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**A Historical Review of Fertilizer Policies in Nigeria**

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## **Abstract**

In its endeavor to improve agricultural productivity, food security, and livelihoods, Nigeria has pursued several approaches in fertilizer policy. Most of these approaches revolved around variants of government-financed subsidy programs. This paper assesses the history of fertilizer policies in Nigeria and the tenets of the fertilizer policies in two recent national agricultural policy documents – the Agricultural Transformation Agenda (ATA) (2010/11-2016) and the Agricultural Promotion Policy (APP) (2016-2020). Our review results show that despite some recent achievements in ATA and APP, Nigerian fertilizer policies have lacked consistency and continuity, which in turn affected the functioning of supply chains, logistics channels including distribution costs, fertilizer prices, farmers' access to the input, and, ultimately, application rates and crop productivity. Thus, though Nigeria is one of the leading producers of fertilizer in sub-Saharan Africa, fertilizer consumption and farm application rates are generally low (below 20 percent of the application rate per hectare (ha) in developed countries). Moreover, several exogenous factors including poor infrastructure (especially bad roads), credit constraints, extension services, high fertilizer prices, lack of access to information, security threats, and lack of quality control or assurance also affect the functioning of fertilizer supply chains in Nigeria. The newly adopted national agricultural policy (National Agricultural Technology and Innovation Policy (NATIP) promises to build on ATA and APP and gradually deregulate the fertilizer sector to incentivize private sector investments in local fertilizer production and distribution. NATIP also requires the incorporation of practical approaches to tackle important exogenous constraints. We anticipate NATIP's commitment to policy continuity and addressing exogenous challenges will bring efficiency and effectiveness to the fertilizer sector in Nigeria.

**Key Words:** Agricultural inputs, Fertilizer policies, Government interventions, Smallholder farmers, Subsidies

JEL: H71, Q12, Q18

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## Acronyms

ADP	Agricultural Development Project
AFAP	African Fertilizer and Agribusiness Partnership
AfDB	African Development Bank
AGRA	Alliance for Green Revolution in Africa
APP	Agricultural Promotion Policy
ATA	Agricultural Transformation Agenda
CBN	Central Bank of Nigeria
DAIMINA	Developing Agricultural Inputs Markets in Nigeria
DAP	Diammonium Phosphate
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization of the United Nations
FCT	Federal Capital Territory
FEPSAN	Fertilizers Producers & Suppliers Association of Nigeria
FGN	Federal Government of Nigeria
FMARD	Federal Ministry of Agriculture and Rural Development
FMFBNP	Federal Ministry of Finance, Budget and National Planning
FMSP	Federal Market Stabilization Programme
FPDD	Fertilizer Procurement and Distribution Division
FSFC	Federal Superphosphate Fertilizer Company Ltd
GDP	Gross Domestic Product
GESS	Growth Enhancement Support Scheme
GON	Government of Nigeria
IED	Improvised Explosive Devices
IFDC	International Fertilizer Development Center
IPCC	Intergovernmental Panel on Climate Change
LSG	Locally Sourced Limestone Granules
MIRA	Micro Reforms for African Agribusiness
MoFI	Ministry of Finance Incorporated
MOP	Muriate of Potash
MT	Metric Ton

NAFCON	National Fertilizer Company of Nigeria
NAIC	Nigerian Agricultural Insurance Corporation
NAN	News Agency of Nigeria
NATIP	National Agricultural Technology and Innovation Policy
NPK	Nitrogen Phosphorus and Potassium
NSIA	Nigeria Sovereign Investment Authority
PDP	Primary Distribution Points
PFI	Presidential Fertilizer Initiative
PWC	PricewaterhouseCoopers
SSA	Sub-Saharan Africa
SSP	Single Super Phosphate
VAT	Value-added Tax
VIFAA	Visualizing Insights on Fertilizer for Africa Agriculture
WB	World Bank

## 1. Introduction

Like many other developing countries, agriculture is the mainstay of the Nigerian economy. This was especially true of agriculture's contribution to Nigeria's GDP and export earnings before the discovery of crude oil and particularly before the oil boom of the 1970s. From 1960 to 1970, agriculture contributed about 55.8 percent of Nigeria's GDP (Izuchukwu, 2011; Mohammed, 2012; Adenomon et al., 2013) and generated about 64.5 percent of total export earnings (PwC, 2017). However, its contribution witnessed a steady decline from 1970 to the 2000s because economic focus was shifted to petroleum exploration after the advent of crude oil. In 2018, the contribution of agriculture to GDP fell as low as 21.5 percent, while 25.75 percent came from industry, and 52 percent from the services sector (Plecher, 2020). Over 90 percent of foreign exchange is derived from the oil sector. Despite the partial neglect of agriculture, the sector still employs almost 70 percent of the labour force (Odetola and Etumnu, 2013; World Bank, 2019), 80 percent of which are smallholders having less than 2 hectares of land and who produce 99 percent of Nigeria's agricultural outputs. Productivity remains low due to inadequate access to yield-enhancing modern agricultural inputs and technologies such as fertilizer and improved seeds (Anderson et al., 2017; Balana and Oyeyemi, 2022). Broadly, the agricultural sector in Nigeria suffers from two major challenges: (i) the sector's inability to meet domestic food requirements for its growing population, and (ii) the inability of the sector to export at quality levels required by international markets (FMARD, 2016).

The sector has yet to realize its potential in terms of GDP contribution, export earnings, jobs creation, or sustained food security. To do so requires enhancing agricultural productivity using modern technologies and inputs, mainly use of inorganic fertilizer (Nagy et al, 2002; Macrotrends, 2020; Worldometers, 2020). Fertilizer is regarded as any natural or synthetic product that supplies essential nutrients when applied to the soil or to the plant tissue to aid the growth of the plant. In the past, application of chemical fertilizer was not widely practiced in Nigeria because of the abundance of arable land, which enabled farmers to practice slash-and-burn farming or shifting cultivation to maintain soil fertility. Presently, however, population growth and declining soil fertility have necessitated fertilizer-intensive techniques of crop production. Farmyard manure was also used to improve soil fertility within the conventional context but has faced severe limitations from the decrease in the country's animal population, particularly since the drought of the 1970s and 1980s that reduced the cattle population (FEPSAN, 2014).

A recent IPCC report (Mbow et al., 2019) shows that global consumption of nitrogen fertilizer increased by almost 800 percent between 1961 and 2019 and significantly contributed to agricultural productivity. Inorganic

fertilizer is essential in the Green Revolution alongside other inputs to achieve the output potential of hybrid or other improved varieties. It became popular in Nigeria around 1973 when its potential was revealed by an agriculture department experiment that combined farmyard manure with a single superphosphate fertilizer for cereal production. Inorganic fertilizer became both an alternative and a complement to organic fertilizer and facilitated increased productivity when improved crop varieties were introduced (FEPSAN, 2014).

Nigeria became the largest market for fertilizer in the West Africa region, consuming an estimated 45 percent of total fertilizer in the ECOWAS states (Fuentes, 2012; Balu et al., 2012; Fasakin & Egbeadumah, 2020). Yet, access to fertilizer remains a challenge despite the enactment of several policies by the Federal Government of Nigeria (FGN) to ensure farmers have adequate access to the input. Between 1961 and 2010, average fertilizer consumption in Nigeria was about 6 kg/ha, compared to 22.2 kg/ha in sub-Saharan Africa (SSA), and increased to an average of 9 kg/ha between 2012 and 2015 against 38 kg/ha from SSA. Although average consumption for Nigeria improved to 17.4 kg/ha between 2016 and 2018, this was still more than 2.5 times less than the average for SSA (44.4 kg/ha) and about 10 times less than the world average of 184.37 kg/ha (World Bank, 2018). This average is also below the recommended fertilizer application target of 50 kg/ha set for Africa by the Abuja Declaration on Fertilizer for an African Green Revolution (Maria, 2011; Tsakok, 2019; Winnie et al., 2022). Fertilizer consumption in developing countries like Nigeria has been highly dependent on government policies and programs, including subsidies that provide farmers access to fertilizer at discounted rates.

This paper aims to document the history (up to 2010) of fertilizer policies in Nigeria and the tenets of the fertilizer policies in the two recent national agricultural policy documents—the Agricultural Transformation Agenda (ATA) (2010/11–2016) and the Agricultural Promotion Policy (APP) (2016–2020). The paper also presents comparative assessments of fertilizer policies in the ATA, APP, and the newly launched six-year National Agricultural Technology and Innovation Policy (NATIP) (2022–2027).



## 2. Overview of fertilizer markets

### 2.1 Fertilizer demand

“Fertilizer consumption” measures the quantity of plant nutrients used per unit of arable land. The fertilizer products included are nitrogen, potash, and phosphate fertilizers (including ground rock phosphate) and not include traditional nutrients such as animal and plant manures (World Bank, 2018). Generally, in Africa, fertilizer consumption is the lowest in the world and is one of the primary causes of poor crop output (AfDB, 2019). As of 2018, fertilizer consumption in Nigeria stood at 19.7 kg/ha (World Bank, 2018) and is considered low (Kherallah, 2002) when compared to over 100 kg/ha in Europe, North America, and China (Rurinda et al., 2020). Fertilizer subsidies play a major role in the intensive use of chemical fertilizer, a trend observed in the Green Revolution in Latin America and Asia (Eicher, 1995) and which is similarly observed in Nigeria. The Federal Government of Nigeria (FGN) implemented several subsidy programs to help farmers boost agricultural productivity and revenue on the grounds that farmers cannot afford costly fertilizers. Yet, it has been argued that, despite the high price, farmers would use more fertilizer if they were assured of: (1) the quality of the fertilizer, including appropriate packaging; (2) the timely availability of fertilizer; and (3) the easing of constraints to credit access and the high cost of borrowing (Nagy and Edun, 2002).

Fertilizer consumption in Nigeria fluctuated substantially from 1969 to 2018. Theoretically, in a functioning market system, the demand for fertilizer is driven by the demand for the crops farmers produce (Okoroafor, 2010). Unfortunately, because of market distortions, supply-chain problems, lack of access to credit (IFDC & AFAP, 2018), and poor infrastructure, among other constraints, fertilizer consumption and demand in Africa is not guided by market signals (Okoroafor, 2010). For instance, despite the Presidential Fertilizer Initiative (PFI) in Nigeria that sets out to deliver nitrogen, phosphorus, and potassium (NPK) fertilizer to farmers at the rate of ₦5,500 per 50 kg bag, the price farmers paid for fertilizer was twice the PFI price toward the end of 2021 and more than triple the PFI price in 2022. Table 1 presents prices of the three key fertilizer types (NPK, phosphate, and urea) since 2010. Table 1 shows that fertilizer prices increased more than three- or fourfold over a decade. From the smallholders’ perspective, increasing fertilizer prices coupled with uncertainty in output market prices discourage fertilizer application, and thus weaken farmers’ productivity and profit. As shown in the last two columns of Table 1, fertilizer prices increased more than 200 percent in the decade between 2012 and 2022 and more than doubled in the five years between 2018 and 2022. The last row in Table 1 shows the trend in official exchange rates of Nigerian naira against the US dollar, with the naira depreciating over time, particularly since 2015, which may have played a role in fertilizer price inflation.

Table 1. Fertilizer prices in Nigeria (nominal annual average in naira/50 kg bag)

Fertilizer type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Inflation (10 yrs.)	Inflation <sup>1</sup> (5 yrs.)
NPK 12-12-17 + 2MgO	3,600.00	4,287	n/a.	n/a	4,669	5,101	n/a	8,336	7,978	7,643	8,446	10,338	14,057	n/a	0.76
NPK 15-15-15	4,439.94	4,806	5,529	5,165	4,653	5,091	6,437	7,743	7,264	8,734	10,074	11,936	17,646	2.19	1.43
NPK 20-10-10	4,171.14	4,552	4,698	4,802	4,749	5,272	6,394	7,611	7,578	7,790	9,492	9,630	15,928	2.39	1.10
NPK 27-13-13	n/a	n/a	5,497	n/a	5,401	6,048	6,800	9,774	9,374	10,742	12,441	14,238	19,238	2.50	1.05
Single Super Phosphate	3,628.80	4,635	3,924	3,714	4,043	4,537	5,952	6,772	5,692	5,543	6,711	10,645	13,500	2.44	1.37
Urea	4,004.18	4,577	5,291	5,055	4,890	5,323	6,736	7,741	6,982	6,618	7,464	10,871	16,255	2.07	1.33
Exchange rate of naira per 1 US dollar <sup>2</sup>	122.26	155.94	158.80	159.27	165.15	197.88	257.66	333.71	361.29	360.06	380.26	403.58	419.11	-	-

**Source:** Authors' computation based on data from Visualizing Insights on Fertilizer for Africa (VIFAA), a program supported by the Bill & Melinda Gates Foundation and implemented in Kenya, Nigeria, and Ghana to map the demand, supply, and use of fertilizer data; dashboards and tools to improve, manage, and visualize fertilizer data in Africa.

<https://vifaanigeria.org/#/nigeria/home>

**Notes:**

n/a = price data not available.

<sup>1</sup>Inflation figures were computed to reflect changes in the fertilizer prices between 2012 and 2022 (10 years) by subtracting the 2012 prices from 2022 prices and dividing the difference by 2012 prices. Similarly, we subtracted 2018 prices from 2022 prices and divide the difference by the 2018 prices to get the 5 years inflation figures.

<sup>2</sup>Historical exchange rate was obtained from - <https://www.exchangerates.org.uk/USD-NGN-spot-exchange-rates-history-2022.html> (accessed on 21 October 2022).

## 2.2 Fertilizer supply

Until 1987, Nigeria relied on the importation of fertilizer, which constituted about 90 percent of the country's total fertilizer supply (Evbuomwan, 1991; Liverpool-Tasie & Takeshima, 2013; FEPSAN, 2014). Imported fertilizer was complemented by a small quantity of domestic production until recently, when government policy changed to favor domestic production and reduced the importation of fertilizer (Evbuomwan, 1991). Before 1987, a single superphosphate factory was the only available domestic production plant in Kaduna State, with production of less than 5 percent of the total fertilizer supply in Nigeria. Domestic fertilizer supply gained more attention in 1988 when the National Fertilizer Company of Nigeria (NAFCON) commenced production of NPK and supplied up to 35 percent of the total fertilizer distributed up until 1991. This effort was complemented blending plant, the Fertilizer and Chemical Company, established in 1989 in Kaduna State. The blending plant focused on the production of NPK 20:10:10 + IZ + 25 and accounted for 10 percent of

total fertilizer supplies in the 1990 cropping season (Evbuomwan, 1991). Two other smaller blending plants were established in 1990, and both accounted for about 6 percent of the total fertilizer required in 1990.

By focusing on domestic production, the supply of imported fertilizer was reduced to about 40 percent between 1990 and 2018 and reduced further still by 82 percent from 2018 to 2019 (IFDC, 2020). The Nigerian government's policy strategy focused on developing local raw materials for fertilizer production and encouraging the private sector to manage the fertilizer business. Since the 2016 PFI, there have been tremendous changes in the fertilizer sector and farmers' increased access to reduced-price fertilizer has led to improved fertilizer consumption. These improvements to the fertilizer sector are a direct result of revamping the fertilizer sector, especially the moribund fertilizer industries.

Several private firms are currently investing in domestic fertilizer production, spurred by the 2016 PFI and opportunities to build brands. Currently, there are 58 fertilizer blending plants and four urea manufacturing plants<sup>1</sup> available in Nigeria with capacities of about 11.9 million and 6.5 million metric tons,<sup>2</sup> respectively (<https://vifaanigeria.org/#/nigeria/directory>). Although many of these blending plants were in decline before the emergence of the PFI, Nigeria has since become the leading producer of fertilizer on the African continent. President Muhammadu Buhari, speaking at the March 2022 inauguration of the Dangote Fertilizer plant, stated that Nigeria will begin exporting fertilizer. The Dangote Fertilizer Plant has a production capacity of 3 million tons of granulated urea per year. Other big manufacturing fertilizer plants include the Indorama Eleme Petrochemicals Limited, with an annual production capacity of 3 million tons, and Notore Chemical Industry, with an annual production capacity of 500,000 tons (Notore, 2020).

Despite increases in fertilizer production, Nigeria's fertilizer industry still faces quality control challenges—revitalized fertilizer plants may be hampered by a lack of expertise and outdated equipment. As a result, the fertilizer industry is often marked by inconsistent production and low-quality products. In addition, Nigeria's distribution channels are underdeveloped and rely on government initiatives like subsidies rather than a market-based approach.

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<sup>1</sup> See Appendix 1 for the list of fertilizer manufacturing plants in Nigeria and their production capacity.

<sup>2</sup> Throughout this paper, tons refers to metric tons.

### 3. History of fertilizer policies in Nigeria

In this section, we assess the key features of past fertilizer policies prior to the enactment of the two recent national agricultural policies in Nigeria—the Agricultural Transformation Agenda (ATA) (2010/11–2016) and the Agricultural Promotion Policy (APP) (2016–2020). Nigeria has developed and adopted various agricultural policies since its independence in 1960 with the aim of developing local food production for its growing population (Yusuf, 2019). Federal and state governments monopolized fertilizer distribution by assigning roles to state and local governments to manage the procurement, distribution, and price determination of fertilizer in a bid to strengthen Nigerian food security (FEPSAN, 2012). However, the government's fertilizer policies encountered numerous drawbacks in implementation and corrupt practices arose from porous loopholes. As a result, farmers, the intended beneficiaries of these policies, often did not receive fertilizer. Furthermore, the nationalized direct procurement and distribution of fertilizer weakened the ability of the private sector players to participate and compete efficiently for market share. Thus, like most subsidy regimes, the fertilizer sector remained grossly underdeveloped and opportunities for fraud and diversion were rampant (Olomola, 2016).

**Prior to 1976:** State governments independently managed the procurement and distribution of fertilizer through sales agents and the extension system until FGN established the Fertilizer Procurement and Distribution Division (FPDD) in 1976. The FPDD was a central fertilizer procurement unit within the Federal Ministry of Agriculture, tasked with implementing the subsidy scheme on a national basis and ensuring timely delivery of fertilizer to farmers. The subsidy scheme was also introduced to motivate nationwide adoption of fertilizer and accelerate the national drive towards self-sufficiency in food production and raw materials for agro-based industries (Evbuomwan, 1991). Fertilizer was subsidized between 25 and 50 percent of the landed cost (Eboh et al., 2006) and sold at different prices in different states (Nagy et al., 2002). Despite the availability of subsidized fertilizer, farmers lacked the appropriate knowledge of its application. Extension agents were employed to educate farmers on the benefits of fertilizer and general best agronomic practices, including fertilizer application. Major challenges to this subsidy scheme consisted of interstate arbitrage; congested ports and demurrage charges; no control over fertilizer type, fertilizer quality, or package quality; and poor subsidy administration and control (Nagy et al., 2002).

**Between 1976 and 1988:** The FGN implemented a new fertilizer policy between 1976 and 1988 that centralized the procurement and distribution of fertilizer through Primary Distribution Points (PDP), a strategy that was directly managed by the FPDD and attempted to address the problems of the subsidy scheme. The

policy supported domestic production capacity to meet a significant proportion of fertilizer demand and birthed the Federal Superphosphate Fertilizer Company Ltd (FSFC) and the National Fertilizer Company of Nigeria (NAFCON). Whereas the FSFC was capable of producing 100,000 tons of single super phosphate (SSP), NAFCON produced 1,000 tons per day (tpd) of ammonia, 1,500 tpd of urea, and 1,000 tpd of NPK, with 586,000-ton blending capacity (Liverpool-Tasie et al., 2010a, 2010b). The establishment of the FSFC and NAFCON not only made fertilizer available locally but also supported a long-term goal of saving or earning foreign exchange from the fertilizer (Ayoola et al., 2002). Other initiatives targeting the public and private sector initiatives birthed several fertilizer blending plants in various parts of the country that complemented the imported fertilizer (IFDC, 2018).

The FPDD procured imported and locally produced fertilizers from the FSFC, and then managed the cost of transportation and delivery of the products to the established depots (Liverpool-Tasie et al., 2010a, 2010b), at which point state governments would distribute the fertilizers to farmers through agro-service and farm service centers. The subsidy rate during this time ranged from 75 to 85 percent (Eboh, 2006). This policy came with a handful of challenges, particularly for imported fertilizer. Moreover, the underlying challenges of the pre-1976 period persisted despite the introduction of the new policy. Other persisting challenges included excessive storage, transit losses, and late to no delivery of fertilizer due to transport problems. Very little changed until 1991 when the FPDD created six additional fertilizer depots in various parts of the country (Minna, Gombe, Lagos, Port Harcourt, Funtua, and Makurdi) to improve the efficiency of the distribution system. The subsidy rate during this time ranged from 70 to 82 percent, and though physical transportation of fertilizer from the port and the FSFC became the responsibility of state governments, the FGN reimbursed transportation costs. However, many states abandoned their shares of fertilizer at the port because of a lack of funds for transportation costs. This caused the FGN to incur extra charges of demurrage and warehousing. Overall, the policy reduced operational costs, but the high cost of the program and its inefficiencies related to extensive handling, storage, and transit losses (Nagy et al., 2002) inevitably led to its failure.

The fertilizer depots were eventually abandoned between 1992 and 1994. The FGN was forced to pivot and use the FPDD for the distribution of imported fertilizer only, while NAFCON became responsible for the distribution of locally produced fertilizer. The State Ministry of Agriculture and Agricultural Development Projects (ADPs) heavily supported the new distribution system. The FGN also employed external consultants to monitor the fertilizer system. This change in strategy managed to reduce operational costs, but non-delivery of fertilizer and handling, storage, and transit losses persisted. The consultants identified the culprits

sabotaging the policies, but they were not charged because government regulation and accountability were weak (Nagy et al., 2002). The fertilizer subsidies implemented during this time were 75 percent in 1992 and 65 percent in both 1993 and 1994. In 1994, the FGN engaged state and local governments to distribute 20 and 80 percent of the fertilizer, respectively, for just a year before this approach was abandoned. Still, the subsidy continued to be the responsibility of government across the federal, state, and local levels (Nagy et al., 2002).

**Between 1994 and 1996:** In 1994, despite multiple efforts by the government to address the challenges that plagued the fertilizer sector, it became imperative that sector reform prioritize private sector participation since previous policies were ineffective and unsustainable. Hence, the FGN began the reform process accordingly. Some headway appeared to have been made when full liberalization or privatization was adopted in 1996 with the aim of improving production, procurement, and marketing efficiency and encouraging transparency and competition. During this time, the FGN completely withdrew from the procurement and distribution of fertilizer (Liverpool-Tasie et al., 2010a, 2010b).

NAFCON and other blending plants remained in charge of distributing locally produced fertilizer. As a result, the supply chain was arranged in such a way that states would pick up their allotted portion at the fertilizer plants and receive reimbursement for the cost of transportation, and as previously mentioned, the FGN employed a task force to monitor the distribution system to ensure an effective supply chain network and curb corrupt practices. However, the improvements to performance were insignificant. Some states continued to struggle to afford transport costs despite reimbursement. The fertilizer subsidy was eventually discontinued and the import tariff on fertilizer was reduced from 10 percent in 1996 to 5 percent in 1997, and zero percent in 2000. The FGN also abolished the value-added tax (VAT) and excise duty, to the relief of farmers. To increase the availability of blended fertilizer products, many states established blending plants of their own, while others continued to procure their products directly from designated private sector producers and importers at the prevailing open market price and distributed them to farmers at subsidized rates. Between 1994 and 1999, in contrast to the expected outcome of government reforms over this period, fertilizer use decreased from about 500,000 tons to less than 100,000 tons. In the end, the drastic decline of fertilizer use resulted from a poorly laid foundation for sector privatization (IFDC, 2001).

**Reintroduction of fertilizer subsidy (1999–2006):** The FGN reintroduced a fertilizer subsidy of 25 percent in May 1999 under the Federal Market Stabilization Programme (FMSP) with a focus on improving the livelihoods of poor farmers. About 101,000 tons of fertilizer were procured and distributed to the smallholder

farmers. This strategy was discontinued in August 2000, and the import tariff was abolished. In 2001, the FGN procured 164,000 tons and subsidized a portion of it to farmers to ensure improved food security, and in 2002, approved the procurement of 163,700 tons, which it subsidized at 25 percent, and reinstated an import tariff of 5 percent (Liverpool-Tasie et al., 2010a, 2010b). The subsidy under the FMSP ranged from 25 to 75 percent, varying by state and local government area. The New Agricultural Policy Thrust was also introduced in 2001, assigning the agricultural sector an ambitious role in its strategic planning framework. Subsector policies within the New Agricultural Policy Thrust included the National Fertilizer Policy and National Policy on Integrated Rural Development. Unfortunately, this policy also failed, causing the FGN to once again revert to the direct procurement and distribution of fertilizer subsidized at the 25 percent rate (Olomola, 2016).

In 2006, the FGN adopted the National Fertilizer Policy for Nigeria, which focused on farmers' access to the right quantity and quality fertilizer at affordable and competitive market prices. The policy encouraged local production, internal trade, domestic marketing, research and development, quality control, monitoring environmental impacts, farm use, and governance and institutions. Although the comprehensiveness of the policy provided the federal government with numerous ideas for developing the fertilizer sub-sector in harmony and in support of the planned agricultural development, the failure to implement regulatory measures and quality assurance negatively impacted the policy's overall effectiveness. Shortly after this period and until 2011, the FGN adopted a voucher system to support the distribution of subsidized fertilizer that was piloted through the International Fertilizer Development Center (IFDC) under the Developing Agricultural Inputs Markets in Nigeria (DAIMINA) Project in four states (Kano, Bauchi, FCT, and Taraba). The subsidy program enabled farmers to access 50–55 percent and 55–60 percent discounts on urea and NPK 15:15:15, respectively, depending on the prevailing market price (Liverpool-Tasie et al., 2010a, 2010b). The voucher program was developed to address supply chain issues observed during the FMSP-run subsidy programs. The fertilizer voucher program in Kano and Taraba was a collaborative effort of key stakeholders including the federal and state governments, private sector suppliers and dealers, and the IFDC. The success of the pilot program led to the scale-up of the fertilizer voucher (the Growth Enhancement Support Scheme (GESS)) in all 36 states of the federation, including FCT, in 2012. The GESS was implemented until 2015, when a new agricultural policy was introduced by a new government administration.

## 4. Fertilizer policies in the recent national agricultural policies

Nigeria's two most recent agricultural policies are the Agricultural Transformation Agenda (ATA) (2010/11–2016) and the Agricultural Promotion Policy (APP) (2016–2020). Over this 10-year period, the FGN introduced two major policy measures and interventions to address the issues confronting the fertilizer sub-sector in Nigeria: the ATA's Growth Enhancement Support Scheme (GESS) and the APP's Presidential Fertilizer Initiative (PFI). These policy interventions are discussed below.

### 4.1 The Growth Enhancement Support Scheme (GESS)

The Growth Enhancement Support Scheme (GESS) was introduced in 2012 with the broad goal of promoting agricultural productivity and food security by making fertilizer and improved seeds more affordable and accessible to smallholder farmers (Liverpool-Tasie, 2013). The GESS was a FGN agricultural initiative under the ATA policy designed to directly assist farmers to raise income and improve their livelihoods through access to discounted agricultural inputs (FMARD, 2012). According to the Minister of the Federal Ministry of Agriculture and Rural Development (FMARD) (Adesina, 2012) at the time, Nigeria spent more than US\$11 billion on the importation of food in 2012; the GESS was designed to reduce this trend. The ATA attempted to restructure the agriculture sector through the auspices of the African Union Comprehensive Africa Agriculture Development Program (CAADP) (FMARD, 2012) and sought to transform it into an effective and competitive sector through government support for private-sector-led agricultural transformation. The GESS was an innovative approach to fertilizer subsidies and other inputs, administered through an electronic wallet system that ensured that only registered farmers benefit from the Scheme. The Scheme aimed to address inefficiencies in the distribution of key inputs while improving their availability and affordability to Nigerian farmers (Tiri et al., 2014) through subsidies. Subsidizing inputs to farmers ensured that the financial burdens were shared between the government at the federal and state levels and farmers. Farmers participating in the program were entitled to 100 kg (50 kg urea and 50 kg NPK 15:15:15) of fertilizer per planting season irrespective of farm size. The government subsidy per 50 kg bag of fertilizer, regardless of type, amounted to only ₦2,000, and farmers' contributions tended to vary across different states, depending on the prevailing open market price (Liverpool-Tasie and Takeshima, 2013). The Scheme addressed the harmful activities of middlemen who, over the years, had been smuggling the products to neighboring countries and roundtripping fertilizer for personal gains. This left only 11 percent of products available for use by Nigerian farmers (Adesina, 2012). The GESS meant to end the direct purchase and distribution of fertilizer and introduce an alternative system of distribution built on the voucher system. Registered farmers received e-wallet vouchers



with which they redeemed fertilizer and seeds from agro-input dealers (FEPSAN, 2012). This allowed many more rural farmers to access and use fertilizer than in previous policies (Uduji et al., 2019). The key achievements of GESS include:

- a) Discontinued the direct procurement and distribution of fertilizer and played the role of a procurement facilitator, fertilizer quality regulator, and catalyst for active private sector participation in the fertilizer value chain.
- b) Improved farmers' yields and income through timely access to agro-inputs including fertilizers, seeds, and agrochemicals at subsidized rates (Oyediran et al., 2015).
- c) Provided subsidized agro-inputs directly to registered smallholder farmers across the 36 states including FCT and provided targeted means-based subsidies to an estimated 12 to 14 million farmers between 2011 and 2014 (FMARD, 2016).
- d) Enhanced the inputs distribution channel through private sector engagement, including distribution partners and agro-dealers.
- e) Eliminated the activities of fraudulent middlemen in the inputs distribution network to farmers (Ukamaka, 2018).
- f) Established a comprehensive list of farmers and agro-inputs dealers at various locations throughout Nigeria to promote farmers' access to inputs.

#### 4.2 Presidential Fertilizer Initiative (PFI)

The Presidential Fertilizer Initiative (PFI) was introduced in December 2016 under President Muhammadu Buhari's administration. This policy stemmed from the Agricultural Promotion Policy (APP) to build on the successes and lessons from the ATA. The APP had four components: food security, import substitution, job creation, and economic diversification. The success of economic diversification depends on improvements in the business environment along the value chain, starting with farms. Agriculture and agribusiness are key avenues to improving the economic situation in Nigeria, as opposed to relying solely on the development of a crude oil-based economy. As a strategy, the APP was developed to revive agriculture, with a specific focus on improving productivity and quality standards of food production in Nigeria. The policy also encouraged entrepreneurship and inspired value chain participants to develop an entrepreneurial mindset that recognized agriculture as a business.

The PFI fits into the broad goal of the APP by ensuring food security in the country by making fertilizers available and affordable to farmers through the production of NPK fertilizer at a reduced cost using locally

sourced materials. Previous administrations within the FGN monopolized fertilizer distribution and were reputed to be ineffective because of fraudulent activities (Tiri et al., 2014). The varying fertilizer subsidy rates the FGN provided to farmers promoted fraud and encouraged round-tripping, a process wherein middlemen and agro-inputs dealers conspired with farmers to re-supply government-discounted fertilizers to the open market at a cost below the prevailing open market price to essentially force fertilizer dealers to either reduce their prices or go out of business. Even though the round-tripped fertilizer was available in the market to farmers at artificially reduced prices, and despite the fact these prices were higher than government-subsidized prices, middlemen and fraudulent agro-input dealers were still able to leverage the subsidy program for their own benefit (Chukwuka, 2018). Thus, the PFI was established to eliminate fraudulent activity as well as reduce the importation of fertilizer by cutting costs on production, stopping the importation of materials that could be sourced locally, and promoting local production of NPK. The PFI's goal was to produce 1 million tons of blended NPK fertilizer for wet season farming in 2017 and another 500,000 tons for dry season farming in 2018. The PFI's ultimate objective was halting the importation of blended fertilizer by directly negotiating a discounted contract for the raw materials of NPK fertilizer with the OCP Group (a state-owned Moroccan company that is a world leader in phosphate and its derivatives) and the Government of Morocco and blending them locally to produce the fertilizer at a lower cost. The four constituent raw materials of NPK fertilizer are urea, limestone granules (LSG), diammonium phosphate (DAP), and muriate of potash (MOP). Both the urea and LSG could be locally sourced within Nigeria, but the DAP and MOP would need to be imported from Morocco and Europe, respectively. Although the PFI is not a subsidy scheme, the major components of NPK fertilizer that were sourced locally—urea (36%) and LSG (27%)—were subsidized under the initiative. Imported DAP from Morocco and MOP from Europe accounted for 21% and 16%, respectively (GON, 2017). As a result, blending plants as well as farmers benefitted from the discounts and savings from the negotiation with OCP Group, the Moroccan government, and private companies. Lower production costs of locally blended fertilizer enabled the delivery of final products to Nigerian farmers at a price of around ₦5,500 per 50 kg bag instead of the ₦8,000 to ₦9,000 per 50 kg bag cost of imported fertilizer.

The PFI commenced in 2017 and was implemented through the Nigeria Sovereign Investment Authority (NSIA) and Fertilizers Producers and Suppliers Association of Nigeria (FEPSAN). Under PFI, the NSIA became an upstream player, which limited its involvement in the importation, storage, and wholesale of raw materials to blenders. The responsibilities and functions of the NSIA subsidiary NAIC-NPK Limited were handed off to the Ministry of Finance Incorporated (MoFI). This meant that the NAIC-NPK no longer paid blending fees to blenders; instead, production costs were recovered directly by selling the fertilizer to the

market. This balanced the incentives of the business and ensured that blenders built up suitable capacity to actively participate in the local supply sub-sector. Blending plants would then provide bank guarantees to cover raw materials for their respective production volumes. As part of the new structure, the Federal Ministry of Finance, Budget, and National Planning (FMFBNP) and the Central Bank of Nigeria (CBN) engaged commercial banks to facilitate concessionary credits to blending plants for the purchase of raw materials. Under this arrangement, the CBN ensured the provision of foreign exchange necessary for the program to cover some raw materials (GON, 2017).

The PFI effectively abolished the subsidy scheme, which cost the public at least ~~N~~60 billion annually. It is worth noting that the PFI is a no-credit program, which means that advanced cash payments, bank guarantees, or irrevocable standing payment orders (ISPO) are encouraged or permitted. These types of transactions are made at each level of the value chain to protect its integrity and ensure that all money invested is retained. About 3,000,000 tons (about 59.5 million 50-kg bags of NPK 20:10:10) were produced locally and distributed to farmers under this Scheme (NSIA, 2022), saving Nigeria an estimated US\$200 million in foreign exchange and about ~~N~~60 billion in budgetary provisions for fertilizer subsidies (GON, 2017). In addition, this initiative encouraged private sector investment, revitalizing almost 52 local fertilizer blending plants from the initial four plants at project inception (NSIA, 2021). The key achievements of the PFI include:

- a) A drastic reduction in the importation of urea and NPK fertilizer and promotion of locally production of NPK 20:10:10 and urea. Currently the installed capacity of urea in Nigeria is about 1.8 million tons while NPK is approximately 3.7 million tons.
- b) The resuscitation of 52 moribund fertilizer blending plants beyond the initial four plants across 19 states.
- c) Increased farmer access to NPK fertilizer at a reduced price of ~~N~~5,500 per 50-kg bag against ~~N~~8,000 to ~~N~~9,000 per 50-kg bag on the open market. About 30,000,000 tons of locally produced NPK 20:10:10 have been distributed to farmers across Nigeria from 2016 to date. However, the outbreak of COVID-19 and the recent conflict between Russia and the Ukraine affected the importation of major blending components of NPK fertilizer.
- d) The registration of 200 fertilizer distributors across Nigeria to strengthen the supply chain.
- e) The creation of about 250,000 direct and indirect jobs from 2016 to date (NSIA, 2021).

### 4.3 Fertilizer issues in the NATIP policy document

The FGN recently launched the National Agricultural Technology and Innovation Policy (NATIP), which will be implemented from 2022 through 2027. The policy is a deliberate government effort to deploy knowledge and good agricultural practices to accelerate agricultural development. It prioritizes the rapid deployment of knowledge and technology to boost productivity and create at least 12 million jobs. Specifically, NATIP adopts some of the previous policies' strategies, such as private sector participation and fertilizer subsidies to mitigate the impact of the COVID-19 pandemic. Ensuring long-term food production would be achieved through sustained collaborative efforts with relevant stakeholders to implement fertilizer and seed policies, which are critical to regulating and easing access to high-quality inputs and improving the international competitiveness of Nigeria's agricultural commodities. The NATIP effectively rebrands the PFI and implements the National Fertilizer Quality Control Act of 2019; the regulations stipulate the development of organic fertilizer and formulation of crop/soil specific fertilizer. The NATIP focuses on gradual deregulation of fertilizer blending plant imports to incentivize private sector investments in local fertilizer production and distribution. At the same time, the NATIP intensifies local sourcing of blending materials under the supervision of the Ministry of Mines. Over 200,000 jobs are expected to be created across the country as a result of improved production and distribution of quality inputs (FMARD, 2022).

### 4.4 Comparative assessment of fertilizer policies in ATA, APP, and NATIP

Between 2010 and 2020, the government implemented two remarkable national agricultural policies (ATA and APP) and is rolling out a new agriculture policy (NATIP) between 2022 and 2027. The ATA, implemented in 2011–2015, was created to diversify the economy's reliance on oil, ensure food security, and create jobs for young people. It attempted to promote agribusiness, attract private sector investment in agriculture, reduce postharvest losses, add value to local agricultural produce, develop rural infrastructure, and improve farmers' access to financial services and markets (FMARD, 2012) by increasing the access to and affordability of agro-inputs and fertilizer through the private-sector-led GESS subsidy program. The APP was implemented from 2016 to 2020 and adopted the private-sector-led approach through the PFI, effectively abolishing the inputs subsidy and focusing on blending NPK fertilizer locally. This enabled the government to deliver fertilizer to farmers at a friendly price, thereby improving food production and increasing rural income. Distribution of affordable, locally produced NPK fertilizer under the PFI increased Nigeria's consumption of fertilizer from 9 kg/ha between 2010 and 2015 to 19.7 kg/ha at the end of 2018 (World Bank, 2018). However, the outbreak of COVID-19, global inflation, insecurity, and the Russia-Ukraine war have all

contributed to the high costs of fertilizer in Nigeria beginning in 2019 and are consequently affecting agricultural productivity. As of 2022, the market price of NPK fertilizer has tripled from the 2016 PFI price of ₦6,500. In 2011, the FGN spent ₦30 billion (US\$180 million) to reach 800,000 smallholders with inputs, compared to only ₦5 billion (US\$30 million) in 2012 to reach 1.2 million smallholders (Grossman and Tarazi, 2014; Uduji and Okolo-Obasi, 2018). The PFI could be considered even more cost-effective because it allowed the government to save up to US\$200 million in foreign exchange and approximately ₦60 billion in budgetary provisions for fertilizer subsidies (GON, 2017), but rising inflation and the depreciation of the naira have made fertilizer prohibitively expensive for farmers. Because the NATIP is relatively new and adopts the key strategies and successes of past policies, with a strong emphasis on rebranding the PFI (FMARD, 2022), expectations that it will address the comprehensive challenges under the previous agricultural policies are high.

## 5. Factors affecting the effectiveness of fertilizer policies in Nigeria

This section provides an assessment of the key factors that adversely affected the success of fertilizer policies in Nigeria.

### i) Policy inconsistencies and lack of continuity

Over the years, the government has been inconsistent in its fertilizer sector policies. From 1976 to date, it has implemented several policies on the distribution of fertilizer, with varying preference for the public and private sectors. Each policy has lacked continuity, rather newly developed and implemented policies have replaced them. The government managed fertilizer distribution up until a change in policy shifted responsibility to the private sector for effectively managing fertilizer distribution to farmers across the country. The FGN's attempt to liberalize the fertilizer distribution process with the private sector in 1997 was laudable. However, the procedure was not followed correctly and the preconditions for a transition to a privatized fertilizer sector were not implemented. Thus, the government opted to completely withdraw from fertilizer procurement and subsidization, effectively abandoning the industry and causing fertilizer use to drop by about 50 percent compared with the pre-1996 period. These frequent changes in fertilizer policies and the promotion of the dual fertilizer market affected the private sector's ability to manage the fertilizer industry.

### ii) High transportation/transaction costs

The majority of Nigeria's farming population live in remote areas with little or no access to basic infrastructure, including good road networks, and the distribution chain is negatively affected as a result. Farmers travel long distances, up to 30 km on bad roads just to access fertilizer, and often the transportation costs are just as high as the cost of the fertilizer. Despite subsidies imposed on the fertilizer, farmers still pay an exorbitant amount of money to access it. The stress involved in travelling long distances and the costs associated with transportation on bad roads are some of the reasons farmers have used less than the recommended quantities of fertilizer or, in some cases, have completely abandoned its use. Furthermore, fertilizer prices vary across different states in Nigeria, primarily because agro-dealers are expected to pay the costs associated with logistics, including handling and delivery of the input to their warehouses. These costs differ greatly depending on the proximity of the agro-dealers to major cities and the condition of the roads. Transportation costs are factored into the price of fertilizer, making it expensive for smallholder farmers.

### iii) Limited involvement of agro-dealers network in rural areas

The fertilizer market in Nigeria is fragmented and underdeveloped. Many private sector actors abandoned the agro-dealership business because of government involvement in fertilizer distribution and the restrictive business environment it created. Currently, there are limited numbers of agro-dealers in Nigeria—about 10,000—sparsely distributed across the country. Very few of them are in rural areas where they can service the farming population. According to Adesina (2013), the farming population makes up approximately 70 percent (about 140 million farmers) of the Nigerian population, meaning that there are roughly 14,000 farmers per agro-dealer. This makes access to inputs challenging for farmers, who have become reluctant to travel far to access fertilizer because of the associated logistics costs.

### iv) Agricultural credit constraints

Several factors such as the high cost of borrowing, lack of collateral, cumbersome bureaucratic loan processing, and lenders' reluctance to provide agricultural loans constrain farmers' access to credit (Balana and Oyeyemi, 2022). Though the Central Bank of Nigeria fixed the interest rate at 14 percent, financial institutions do not comply with this guideline. Consequently, the current average interest rate on loans in Nigeria is about 25 percent, compared to other African countries like Côte d'Ivoire, which charges just 3 percent interest on a loan. Moreover, the PFI only supports cash-based transactions between agro-dealers and fertilizer suppliers. Given the sparse distribution of agro-dealers within the country, those available in the rural areas may not have the financial capability to stock enough fertilizer for the farming community. This implies that agro-dealers and others with access to credit facilities are more likely to participate in the fertilizer distribution under the PFI policy.

The experience of the agro-dealers during the GESS influenced the PFI's support of solely cash-based transactions because agro-dealers over-invoiced for the inputs they supplied during the GESS. Over-invoicing, coupled with round-tripping of GESS fertilizer into the market, necessitated the government's decision to investigate fertilizer distribution further and delayed payments to agro-dealers accordingly.

### v) Price instability/high prices

Price is one key determinant of the rate of technology adoption, including fertilizer use. Irregular price changes of fertilizer may be a result of several factors—for example, the cost of associated logistics including transportation, loading/unloading, government policies, and illegal taxes at ports and security checkpoints. The depreciation of the naira also may have contributed to fluctuating fertilizer prices. As a result of high import bills, the FGN discouraged the importation of fertilizer and instead promoted local production. It was

thought that this pivot would help standardize fertilizer prices across the country. However, this has saturated the Nigerian fertilizer market, prompting major urea fertilizer producers, including Notore Chemical Industry and Indorama Fertilizer and Petrochemical Ltd., to export urea to neighboring countries.

#### vi) Lack of access to information

Access to information remains a challenge in the fertilizer sector. Many farmers claim that a lack of information and poor mobile telecommunication coverage limited their access to fertilizer. Because farmers typically lack essential information on fertilizer price, location, and availability, the GESS was introduced to address this by using an information and communication technology platform. This was achieved by mapping registered farmers to their nearest agro-dealers. As a result, many farmers say they learned about fertilizer availability on their mobile phones and how to procure it at a discounted price from nearby agro-dealer shops. However, some farmers said the fertilizer price exceeded their agro-input budget and so did not participate in the Scheme (FEPSAN, 2012). Instead, they had to rely on the soil nutrients, which may be depleted over years of prolonged use, leading to losses in crop productivity. Farmers also lack access to information on determining optimal fertilizer types and application rates. This is one key area that the extension services in Nigeria are expected to strengthen. However, extension services may not have the capacity to reach out to farmers effectively. The current ratio of extension officers to farmers is estimated at 1:5,000–10,000 (Huber et al., 2017), compared to the recommended 1:500 (Busungu et al., 2019, Davis et al., 2019).

#### vii) Security threats

Insecurity negatively affects the movement of fertilizer from the production point to the farming community. Bandits, kidnappers, insurgency, militants, and ethno-religious crises are rising in Nigeria, especially in northern Nigeria. Bandits and kidnappers target Nigerian roads and rural communities, and these security threats disrupt the agro-inputs supply chain network. Many commuters and truck drivers have been kidnapped in exchange for ransom, and others have lost their lives (Akowe, 2014; Olaniyan, 2018). Fertilizer suppliers are increasingly wary of dispatching their goods to areas with high security risks, thereby depriving farmers of access to fertilizer. In some locations, because of the high demand for fertilizer but the lack of supply, fertilizer is reportedly unaffordable. Furthermore, some fertilizer types were restricted in some sub-regions of the northeast states, resulting in scarcity and subsequent price hikes (News Agency of Nigeria, 2019). Urea fertilizers, especially, were restricted because urea has been used as a component in the manufacturing of Boko-Haram's improvised explosive devices (IED) (Tamiri, 2019), but this product is essential in the production of cereal crops. A recent household survey in four states in Nigeria (Kebbi, Benue,



Delta, and Ebonyi) indicate that about 40–70% of survey households experienced security threats in the 12 months prior to the survey (August 2020–July 2021). According to survey respondents, this increased insecurity affected four key agricultural decisions: (i) access to product market (33% of households), (ii) access to inputs markets (36% of households), (iii) normal farm operations (35% of household), and (iv) agricultural expansion and investments (44% of households) (Balana et al., 2021).

#### viii) Ineffective monitoring and quality control

Quality assurance fundamentally affects fertilizer demand in Nigeria and is a prime concern of policymakers. The national fertilizer policy explicitly mentions the need to control the quality of both imported and locally produced fertilizer. Still, the existing institutional framework operating within the public sector has not been able to deal with quality problems (Liverpool-Tasie, 2010a). FEPSAN and small-scale farmers have raised the alarm over adulterated or fake fertilizer brands in the market. FEPSAN noted that substandard fertilizer is harmful to agriculture and negatively impacts the farmlands and crop yields. This issue is associated with poor quality control and a lack of regulations to guide the production and sale of fertilizers, which harms local farmers. Many farmers who were victims of bad fertilizers use less fertilizer than the recommended quantities or abandoned fertilizer use altogether. Other quality issues include misbranding and underweight fertilizer, which are prevalent in the Nigerian market (FGN, 2006). However, Edun and Nagy (2002) noted that farmers are willing to adopt the recommended quantity of fertilizer irrespective of the price if there is an assurance of improved quality.

The Alliance for a Green Revolution in Africa (AGRA), under the Micro Reforms for African Agribusiness (MIRA), joined forces with Nigeria's Federal Ministry of Agriculture and Rural Development (FMARD) to address the quality control issue by sponsoring the Fertilizer Quality Control Bill. The bill is expected to help protect the interest of the farmers against adulteration, nutrient deficiencies, and shorted weight. The bill also provides a safeguard for the interests of fertilizer enterprises and further creates an enabling environment for private sector players interested in investing in the sector.

## 6. Conclusions

Nigeria pursued several policy approaches in its fertilizer sector over the last half a century. Most of these approaches involved various government-financed subsidy programs. Both the private sector (such as agro-inputs dealers) and public agencies played their parts in distributing fertilizer inputs across the country. The government often contracted the private sector to import fertilizer and deliver it to designated distribution points through the subsidy program. Poor incentive mechanisms leading to inefficiency, ineffectiveness, mismanagement, and fraudulent and corrupt practices by some key players in the industry have constrained the private sector's ability to deliver inputs to target farmers. However, the private sector imported fertilizer, incorporated distribution costs into their bids, and delivered the product to designated state warehouses where it was eventually distributed through the public channels. In some instances, fertilizer was also distributed through small-scale agro-input dealers located in local markets and semi-urban areas. Overall, despite Nigeria being one of the leading producers of fertilizer in sub-Saharan Africa, the fertilizer consumption and farm application rate is below 20 percent of the application rate in developed countries (about an average of 20 kg/ha in Nigeria compared to 100 kg/ha in developed regions of the world).

Historically, fertilizer policies have lacked consistency and continuity. A succession of policies introduced a series of changes, which affected the functioning of supply chains, logistics channels including distribution costs, and fertilizer prices. Ultimately, these affect farmers' access to fertilizer, application rates, and overall crop productivity. However, under the two most recent agricultural policies for Nigeria—the Agricultural Transformation Agenda (ATA) (2010/11–2016) and the Agricultural Promotion Policy (APP) (2016–2020)—fertilizer policy now appears to address the country's development of the fertilizer sector better than previous periods. The two major fertilizer-related policy measures and interventions—the Growth Enhancement Support Scheme (GESS) during the ATA and the Presidential Fertilizer Initiative (PFI) during the APP—recorded noticeable achievements in addressing the issues confronting the fertilizer sector in Nigeria. Furthermore, the newest agricultural policy (NATIP, 2022–2027) recognizes the successes of the previous two policies. The NATIP aims to rebrand the PFI and gradually deregulate fertilizer blending plant importation to incentivize private sector investments in local fertilizer production and distribution. This kind of policy continuity is necessary to continue addressing the challenges in the Nigerian fertilizer sector.

Several exogenous factors still affect how the fertilizer sector functions. These include poor infrastructure, especially bad roads; lack of access to agricultural credit; lack of effective extension services; limited number of agro-input dealers; high fertilizer prices and price instability; lack of access to information for smallholder

farmers; increasing security threats; and lack of quality control and assurance. Thus, policies aiming to effectively address the fertilizer sector challenges in Nigeria must incorporate practical approaches to tackling these exogenous constraints.

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Appendix 1. Fertilizer companies in Nigeria (by fertilizer types and production capacity)

S/N	Name of Company	Year established	Type of fertilizer produced	Nameplate Capacity Value	Nameplate Capacity Units	Annual Production Capacity (MT)*	Location (State/town)
1	Zam Agro-Chemicals & Fertilizer Company Ltd	2019	NPK 20-10-10, NPK 20-10-5, NPK 15-15-15	120	MT/hour	307,200	Zamfara/Gusau
2	Abdullazeez Fertilizer Company Limited	2011	NPK 20-10-10, NPK 15-15-15	6	MT/hour	15,360	Jigawa/Hadejia
3	Citizen Fertilizers & Chemicals Company Limited	2017	NPK 20-10-10, NPK 15-15-15	20	MT/hour	51,200	Kaduna/Doka
4	Crystallizer Nigeria Ltd	1996	NPK 20-10-10, NPK 15-15-15	10	MT/hour	25,600	Niger/Bosso
5	Funtua Fertilizers & Chemicals	2003	NPK 20-10-10	18	MT/hour	46,080	Katsina/ Karafi,
6	Golden Fertilizer Company Limited - Lagos	2019	NPK 20-10-10, NPK 27-13-13, NPK 15-15-15, NPK 12-12-17, Special Blends	100	MT/hour	256,000	Lagos
7	Agtho Merchant & Co Ltd	2020	N/A	95	MT/hour	243,200	Abuja/FCT
8	Indorama Eleme Fertilizers & Chemicals Ltd	2016	Urea	3,000,000	MT/year	3,000,000	River/ Port Harcourt
9	Albarka Fertilizer & Chemical Company Limited	2017	NPK 20-10-10	50	MT/hour	128,000	Kebbi/Birnin-Kebbi
10	Bauchi Fertilizer Blending Co.Ltd	1999	NPK 20-10-10	25	MT/hour	64,000	Bauchi
11	Bejafta Fertilizer & Chemical Company Ltd	1998	NPK 20-10-10	50	MT/hour	128,000	Plateau/Bokkos
12	Ebonyi State Fertilizer & Chemical Company Ltd	2004	NPK 20-10-10, NPK 27-13-13, NPK 15-15-15, NPK 12-12-17, NPK 20-20-10	40	MT/hour	102,400	Ebonyi/Abakaliki
13	Fertilizer & Chemicals Ltd	1988	NPK 20-10-10, NPK 12-5-13, NPK 27-13-13, NPK 20-10-5+Zn+Mg (South), NPK 20-5-10+Zn+Mg (North)	200	MT/hour	512,000	Kaduna
14	Notore Chemical Industries Plc - Blending	2019	NPK 15-15-15+1S, NPK 20-10-10+1S, Crop specific fertilizers	250	MT/hour	640,000	River/Onne

S/N	Name of Company	Year established	Type of fertilizer produced	Nameplate Capacity Value	Nameplate Capacity Units	Annual Production Capacity (MT)*	Location (State/town)
15	Cybernetics Nigeria Limited	1985	Micronutrients	2,500	MT/year	2,500	Kaduna
16	Matrix Fertilizer Limited	2018	NPK 20-10-10 + Ca+2MgO+ Zn, NPK 15-15-15, NPK 20-5-10, Special blends	120	MT/hour	307,200	Kaduna/Zaria
17	Excel Standards Limited	2013	Agricultural Lime, Agricultural Gypsum	30,000	MT/year	30,000	Kano/Sharada
18	Kano State Input Supply Company	1981	NPK 20-10-10, NPK 20-5-10, NPK 27-13-13	30	MT/hour	76,800	Kano
19	Morris Fertilizers & Chemicals	1988	NPK 20-10-10, NPK 20-5-10 + Zn + S, NPK 20-10-10+1Br, NPK 27-13-13, NPK 20-10-5	150	MT/hour	384,000	Niger/Minna
20	Edusquare and Company Nigeria Limited	1998	NPK 20-10-10, NPK 27-13-13, NPK 15-15-15, NPK 15-10-20	60	MT/hour	153,600	Abia/Aba
21	MFB Fertilizer & Chemical Companies Ltd	2013	NPK 20-10-10, NPK 20-10-5 + 1ZN + 1S, NPK 20-10-10 + 1ZN + 1S, NPK 15-15-15, NPK 12-12-17	90	MT/hour	230,400	Kaduna
22	Gombe Fertilizer Blending Plant	2001	NPK 20-10-10	18	MT/hour	46,080	Gombe/Gadam
23	Namalale Fertilizer and Chemical Company Limited	2017	NPK 20-10-10, NPK 15-15-15	5	MT/hour	12,800	Kano/Gezawa
24	Sasisa Fertilizer Nigeria Limited	1999	NPK 20-10-10, NPK15-15-15	15	MT/hour	38,400	Kano
25	Solar Fertilizer & Chemical Product Ltd	2016	NPK 15-15-15, NPK 20-10-10	7	MT/hour	17,920	Niger/Dangada
26	Sora Fertilizer & Chemicals	1985	NPK 20-10-10	10	MT/hour	25,600	Benue/Naka
27	WACOT Ltd	2017	NPK 20-10-10	7	MT/hour	17,920	Edo/Auchi
28	New Blender - 1	2022	N/A	150	MT/hour	384,000	Rivers

S/N	Name of Company	Year established	Type of fertilizer produced	Nameplate Capacity Value	Nameplate Capacity Units	Annual Production Capacity (MT)*	Location (State/town)
29	Greentide Agro Ltd	2018	NPK 20-10-10, NPK 15-15-15, NPK 20-5-10	90	MT/hour	230,400	Katsina
30	New Blender - 2	2022	N/A	90	MT/hour	230,400	Kano/Near Kano
31	New Blender - 3	2022	N/A	75	MT/hour	192,000	FCT/Abuja
32	Brass Fertilizer	2020	Urea	1,300,000	MT/year	1,300,000	Bayelsa/ Brass
33	Dharul Hijrah Fertilizer Company Ltd.	2016	Cowdung, Poultry manure, Rock phosphate, Maize cob, Bromite, coal	30,000	MT/year	30,000	FCT/Gwagwada
34	Golden Fertilizer Company Limited - Kaduna	2018	NPK 20-10-10, NPK 15-15-15, NPK 12-12-17+2MgO, NPK 27-13-13	30	MT/hour	76,800	Kaduna
35	Zamfara State Fertilizer Blending Plant	1998	NPK 20-10-10, NPK 20-10-5, NPK 15-15-15	35	MT/hour	89,600	Zamfara/Gusau
36	Springfield Agro Ltd	2000	NPK 20-10-10	20	MT/hour	51,200	Gombe/Doho
37	Jargaba Fertilizer Company	2019	NPK 20-10-10, NPK 15-15-15	35	MT/hour	89,600	Katsina
38	Premium Agrochemicals Ltd	2020	N/A	75	MT/hour	192,000	Lagos/Satellite town
39	Prime Gold Fertilizers	2009	NPK 15-15-15, NPK 20-10-10, NPK 12-12-17 + 2MgO, Rice specific, Cocoa specific	50	MT/hour	128,000	Rivers/Aleto-Eleme
40	Malam Alu Agro Allied Company	2017	NPK 20-10-10, NPK 20-5-10, NPK 15-15-15	40	MT/hour	102,400	Jigawa/Birnin-Kudu
41	Notore Chemical Industries Plc - Manufacturing	2005	Urea	400,000	MT/year	400,000	Rivers/Onne
42	Savannah Fertilizer Services Ltd	2019	NPK 15-15-15, NPK 20-10-10, NPK 12-12-17 + 2MgO , Rice specific, Cocoa specific	65	MT/hour	166,400	Niger/Kontagora

S/N	Name of Company	Year established	Type of fertilizer produced	Nameplate Capacity Value	Nameplate Capacity Units	Annual Production Capacity (MT)*	Location (State/town)
43	Tak Agro Chemical	2019	NPK 20 10 10	60	MT/hour	153,600	Kogi/Ajaokuta
44	Alelawa Fertilizer & Chemical Company Limited	2013	NPK 20-10-10	20	MT/hour	51,200	Sokoto
45	Al-Yuma Fertilizers & Chemicals Company Ltd - Kano	2016	NPK 20 10 10	100	MT/hour	256,000	Kano
46	Al-Yuma Fertilizers & Chemicals Company Ltd -Gusau	2018	NPK 20 10 10, NPK 15-15-15	30	MT/hour	76,800	Zamfara/Gusau
47	Barbedos Limited	2018	NPK 20 10 10, NPK 15-15-15, NPK 20-5-10, NPK 20-10-5	90	MT/hour	230,400	Kaduna
48	Gobarau Agro Allied Limited	2020	NPK 20-10-10	90	MT/hour	230,400	Katsina
49	Kwandare Fertilizer Blending Plant	2020	NPK 20-10-10	17	MT/hour	43,520	Nasarawa
50	J Marine Logistics	2020	NPK 20-10-10	30	MT/hour	76,800	FCT/Abuja
51	Enar Suhara Continental Ltd	2020	NPK 20-10-10	45	MT/hour	115,200	Nasarawa/ Keffi
52	Guarantee Fertilizer Ltd.	2021	NPK 20-10-10	35	MT/hour	89,600	Kano
53	Jigawa State Fertilizer and Chemical Company.	2021	NPK 20-10-10	120	MT/hour	307,200	Jigawa/Dutse
54	Linkside Elhyatt Ltd	2020	NPK 20-10-10	30	MT/hour	76,800	Kaduna
55	Kaffo Mines Ltd.	1955	NPK 20-10-10, NPK 15-15-15	30	MT/hour	76,800	Niger/Minna
56	Boko Agro Allied Nig. Ltd.	2020	NPK 20-10-10	30	MT/hour	76,800	Kano
57	Plantmate Fertilizer Ltd.	2021	NPK 20-10-10	15	MT/hour	38,400	Kano

S/N	Name of Company	Year established	Type of fertilizer produced	Nameplate Capacity Value	Nameplate Capacity Units	Annual Production Capacity (MT)*	Location (State/town)
58	Greenwell Technologies Limited	2010	NPK 27-13-13, NPK 20-10-10, NPK 12-12-17+2MgO	90	MT/hour	230,400	Akwa-Ibom
59	Shenzhen Global Service	2020	NPK 20-10-10	30	MT/hour	76,800	Kano
60	Space Age Continental L Investment Td.	2020	NPK 20-10-10	40	MT/hour	102,400	Nasarawa/Lafia
61	OCP Africa 2	Upcoming	N/A	120	MT/hour	307,200	Sokoto
62	Continental Fertilizer Limited	2009	NPK 20-10-10, NPK 27-12-12, NPK 15-15-15	90	MT/hour	230,400	Kano
63	Hamdala Fertilizer Company	2019	NPK 20-10-10, NPK 15-15-15, NPK 20-5-10	120-200	MT/hour	409,600	Kano
64	Superphosphate Fertilizer and Chemical	1988	NPK 20-10-10, NPK 15-15-15, NPK 12-12-17	150	MT/hour	384,000	Kaduna
65	Dangote Fertilizer Limited	2021	Urea	2,800,000	MT/year	2,800,000	Lagos
66	Lionheart Fertilizer Chemicals and Agricultural Processing Company.	2021	NPK 20-10-10	20	MT/hour	51,200	Kano
67	OCP Africa Fertilizer Nigeria Ltd.	2021	NPK 20 10 10 , NPK 15:15:15 , NPK 27:13:13, NPK 15:15:15+2S	120	MT/hour	307,200	Kaduna
68	Validivar Fertilizer and Chemical Ltd.	2021	NPK 20-10-10	20	MT/hour	51,200	Delta/Asaba
69	Waraka Fertilizer Company Ltd	2020	NPK 20-10-10	20	MT/hour	51,200	Kano
70	OCP Africa 1	Upcoming	N/A	120	MT/hour	307,200	Ogun
71	Zaria Fertilizer & Rice Mill (Formerly American Tobacco)	2019	NPK 20-10-10, NPK 15-15-15, Special Blends	120	MT/hour	307,200	Kaduna/ Zaria

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