



Investments in Warehouse Receipt Systems urgently needed to reduce food waste and post-harvest loss in Nigeria

Policy Brief

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Background and Context

Nigeria's agricultural sector is dominated by smallholder farmers, who represents about 80% of the farmers and operate on farm sizes averaging about 2.5 hectares (Babura and Isah, 2017). If appropriately supported, the smallholder farming sector can put the country on the path to self-sufficiency and ensure satiety for household food consumption. However, this potential is undermined by productivity challenges, high post-harvest losses and lack of commercialization. Post-harvest losses are as high as 40%, driven by poor handling techniques and lack of adequate storage facilities and infrastructure (APP, 2016). Consequently, smallholder farmers receive lower prices due to quality losses and encounter difficulty in accessing credit for their working capital needs (FAO, 2019).

AGRA recognizes that a well-designed and efficient National Agricultural Warehouse System can provide many benefits to smallholder farmers, cooperatives, traders, and other players across the agricultural commodity value chains. To this end, AGRA commissioned a study, through Synergos, in March 2021 to map and assess agricultural storage assets in terms of ownership, locations and capacities in Nigeria, and thus provide analytical evidence to support policy and regulatory reforms and investments that will enable public and private sectors to develop a functional National Commodities Sector Development Master Plan and a National Warehouse System for bankable receipts.

The study was carried out across twelve (12) states in all the six (6) geo-political zones in Nigeria and the Federal Capital Territory (FCT). The study areas are shown in Figure 1 below. Crops considered for the study include maize, cashew, soyabeans, ginger, rice, sesame, oil palm, and cocoa. The criteria for the selection of States and crop commodities was based on the relative importance of the crop and presence of market, presence of export facilities/export processing zone/inland ports, presence of private/public silos and warehouses, as well as mandates of Ministries, Departments and Agencies, financial sector, development partners, and private sector actors as related to research and development, trade, finance, legislation and environment.

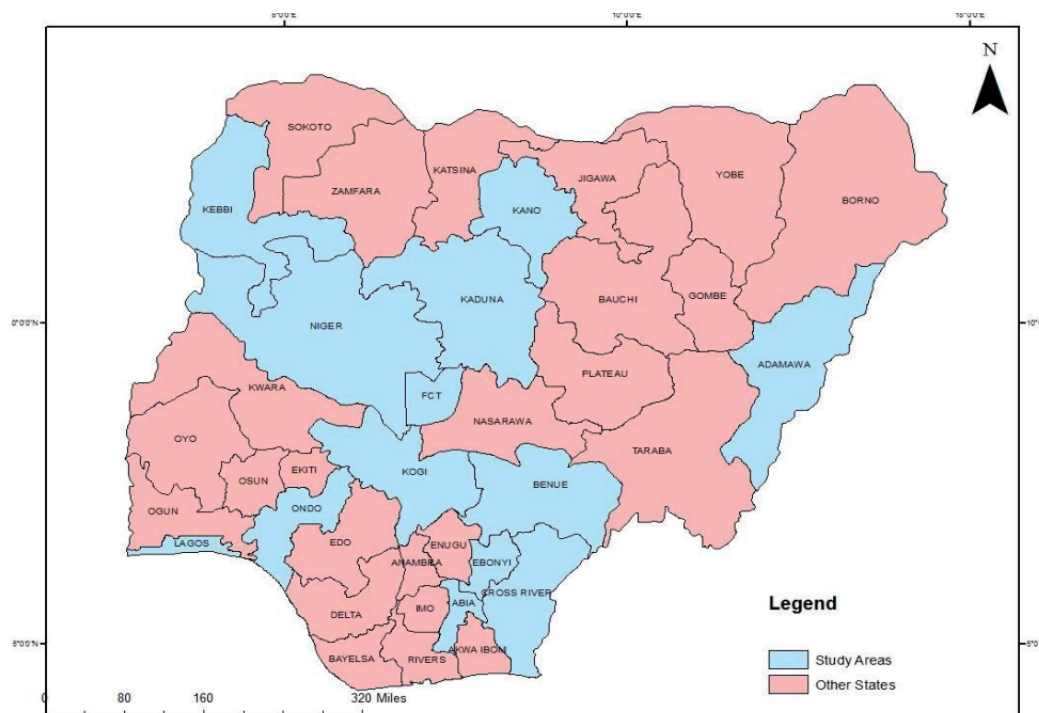


Figure 1: Map of Nigeria showing Study Areas

Key study results at a glance

Several important results emerged from the holistic review and assessment of types of storage assets, including private and public storage assets, and have important policy implications for key stakeholders within the commodity value chains. The key findings of the study are as follows:

- A large proportion of farmers (**54%**) and processors (**60%**) have no access to either private or government warehouse storage facilities, thereby making agricultural commodities subject to steep post-harvest losses.
- Government-owned storage facilities in Nigeria include operational grain Silo and Warehouse complexes. The national total capacity of silos and warehouses in Nigeria for grain storage is **2,039,100MT** for Federal, State Governments and Private entities; while the capacity of State-owned warehouses used for storage of fertilizers & agrochemicals is **82,575MT**.
- These storage facilities are fairly spread across the country, but there is low awareness and access to them by farmers and processors.
- Productivity challenges faced by Nigeria's smallholder farmers include inadequate capital/credit, high cost of inputs/fertilizers, climatic variability and erratic rainfall, pest and disease incidences, as well as high cost of land rent and labor. For instance, **83%** of smallholder farmers have no access to credit facilities.
- Marketing challenges include price instability, high cost of transportation due to bad road networks, lack of standardization/grading, high transaction costs associated with the risk of quality variations, insufficient demand for some commodities and poor market information/intelligence.
- Lack of reliable data on trade flows, poorly defined industry-wide quality standards, low levels of transparency and trust among value chain actors, and high cost of physical movement of goods, present coordination challenges and contribute to inefficiencies and difficulties for players across the entire commodity value chains.



The state of storage assets and technologies for agricultural commodities in Nigeria

The Federal Government owns a total of 33 Silos located across the country with storage capacity ranging from 11,000 –100,000 Metric Tonnes (MT). Government-owned storage facilities in Nigeria include operational grain silo complexes and Warehouse complexes. The silos are supervised by the Food and Strategy Reserve Department, one of the technical departments in the Federal Ministry of Agriculture and Rural Development (FMARD). 19 of the 33 silos are run by private investors under the Public Private Partnership (PPP) under the supervision by the Infrastructures Concessionary and Regulatory Commission (ICRC). The total national capacity of the Federal Government Silos is 1,336,000 MT. There are 48 State-Government-owned warehouses with 2,000 MT capacity located in 19 states in the country. Grain types stored are mainly rice, maize, sorghum, soybean etc.

At the National level, there are currently two exchanges incorporating warehouse systems in Nigeria: **The Nigerian Commodity Exchange (NCX)** and **African Commodity Exchange Limited (AFEX)**. The Nigerian Commodity Exchange (NCX) is a parastatal of the Federal Ministry of Industry, Trade and Investment, established to stimulate Nigeria's economic growth leveraging on the huge potential of the agricultural sector. African Commodity Exchange Limited (AFEX), a private sector driven commodity exchange organization links producers and consumers of commodities with a system that supports a fair exchange of value, at the same time creating a trust economy where producers and investors can fulfil their potentials for increased productivity and wealth creation.

While the capacity of all silo complexes in Nigeria is more than 1.3 million MT operational capacity is less than **22%**. Discussions with the stakeholders showed that there was limited access to warehousing facilities by farmers and processors reported an increase in postharvest losses. This is supported by data from the field survey indicating that a larger proportion of farmers (54%) and processors (60%) have no access to private or government warehouses. This is illustrated in Figure 2 below.

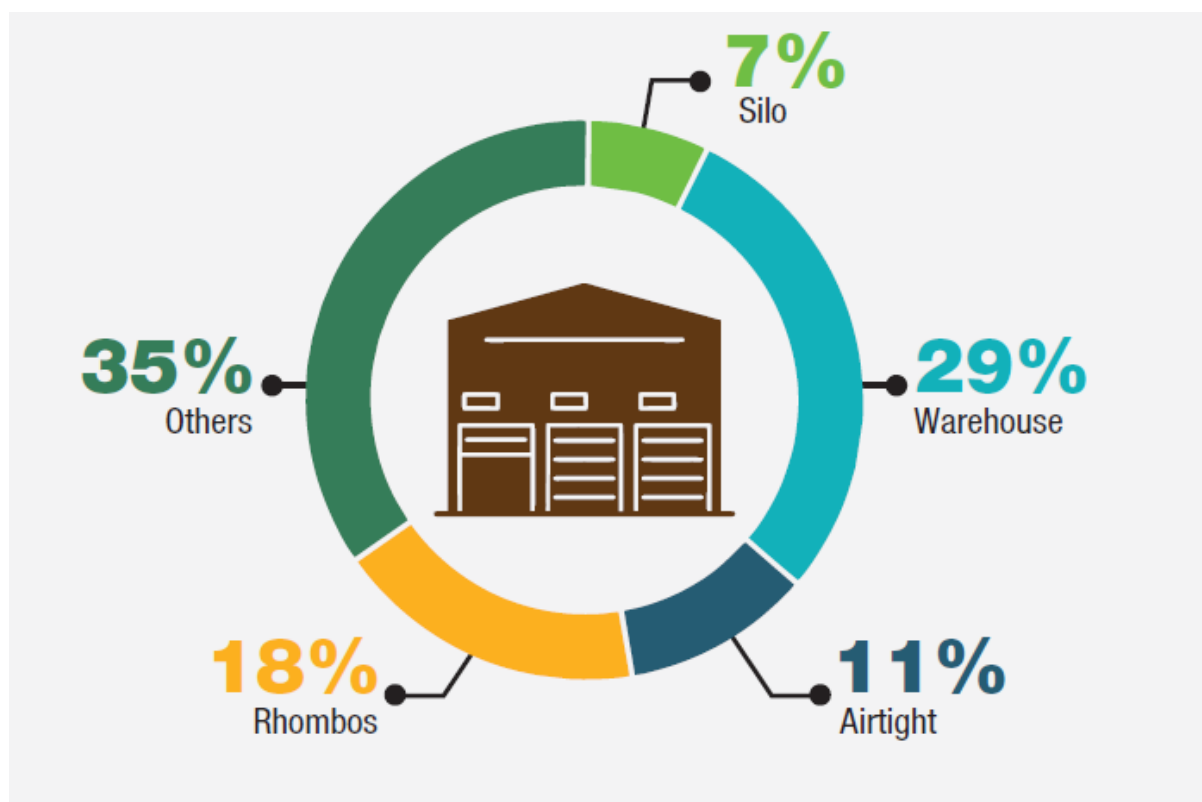


Figure 2: Distribution of Storage Strategies/Technologies

Issues that need immediate policy intervention

For Warehouse Receipt System (WRS) to work, several issues warrant immediate policy intervention:

Agricultural productivity



During the production stage, farmers are faced with high costs of inputs like labour, seeds, and fertilizers. Use of non-viable seeds results to infestation by pests and diseases thus reducing their profit margins. These problems are also compounded by unpreventable events like erratic rainfall and climate variability, leading to crop failure. Other times, farmers are threatened by insecurity/herdsmen invasion leading to food loss due to abandonment of the fields or they are destroyed by livestock. 76.5% of farmers sell their produce immediately after harvest, leading to market glut and low prices.

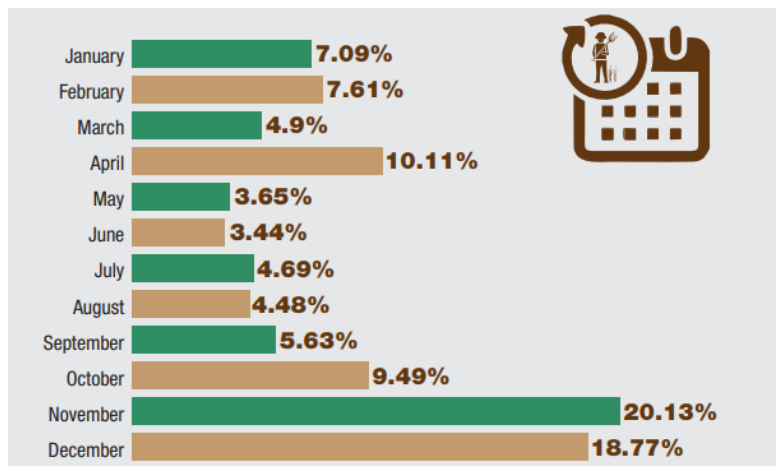


Figure 3: Highest Sales Period for Commodities from Farmers' Experience

If Nigeria is keen on eradicating extreme poverty and hunger, it must **reduce food losses caused by preventable causes**. Warehouses must be accessible, in full operation and the receipting system should be carried out in an efficient, effective, and transparent manner.

Infrastructure capacity



Transport -Smallholder farmers are faced with high transportation costs due to bad road network in remote areas. Fresh produce could benefit from cold storage and affordable warehousing systems for dry foodstuffs. These constraints would be eliminated if there was proper legislation on accessible, efficient storage facilities.



Storage – There is inadequate storage facilities that are located far from the farms, translating into high transportation costs. Some smallholder farmers are not able to access the storage facilities while others are not aware of their existence nor can meet the high transaction costs that come with quality variations. All these contribute to inefficiencies and difficulties for players across the entire value chain. The Government can eradicate all these constraints by having an effective National Warehouse Receipting System (WRS) using an **integrated, value chain approach**.

Although there is no institutionalized warehouse receipting system, as well as legal and regulatory framework, Nigerian government attempted to institute a warehouse receipts system in 2013. The 2013 bill provided for the establishment of the Nigerian Independent Warehouse Regulatory Agency NIRWA, which would regulate and supervise the proposed warehouse receipts system. It also provided for a licensing regime for warehouses, including performance guarantees such as insurance and posting of bonds. Interactions with some key stakeholders revealed that interagency rivalry on where the proposed new agency would be domiciled, the agency with oversight function, lack of inclusiveness and participation of some key stakeholders, e.g., FMARD, in the development of the bill are some of the reasons why the presidential assent was denied.

There is urgency to iron out these issues to ensure that an inclusive and effective system is put in place.

Access to markets, insurance, and finance



Markets are affected by price instability and market volatility (demand and supply factors) that lead to low sales and insufficient demand for some of the commodities. There is lack of **standardizing** and **grading** thus low bargaining power, informal trades and low levels of transparency and trust. The Standards Organization of Nigeria (SON) must improve standardization and quality assurance services offered in all the markets in Nigeria to ensure that farmers do not fall into the hands of unscrupulous businesspeople and traders.

Insurance – Farmers and agribusinesses are unaware and have a limited understanding of the benefits of insurance in managing risks.

The country should adopt advocacy strategies to **raise awareness on insurance**, especially among the farmers. The National Insurance Commission (NAICOM) is responsible for ensuring the effective administration, supervision, regulation, and control of insurance business in Nigeria and protection of insurance policyholders, beneficiaries and third parties to insurance contracts. The commission is aware of the NIRWA Bill and participated in the public hearing on the bill in the National Assembly. However, agriculture products are insured through the Nigerian Agricultural Insurance Scheme (NAIC). NAIC has been offering farmers insurance policies for loss of input crop cost, a comprehensive insurance product which covers a wide range of natural, climatic and biological perils including fire, drought, flood, storm, pests and diseases.

Financing– While the Financial System Strategy (FSS 2020), a financial model set by the Federal Government to realise its dream of becoming one of the top 20 economies of the world by year 2020, was implemented by the Central Bank of Nigeria (CBN), the bank has observed that many of their interventions in the agricultural sector since 1973, rising into trillions of naira, has not recorded tangible impact. CBN proposed that the way forward was to explore innovative approaches in the sector by laying emphasis on improved technologies and extension. The Government must evaluate the proposals and bring stakeholders together to decide on collective action.



Policy Interventions to enhance storage capabilities

Given the myriad of challenges identified by the AGRA/Synergos study, the following policy interventions need to be prioritized:

1. **Promote sustainable production and consumption patterns** – The study found that there was widespread food wastage due to lack of value addition knowledge, lack of proper storage as well as pests, diseases and nature-based calamities. This is mostly in remote locations that are occupied by many smallholder farmers. Policy recommendation for Nigeria is to promote agricultural interventions at the community level such as provision of or subsidies in farm inputs (make them accessible to all farmers), extension services to empower the farmer on food preservation and value addition, sorting, grading and appropriate farm-based storage. This will reduce food loss due to pests and aflatoxins as well as ensuring that the food does not lose its nutritional value.

Transparent and efficient services: The Nigeria Independent Warehouse Regulatory Authority (NIWRA) should develop and promote a reliable market information system, license warehouse storage facilities, insurance services and implement an e-WRS. In addition, NIWRA should have a robust governance structure and explicit duties that will strengthen it to achieve its mandate. All collaborative implementing bodies must have a sector development plan with a strategic action plan to promote value addition, post-harvest handling, storage, and marketing, with excerpts on the WHRS and its potential to provide smallholders farmers with finance and markets. There should be uniform grading and certification standards.

2. **Build resilient infrastructure and promote equitable livelihoods** – To reduce post-harvest losses, the Food and Strategy Reserve Department, Federal Ministry of Agriculture and Rural Development (FMARD) must ensure availability and accessibility of silos, warehouses, and appropriate storage bags to the farmers. They should also have awareness raising campaigns to ensure that the farmers are aware of the facilities and services available to them. In addition, FMARD should scale up capacity building efforts to ensure that farmers are aware of the National grading practices and procedures. This will reduce disparities between farm gate and market prices.

Legal contracts with stakeholders: There should be proper structures in place to guide business processes between the Warehouses and other stakeholders. For example, warehouse receipts should be recognized as title documents that could be used during transfers and negotiations. In addition, the security interests of warehouse receipts holders need to be assured. NIWRA should also review and assess the current requirements of the Warehouse Receipts and the commodity trading system in comparison with the international standards and learn from emerging best practices in the international community.



3. Immediate regulatory reforms across the value chain: a legal framework which establishes procedural rules and regulations, is essential for the efficient management, operation, and maintenance of a WHRS. Such legislation helps in ensuring the completeness of registration and improve the accuracy of information of the commodity value chain ecosystem. An assent of the WRS bill would facilitate this. This should be accompanied by clear mandates of agricultural institutions especially on policy and regulatory functions. I.e., There should be no conflict of interests between related ministries. There should be clarity of which ministry should provide oversight on the functions of WRS between the Federal Ministry of Agriculture & Rural development (FMARD) and Federal Ministry of Industry, Trade, and Investment. Until this is done, Nigeria will not be able to fully enjoy market access as stipulated within the Comprehensive Africa Agriculture Development Programme (CAADP) Framework.

Commodity exchanges are regulated by SEC. Some questions to be considered by the government and the stakeholders in designing a regulatory framework for commodity exchange include: Does Nigeria need a separate regulator for commodity exchanges, or should SEC be strengthened to effectively perform that role? Should the government still own commodity exchanges? How many commodity exchanges – private and public – can Nigeria maintain?

Promotion of free, fair, and competitive marketing regime: Nigeria Government should offer a range of attractive incentives to commodity producers and exporters and maintain a general surveillance over the free commodity market operations through a technical committee on agricultural produce and export commodities coordinating committee. Strong measures should be taken to prohibit any restriction to the interstate movement of commodities in Nigeria.

The Government must **investigate and advocate for agriculture financing.** While the Financial System Strategy (FSS 2020), a financial model set by the Federal Government to realise its dream of becoming one of the top 20 economies of the world by Year 2020, was implemented by the Central Bank of Nigeria (CBN), the bank has observed that many of their interventions in the agricultural sector since 1973, rising into trillions of naira, has not recorded tangible impact. CBN proposed that the way forward was to explore innovative approaches in the sector by laying emphasis on improved technologies and extension.



Priority actions by value chain stakeholders

While the Government oversees, plans, regulatory frameworks, strategies and provides the conducive environment for WRS to thrive, they must work with other actors in food systems to ensure its sustainability.

1. Private Sector – Financial Institutions and Insurance Companies – The study indicates that 83% of smallholder farmers have no access to financing. This is largely due to non-availability of credit facilities and services at the time of need, high interest rates and stringent procedures in processing. This leads to poor quality of produce, market gluts, pests, diseases and produce theft in storage and en-route to markets. Similarly, an average of 98% of farmers have no insurance cover due to lack of awareness on its usefulness and inaccessibility to such services. Financial institutions like commercial banks and microfinance schemes can play a critical role in ensuring that farmers can access financing. The Government must partner with financial institutions in disbursing agricultural loans as well as financial education to farmers. The Government should also work with Insurance companies to ensure that they have the right products to serve farmers and raise awareness on the importance of agriculture financing.

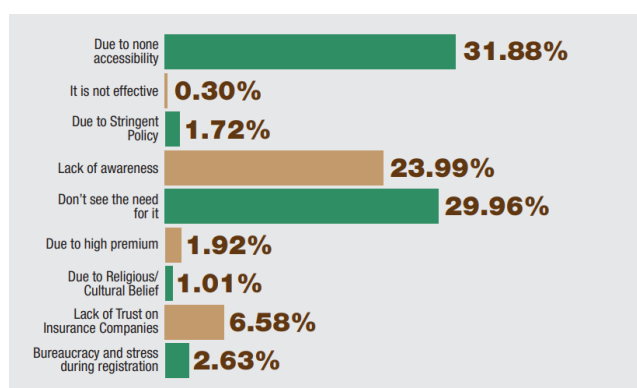


Figure 4: Farmers' Reasons for not subscribing to Insurance

2. Farmer organizations – Smallholder farmers must be involved as key stakeholders in sustainable farming and value chain development. Consultations should start at the community level and make their way to parliament. The study found that the 2017 WRS bill was not assented by the President because the bill did not capture the interest of smallholder farmers, who play critical role in warehouse receipting systems. Many farmers are organized within National/Regional Farmers Organizations (FO's) that champion their rights and interests.

3. Development partners – Development partners can play a crucial role, particularly through investments that addresses key bottlenecks along commodity value chains, as well as development of funding models to benefit long-term institutional capacity development, knowledge, and technology transfer. AGRA can also play an important role in helping coordinate and leverage different players within the sector and thus support Nigeria in developing WRS into a productive, efficient, and sustainable system. AGRA can guide the Government and help navigate challenges through advocacy, policy gap analysis and policy formulation to guide the advancement of agriculture value chains and appropriate structures for WRS. A well-designed Warehouse Receipt System can provide various benefits for all parties involved which include the following:

- Access to credit for agricultural producers, while enabling them to strategically delay the sale of agricultural products until after the harvest season
- Enhanced participation of smallholder farmers in the commodity market by allowing them to consolidate their crops in a warehouse and sell them jointly
- Reduced postharvest losses for smallholder farmers who use the system's warehouses that have mandatory storage and handling standards
- Reduced risks for creditors who lend to farmers and other agricultural producers through secure collateral; and
- Mobilized credit for the overall agricultural sector.

Concluding remarks

The study found that when compared with the population, landscape and commodities production in Nigeria, the number and capacity of warehouses and silos are grossly inadequate. An evaluation of production and market constraints clearly indicated an urgent and critical need for a functional WRS in Nigeria. Adequate storage system will lead to a reduction in post-harvest loss; guaranteed future commodity transactions with farmers with benefits to smallholder farmers and the Nigerian economy.

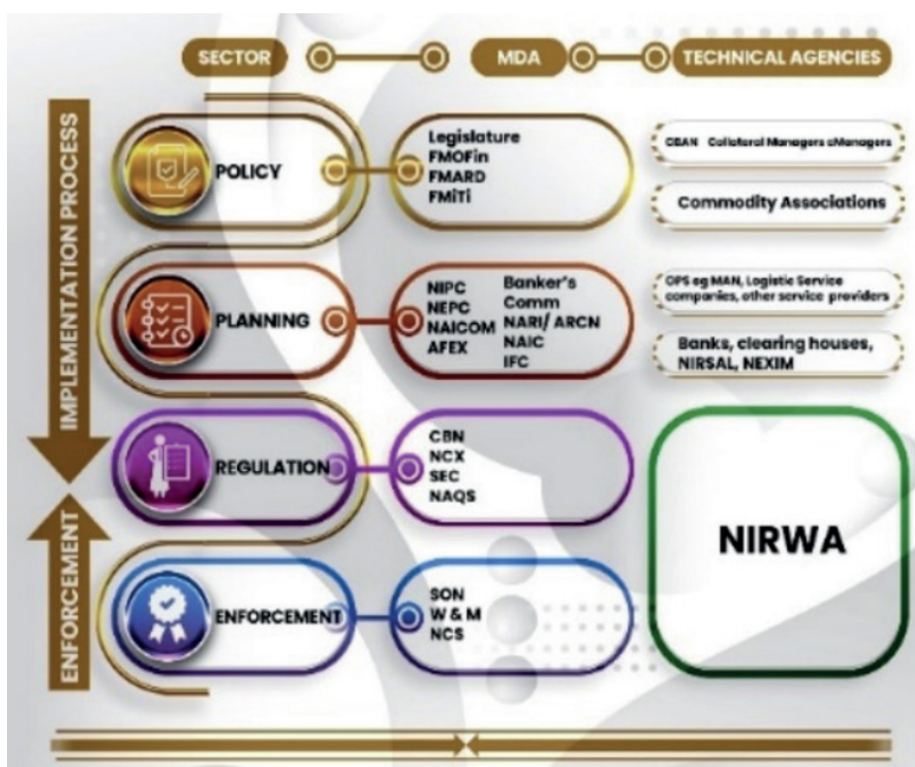
The constraints impeding the rapid development of the WRS in Nigeria are cyclical. Hence, overcoming these constraints require simultaneous policy actions and legal reform, with particular focus on taxation; creation of a rigorous regulatory framework; and institutionalized electronic Warehouse Receipt system with central registry.

The WRS Bill creates a robust regulatory framework which clearly defines the rights and roles of stakeholders and is crucial for a functional WRS. It would also expedite the development of the commodity exchange subsector and boost investor confidence in the Nigerian economy. Reforming the commodity exchange sector should be guided by the enactment into law of the Warehouse Receipt Bill and market rules should be introduced by an independent regulatory body to be set up and objectivity.

There is a need to develop an effective electronic registry/e-Warehouse receipt system to facilitate information sharing and reduce the cost of doing business. An elaborate information system will facilitate trust building among the actors, especially the banks. The recommendations and policy suggestions from the study are:

- A Systemic Model that retains the regulatory functions of agencies that are involved in WRS the country. The model proposes an advisory board comprising of key experts from public and private sectors. The board should provide oversight function over the commodity industry and report directly to the Presidency
- The second model proposes an Independent Agency with the technical capacity to operate in the industry. Its sole responsibility should be to regulate the industry. The agency should report to its Governing Board, and the board should report to the Presidency.

Proposed Institutional Framework for WRS in Nigeria



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