



AfricaFertilizer
Data-Driven Decisions for African Food Systems



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**Wallace
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IFDC 50th
Developing Agriculture from the Ground Up

CASE STUDY

FOSTERING SUSTAINABLE AGRICULTURE

through Data-Driven Collaboration and Partnership: Ethiopia, Mozambique, and Nigeria

INTRODUCTION

Fertilizer usage in Africa has historically been low compared to other regions, contributing to low agricultural productivity. As of January 2023, Africa consumes only about 10% of the global average for fertilizer use.¹ Several factors have contributed to this, including limited access to affordable fertilizers, inadequate infrastructure, and challenges related to financing and knowledge dissemination.

Efforts have been made by governments, non-governmental organizations, and international agencies to promote sustainable agricultural practices and increase fertilizer use in Africa. These initiatives often involve providing subsidies, improving distribution channels, and promoting education and awareness among farmers about the benefits of fertilizers. These efforts notwithstanding, data on the sector has for a long time remained fragmented, leaving decision-makers in both the public and private sectors with a lack of evidence-based approach to decision making. Some countries developed interventions to later realize that the same approach was not in tandem with market needs.

Changing and growing markets require stronger understanding of key [foundational] datasets and trust between the public and private sector. The fertilizer market has nonetheless made significant strides in ameliorating these challenges. Traditionally the continent has been a net importer of fertilizers largely controlled by multinational traders. This often led to market information being internalized as a market advantage over

other suppliers. This has gradually changed over the last few years, with stakeholders adopting a long-term strategic and data overt approach. Essentially, this has resulted in growing investments that require a stronger understanding of farmer needs and foundational data sets such as imports, exports, crop-specific formulations, etc., and an organic trust building between the private sector and the governments in which they operate.

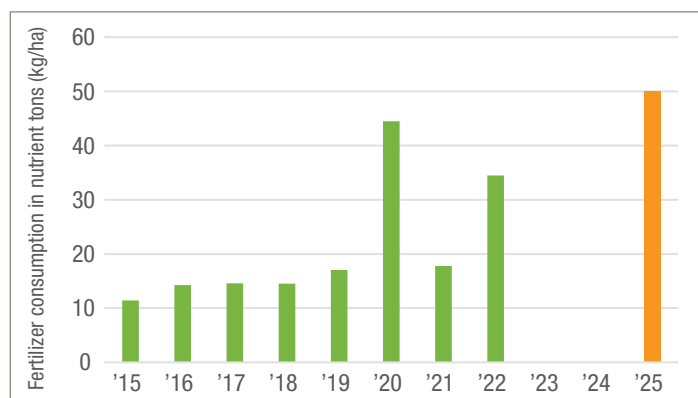
Robust partnerships have been a key piece in this shift. The International Fertilizer Development Center's Data Initiative, [AfricaFertilizer](#), [Development Gateway](#), [An IREX Venture](#), and Wallace & Associates, with funding support from the Bill and Melinda Gates Foundation (BMGF), collaborated to leapfrog the availability of validated fertilizer data across 8 countries in Africa. This has been done by simplifying existing, validated "meta-data" into a more palatable visual format. The program dubbed Visualizing Insights on Fertilizer for African Agriculture (VIFAA), has provided the tools to both policymakers and the private sector to improve their decision making through interactive, iterative [country dashboards](#) and web-based solutions.

The work under VIFAA has not only benefited the target countries but has also provided the foundational data collected under this partnership for the African Union Commission's (AUC) Comprehensive Africa Agriculture Development Programme (CAADP) as the authority on fertilizer data for the AUC Member states.

The VIFAA program covers 8 countries to date, namely Nigeria, Ghana, and Kenya; with the success in those countries accelerated to Ethiopia, Senegal, Malawi, Zambia, and Mozambique. To say that this was a much-needed intervention is an understatement. The

¹ www.AfricaFertilizer.org

▼ **Figure 1.** Fertilizer consumption data as appearing in the 4th Biennial Review report provided by VIFAA to be published in 2024 during the Heads of State Summit. (2025, Abuja target)



dashboards developed have opened up the fertilizer data space in a way years ahead of its time. **Policy makers can instantaneously see the fertilizer balance sheets of their regions, price movements, stock positions month on month, traded volumes etc. Private companies can remain agile in volatile price situations, ensuring constant fertilizer availability for farmers across the continent.**

Three countries have stood out under this investment: Ethiopia, Mozambique, and Nigeria. These three countries have registered phenomenal impact across the board. Let's take a deeper dive into the program's impact in these 3 countries.

ETHIOPIA: SHARING DATA AND LEADING FERTILIZER TECHNICAL WORKING GROUPS (FTWG)

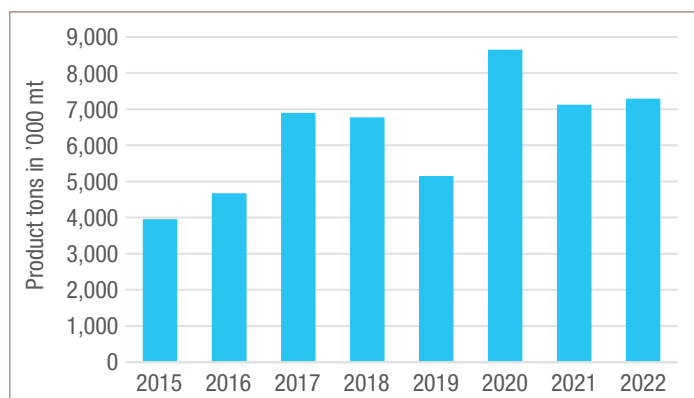
The Ethiopia market is the second biggest in Sub-Saharan Africa (SSA) with a consumption of around 2 million metric tons of fertilizer annually.² Ethiopia has about 80 million farmers (67% of the country's population)³ and has the potential to be a regional food basket. The country has two main fertilizer product variations in use – NP: nitrogen and phosphorus and their derivatives (NPS, NPSB, etc.); and urea. The Ethiopian fertilizer market is mainly controlled by the government with procurement centrally done through annual international tenders. This presents several challenges:

- **When does the procurement happen?** Particularly given the two fertilizer types are all imported, the government needs to understand the best time frame when the two products are at the least cost to ensure affordable products can reach its farmers.
- **Which source market has ample availability?** Understanding this gives the government an edge in better negotiating for cargo and delivery timelines.

² <https://viz.africafertilizer.org/#/ethiopia/use>

³ <https://www.fao.org/3/cc0137en/cc0137en.pdf>

▼ **Figure 2.** Fertilizer consumption data in product tons for 17 countries as appearing in the 4th Biennial Review report. All VIFAA countries are included.



- **Financial framework:** For a country usually plagued by inadequate forex, timely allocations from the Central Bank of Ethiopia are critical in not delaying finance tools like Letters of Credit (LCs) for procurement.

For the government, a clear understanding of the global market dynamics was essential in making these procurement decisions. One hurdle the VIFAA program had to overcome was building trust as a reliable source of this information, as well as building a support system in the form of a fertilizer technical working group that would ensure that the country has a framework for deliberating fertilizer issues in a neutral platform.

VIFAA successfully addressed these concerns by developing an [in-country dashboard](#) used by the procuring Government agency and Ethiopia Agricultural Business Corporation (EABC) to track international prices. The dashboards have also formed the basis of the developing briefs directly to EABC, ensuring timely tender announcements. Gathering the foundational data sets to develop the dashboard was a meticulous process that entailed wider stakeholder consultation to build trust and deployment of in-country experts to showcase why such an approach would be of value.

From these FTWG, Ethiopia stakeholders have been exploring privatizing some aspects of the market in an effort to increase efficiency. This remains an ongoing process, and monthly data updates to the developed platforms, such as the country dashboards on the AfricaFertilizer site, will ensure that the sector is well advised.

MOZAMBIQUE: GATHERING FOUNDATIONAL DATA AND INVESTMENT

Mozambique fertilizer data landscape has been opaque, with less-than-ideal data available at all levels; from capture at the point of entry to the quantity of volumes consumed within the country, to fertilizer formulations being demanded by farmers etc. It is against this backdrop that the country was identified as one

of the beneficiaries of the VIFAA accelerator phase; to address these bottlenecks.

Fertilizer usage in the country remains low in comparison to neighboring countries. Annual consumption is pegged at about 130,000 mt on average.⁴ Despite the low fertilizer volumes used, the country is a critical trade corridor for other Southern and Central African countries: Zambia, Zimbabwe, DRC, and Malawi. Beira port is the main Fertilizer discharge port in Mozambique. Additionally, 90% of fertilizers in Mozambique are sold to tobacco and sugar companies. These companies determine their formulations based on soil types and crop requirements and place annual tenders for supply. Understanding this critical country trade movement presents opportunities to access the Cost Build-up of products inland, the price points to farmers in those countries, stock procurement timelines, etc.

To lay the groundwork for the data landscape in Mozambique, the VIFAA team did several scoping visits and stakeholder engagement in the country to identify the blockers around these existing inefficiencies. The idea was to get buy-in from the government and customs officials as the key players in unlocking this. The team also validated the initially available data with the private sector. All these efforts then informed the acceleration phase. During the acceleration, VIFAA was able to constitute a Mozambique FTWG that would assist in the development of a country dashboard as well as build consensus around removing the distrust amongst the government and the private sector in sharing data. The fact that the data received under VIFAA is anonymized and shared as such was a game changer in those initial efforts.

Fast track a year into the accelerator in Mozambique, and we have had two main successes:

- The development of a functional FTWG that speaks to the fertilizer issues in Mozambique whilst acting as the primary point of validation on any stats received and put out.
- The VIFAA team recently deployed a study around improving the data collection at various levels to address the bottlenecks around correct entry capture and refine the trade flow data system currently in use by the Ministry of Agriculture. The fertilizer consumption figures in Mozambique have not been known for a long time largely due to the inefficient data entry systems. The study sought to address this. It also sought to address the perennial discharge issues on vessel arrival due to inefficient capture and operational issues, including licensing, importation approvals, etc.

- Studies in the past have shown that some of the hefty levies charged to the private sector in the importation of fertilizer have been due to the non-existence of a properly functioning transparent data capture system. Further investments in developing this system will be needed, which essentially translate to a more efficient throughput of fertilizers into the other hinterland countries.

The success achieved in Mozambique is undeniably attributed to the pivotal role of partnerships between the private and public sectors. The VIFAA program, facilitated by the accelerator, exemplifies the effectiveness of this collaborative approach. Several key components highlight the significance of these partnerships in achieving remarkable outcomes during this period:

- **Close Collaboration:** The success in Mozambique underscores the importance of close collaboration between the private and public sectors. This collaborative effort ensures that the strengths and resources of each sector are harmoniously integrated, creating a synergistic force that propels the project forward.
- **Leveraging Existing Frameworks:** The utilization of pre-existing data frameworks such as the FAO country STAT, although rudimentary, demonstrates the strategic leveraging of existing structures. Country STAT's mandate was to act as the national level framework for agricultural data and using this data, countries would have the tools to develop better sector policies. Unfortunately, most country STATS have since become defunct. The International Fertilizer Development Center (IFDC), through its data initiative AfricaFertilizer, took up the fertilizer data role and set up what is today known as Fertilizer Technical Working Groups. These FTWGs serve as the primary vehicle for fertilizer data validation as well as discussing national level fertilizer issues. By building upon pre-existing foundations, the VIFAA program maximized efficiency and minimized redundancies, creating a streamlined path for project implementation.
- **Innovation through Dashboards:** When VIFAA wireframed the Mozambique country dashboard, the partnership had to capitalize on the development of a strong partnership with the national-level fertilizer platform, AMOFERT.⁵ Introducing a world-class agile [fertilizer data dashboard](#) showcases the power of innovation stemming from this collaboration. The private sector's eager adoption of the dashboard was mid-wifed by AMOFERT⁶ through rigorous trust-building engagements over

5 AMOFERT Mozambique study: https://ifdc.org/wp-content/uploads/2018/10/5.1.Carlos-Zandemela_Final-Nairobi-2018-1.pdf

6 Distribution systems Mozambique assessment : https://agra.org/wp-content/uploads/2020/08/Mozambique-Report_Assessment-of-Fertilizer-Distribution-Systems-and-Opportunities-for-Developing-Fertilizer-Blends.pdf

4 FTWG Data: <https://viz.africafertilizer.org/#/mozambique/use>

time. The public sector's domain knowledge and the willingness of the Government to open up on the fertilizer regulations framework, combined to produce a solution that not only met the industry's expectations.

- **Setting up the FTWG framework enabled efficiency in Data Sharing:** Tapping into the private sector's efficiency was crucial in overcoming challenges such as distrust in data sharing with the Government. Through collaborative efforts, including the use of non-disclosure agreements, anonymization of data sets for the dashboards, and several industry dialogues, the partnership navigated these complexities, fostering a culture of transparent and efficient data sharing that is essential for informed decision-making through the FTWG. Through repeated efforts, VIFAA built trust amongst the stakeholders to set up a monthly and quarterly data sharing mechanism from the private sector and customs/Government, respectively. This efficiency is pivotal to the sustainability of such dashboards.
- **Timely Implementation:** Being able to complete and launch the country dashboard in a timely manner highlights the agility that arises from a well-executed public-private partnership. The private sector's focus on structured timelines complements the public sector's objectives, ensuring project milestones are achieved promptly. The pre-accelerator documentation of learnings for efficiency in activities played a role in the success of this phase.
- **Optimal Utilization of Innovation Funds:** The VIFAA partners collaborate, both internally and externally with stakeholders, optimally utilized innovation funds earmarked for transformative data gaps and interventions. The private sector's ability to drive game-changing initiatives, such as data capture improvement work through 3rd party providers such as [QED](#), ensured that allocated funds resulted in well synthesized findings that would be the basis of an efficient data capture system. In Q3 2023, the innovation fund work helped identify the bottlenecks around data capture and efficient management.
- **Sustainability through Platform Updates:** The establishment of a framework for sustainable and regular updates to the dashboard reflects a forward-looking approach. This ongoing collaboration ensures that the implemented solutions remain relevant, adapting to evolving needs and technological advancements.



NIGERIA: CO-FINANCING AND PRIVATE STAKEHOLDER SUSTAINABILITY EFFORTS

The VIFAA program has been engaged with the Nigeria stakeholders at all levels for 5 years now. The culmination of these efforts has been marked by huge success in leveraging private sector co-funding to the VIFAA activities. Nigeria was the second country to have a [fertilizer dashboard](#) by virtue of the VIFAA work and several impact stories have come out of that investment:

- The data offered under the VIFAA dashboard prompted the private sector to crowd fund for additional nuanced data sets that the partnership has been able to provide under this model for the last two years. Such additional data requirements included granular retail price work in all 36 states in Nigeria. Initially, VIFAA was only able to provide for 15 states, NPK data collection and validation, a first in the continent, quarterly situational statements that have been widely used to inform raw material purchase, etc.
- The substantial increase in domestic NPK production capacity, coupled with the prohibition of imported finished NPK fertilizers, emphasized the importance of comprehending both the volume and composition of locally manufactured NPKs. To that end, the first of its kind NPK Blending validation activity was requested by the blending sector in Nigeria and the Nigeria Sovereign Investment Authority (NSIA) to understand the NPK raw material utilization and to plan for the timely procurement of the same. This also enabled the blenders to identify the untapped markets in Nigeria for sales expansion. For example, in Kebbi state, for a long time, most blenders had not made sizeable investments in raw material blending whilst the data from the NPK work and subsequently a fertilizer use by crop (FUBC) study done with this data identified Kebbi as one of the states with immense potential for fertilizer consumption.
- The Nigeria fertilizer sector as a whole has benefited from Fertilizer use by crop (FUBC) studies carried out under the private sector and VIFAA funding to highlight the distribution chain of

fertilizers in the country as well as identify crop value chains that the government needed to support as well as private sector involvement in ensuring timely and adequate fertilizer access.

This private sector approach forms the basis of sustainably running the developed frameworks and dashboard post VIFAA but also opens up doors for deeper engagements to understand the fertilizer pain points in Nigeria and offer insights into designing a country level intervention/program for the next few years.

The journey of the VIFAA program in Nigeria over the past five years highlights a remarkable transformation, particularly in overcoming initial apprehensions from the private sector. The strategic engagement that shifted perceptions from viewing the program as solely “public sector good” to recognizing its broader value proposition has proven instrumental. Here’s a refined description of the evolution and current impact:

TRANSFORMATION AND STRATEGIC ENGAGEMENT

Five years ago, when the VIFAA program commenced in Nigeria, the private sector initially harbored apprehensions, characterizing the initiative as primarily serving public sector interests. Overcoming this skepticism required a strategic and concerted effort to demonstrate the program’s comprehensive value proposition. Through targeted engagement by way of co-designing the country dashboard and various data sets, utilization of non-disclosure agreements for trust building, data sharing agreements with the customs departments/ Fertilizer Producers and Suppliers Authority-FEPSAN etc., the narrative shifted from a perception of narrow utility to a recognition of the broader benefits that both sectors could derive.

CURRENT IMPACT AND INDUSTRY RECOGNITION

Fast forward to the present day, the VIFAA program has become an indispensable force in the fertilizer sector, with a growing demand for its insights. The program’s ability to provide nuanced feedback on market developments has positioned it as a key player in the industry. Notably, four major fertilizer players in the market; Indorama Eleme Fertilizers & Chemicals Limited, Dangote Fertilizer Limited, Golden Fertilizers Limited, OCP Africa Fertilizer Nigeria Limited, and two Industry Associations; FEPSAN and The Nigeria Sovereign Investment Authority (NSIA) now routinely leverage VIFAA’s data points to inform critical decisions in areas such as marketing and procurement. Other notable data-into-use examples include a Public expenditure review study by World Bank on Fertilizer policy in Nigeria and the [Presidential Fertilizer Initiative PFI](#), a donor project designed by the Netherlands Embassy through [HortiNigeria](#), a project run under IFDC, etc. Most recently,

the [cropland data](#) generated via the VIFAA Innovation Fund activity with QED was also used alongside the World Bank funded Living Standards Measurement Study (LSMS) data from Nigeria National Bureau of Statistics (NBS) to aggregate the validated and sole FUBC study in Nigeria.

CALIBRATING DECISIONS AND GOVERNMENT INVOLVEMENT

The tangible impact of the VIFAA program is evident in how major industry players utilize its data points monthly. This data-driven approach allows these players to calibrate their marketing and procurement decisions with precision, optimizing their strategies in response to dynamic market conditions.

Beyond the private sector, the government has also recognized the pivotal role of VIFAA. The government’s acknowledgment of the program’s importance is underscored by its decision to involve VIFAA partners in a comprehensive assessment study of the Presidential Fertilizer Initiative (PFI). This study specifically evaluates the efficacy of the country’s long-standing fertilizer program whose aim is to enhance access to fertilizers for smallholder farmers while concurrently building internal capacity for blending and manufacturing.

The collaborative framework inherent in the VIFAA approach not only underscores the potency of partnerships but also highlights the imperative need for collective effort in navigating the intricacies of the fertilizer market in Africa. This market is inherently complex, marked by multifaceted challenges. Effecting substantial change that positively impacts the more than 33 million farms responsible for producing over 70% of the continent’s food necessitates a substantial collaborative approach across program design, implementation, and the attainment of tangible impact.

The term “VIFAA,” derived from Swahili and translating to “tool,” encapsulates the program’s essence. It serves as a means to ensure that collaborative decisions, critical for the agricultural landscape, are informed by robust data. VIFAA is pivotal in providing essential tools to governments, private sector entities, suppliers, and farmers. These tools facilitate the seamless functioning of the fertilizer value chain, ensuring efficiency and effectiveness in delivering this essential agricultural input.

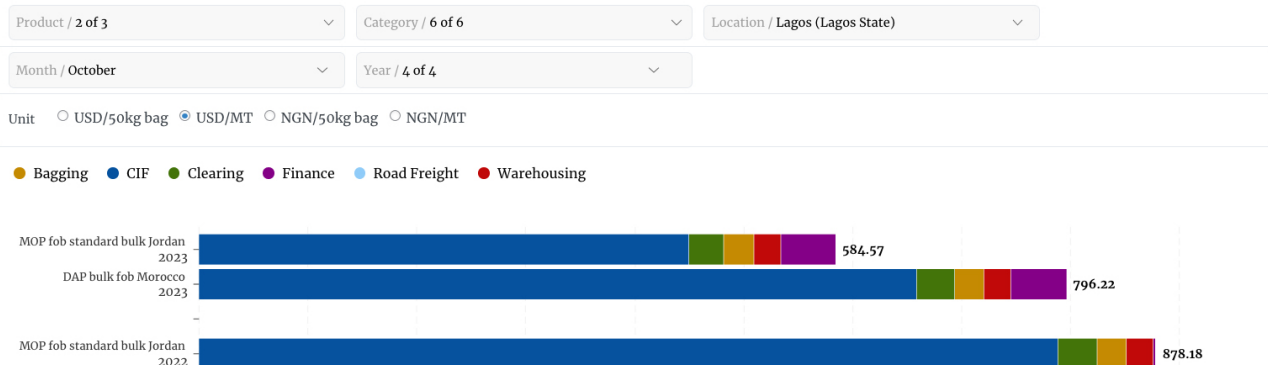
This is especially crucial in a sector as intricate as fertilizers, where informed decisions are pivotal to address challenges, foster transformative change, and propel agricultural productivity, potentially leapfrogging the green revolution. Amid the last three years, with challenges around COVID-19, geo-political conflicts, currency devaluation and access; and climate change woes, fertilizer has emerged as a critical input for agricultural productivity.

Fertilizer Price Data

This Page visualizes key price information for Nigeria's fertilizer sector. Scroll down to explore the data, or jump to a specific chart.

- Fertilizer cost build-up by year
- Fertilizer Retail Price
- Evolution of Retail Price Over Time
- Monthly International Price
- Quarterly International and Retail Price Trends

Fertilizer cost build-up by year



VIFAA has successfully addressed the core challenge of providing the necessary tools for all stakeholders involved in the fertilizer value chain. By doing so, it has facilitated smoother operations and positioned itself as a catalyst for transformative decisions. As the agricultural landscape continues to evolve, the collaborative nature and data-driven approach of VIFAA stand out as a solution, showcasing the power of partnership in addressing complex challenges and driving positive change in the vital sector of fertilizers in Africa.

As the final year of the “proof of concept” phase unfolds, VIFAA emerges as a promising model with the potential for scalability across diverse geographies within Africa. The success achieved thus far sets the stage for elevated impact and further investments from stakeholders across various sectors could propel this innovative approach to the next level.

The backdrop against which VIFAA operates is marked by a notable growth in Africa’s fertilizer consumption, expanding at an annual rate of 11% and by extension sustaining this growth trajectory positions the continent to achieve the Abuja target of 50 kg/Ha in nutrient tons by 2030. This ambitious goal entails doubling the existing consumption, generating a substantial data need across different countries.

VIFAA, through its empirical-based decision models, has demonstrated the efficacy of data-driven approaches in steering outcomes toward desired goals while optimizing the utilization of existing resources. The program’s success underscores the value of informed decision-making in navigating the complexities of the fertilizer landscape.

To fully harness the potential of VIFAA and address the burgeoning data requirements accompanying the growth in fertilizer consumption, there is a call for more “crowding-in” of stakeholders. Encouraging increased participation and investment from a diverse array of actors will not only expand the scope of the VIFAA approach but will also foster a collaborative environment wherein the collective strengths of various stakeholders can be harnessed for a more comprehensive impact.

At the very core of the success of the VIFAA approach, collection and validation of foundational data sets has remained the surest way of getting a “status report” on the fertilizer health of a country. As the continent gears up for the Fertilizer and Soil Health Summit, 4 key areas must be emphasized:

- Investments in innovative approaches** such as in the VIFAA work need to be prioritized.
- Cross-sector collaboration** will be extremely critical especially in the roll-out of the Fertilizer Soil Health Summit outcomes.
- Address data** needs through scaling up geographically as well as in-depth of data provided.
- Building data knowledge** on fertilizer use to inform soil health and nutrient use efficiency.

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