIDATED WAREHOUSE(S) AT CFTZ	95,000,000	2025
PROVISION OF IMPROVED STORAGE FACILITIES AND TOOLS FOR VULNERABLE WOMEN AND YOUTHS IN RURAL COMMUNITIES IN SOME SELECTED STATE IN NIGERIA	78,551,000	2022
NATIONAL ENHANCEMENT PROGRAM FOR COOPERATIVE FARMERS WAREHOUSE FOR ENHANCING CASH CROPS PRESERVATION IN NORTHWEST	80,750,000	2022

Source: Budget Office of the Federation

Project Name	Amount Allocated	Year
ONGOING CONSTRUCTION OF THE DEMEJI FARMERS' PRODUCE AND STORAGE CAMP, IBIADE, OGUN WATERSIDE LGA, OGUN STATE.	80,000,000	2023
RECONSTRUCTION AND REMODELING OF A MULTI PURPOSE TOWN HALL FOR STORAGE OF PRIMARY / AGRICULTURAL PRODUCTS IN IHITENANSA ORSU LGA, IMO STATE	51,000,000	2022
SUPPLY OF MOTOCYCLE & DEEP FREEZERS TO EASE STORAGE AND TRANSPORTATION OF FARM PRODUCE IN RURAL AREA OF IFE FED CONST. OSUN STATE.	50,000,000	2025
WAREHOUSE PRODUCE SYSTEM FOR COOPERATIVE FARMERS OF TUBER CROPS IN THE SOUTH SOUTH	47,500,000	2022
WAREHOUSE PRODUCE SYSTEM FOR COOPERATIVE FARMERS OF TUBER CROPS IN THE SOUTH EAST	44,650,000	2022
WAREHOUSE PRODUCE SYSTEM FOR COOPERATIVE FARMERS OF TUBER CROPS IN THE SOUTH SOUTH	43,000,000	2023
PROVISION OF POST-HARVEST STORAGE FACILITIES IN MANAWACI ASHAKA FUNAKAYE LGA IN GOMBE, KWAMI AND FUNAKAYE FEDERAL CONSTITUENCY OF GOMBE STATE	42,500,000	2022
OUTREACH AND AWARENESS ON STORAGE OF PRODUCES FOR FARMING COMMUNITIES IN NASARAWA WEST SENATORIAL DISTRICT	42,500,000	2022
DEVELOPMENT OF HIGH YIELDING HEAT TOLERANT AND GOOD QUALITY VARIETIES OF WHEAT AND BARLEY AND DEVELOPMENT OF EARLY MATURING AND HIGH YIELDING MILLET VARITIES WITH GOOD PROCESSING QUALITY AND DEVELOPMENT OF THE CAPACITY OF SCIENTISTS, FARMERS AND EXTENTIONISTS IN WHEAT AND MILLET PRODUCTION, PROCESSING AND STORAGE.	33,304,293	2023
EMPOWERMENT OF 50 NOS OF UNEMPLOYED YOUTHS ON AGRICULTURAL SKILL ACQUISITION ON POST-HARVEST STORAGE TECHNIQUES	30,000,000	2025
VALUE CHAIN DEVELOPMENT PROCESS FOR FOOD SECURITY FOR 50 NOS OF RURAL WOMEN AND FARMERS THROUGH POSTHARVEST HANDLING AND STORAGE TECHNIQUES	30,000,000	2025
HUMAN CAPACITY DEVELOPMENT ON POST HARVEST STORAGE TECHNOLOGIES	28,500,000	2022
TRAINING OF RURAL WOMEN AND FARMERS ON POST HARVEST HANDLING AND STORAGE METHODS	21,016,288	2022
TRAINING OF UNEMPLOYED YOUTHS ON AGRICULTURAL SKILL ACQUISITION ON POST HARVEST STORAGE TECHNIQUES	19,000,000	2022
NATIONAL ENHANCEMENT PROGRAM FOR COOPERATIVE FARMERS WAREHOUSE FOR ENHANCING CASH CROPS PRESERVATION IN NORTHWEST	16,000,000	2023
STRENGTHENING AGRICULTURAL VALUE CHAIN DEVELOPMENT PROCESS FOR FOOD SECURITY ON POST HARVEST STORAGE TECHNOLOGIES	15,000,000	2023

Source: Budget Office of the Federation

Project Name	Amount Allocated	Year
EXTENSION OF IMPROVED MILLET,WHEAT AND BARLEY TECHNOLOGIES TO FARMERS,DEVELOPMENT OF THE CAPACITY OF SCIENTISTS,FARMERS AND EXTENSIONISTS IN WHEAT AND MILLET PRODUCTION,PROCESSING AND STORAGE.	13,422,787	2023
TRAINING OF WOMEN AND YOUTHS ON PRESERVATION OF AGRICULTURAL PRODUCTS FOR PACKAGING, STORAGE AND MARKETING	11,875,000	2022
BIO-ACTIVE PLANTS AS SUBSTITUTE FOR SYNTHETIC PESTICIDES IN THE CONTROL OF PEST OF STORED PRODUCTS	10,690,840	2023
CAPACITY BUILDING ON YAM CASSAVA AND PRODUCTION PRESERVATION AND STORAGE TECHNIQUES IN OBI LGA	8,500,000	2022
EMPOWERMENT OF 50 NOS OF UNEMPLOYED YOUTHS ON AGRICULTURAL SKILL ACQUISITION ON POST HARVEST STORAGE TECHNIQUES	7,000,000	2023
VALUE CHAIN DEVELOPMENT PROCESS FOR FOOD SECURITY FOR 50 NOS OF RURAL WOMEN AND FARMERS ON POST HARVEST HANDLING AND STORAGE METHODS	7,000,000	2023
TRAINING OF FARMERS IN POST HARVEST STORAGE PROCESSES AND DISTRIBUTION OF SEEDLINGS IN SELECTED COMMUNITIES Lot 123	5,000,000	2025

Source: Budget Office of the Federation

Table 2 - Distribution and locations of Strategic Food Reserves Silo Complexes

Geo-Political Zones	A	B	C	D	E(%)	Total Capacity (MT)
North-Central	161,000	50,000	25,000	0	21	236,000
North-East	25,000	25,000	50,000	175,000	9	275,000
North-West	200,000	125,000	0	0	38	325,000
South-East	50,000	0	0	100,000	0	150,000
South-South	25,000	25,000	0	125,000	0	150,000
South-West	175,000	25,000	0	0	13	200,000
TOTAL	636,000	225,000	75,000	400,000	17	1,336,000

**Source: FSRD FMARD, 2022*
A - Concessioned (MT)
B - FGN Retained (MT)
C - Completed & Yet to be either concessional or operational (MT)
D - Silos With Challenges (MT)
E - Capacity Utilized

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Authors

Precious Ehihamen

Ag. MD Moneda Technologies

Favour Anazodo

Senior Research Associate

Joy Alumonah

Research Associate

MONEDA

Nigeria

12 Abeke Animashaun Street,
Lekki Phase 1, Lagos

Mauritius

The CORE Building, No. 62 ICT Avenue, Cybercity, Ebene.

Namibia

Office 1, iLamo Building,
19 Simón Bolívar Street, Klein Windhoek

South Africa

Suite 43, Katherine & West,
114 West Street, Sandton,
Johannesburg

For further enquiries on how Moneda can assist, kindly contact:

Precious Ehihamen
Tel: +234 817 607 4520
Email: precious.e@monedainvest.com

Abdulrasheed Oyewumi
Tel: +234 909 044 4409
Email: abdul.o@monedainvest.com

Follow @monedainvest on social media