FERTILIZER SUBSIDY REFORM REVIVES NIGERIA’S AGRICULTURE

CASE STUDIES ON PUBLIC-PRIVATE AGRICULTURE INVESTMENTS
Grow Africa is an innovative model for public-private sector cooperation with the goal to accelerate private sector investments and market-based solutions. A key role is to be a connector, a facilitator of new models supporting smallholder farmers and to be a broker of knowledge and best practice.

This discussion paper is part of a series of case studies provided by Grow Africa in support of transformative change in African agriculture. It highlights the importance of leadership – that the input sector should be separate and distinct from political performance – and that success lies in scale and speed of execution.

Opinions about the role of fertilizer subsidies in agricultural development in sub-Saharan Africa have fluctuated significantly over the past decades. Many experts believe that fertilizer subsidies represent an essential method for achieving long-term food security in the region, while providing social support to Africa’s poorest subsistence farmers. Yet previous universal subsidy schemes enjoyed only moderate success, raising concerns about whether the market distortions subsidies introduce can ever lead to a sustainable agricultural system. New practices in creating more targeted subsidies may be the key to achieving durable success.

Policy-makers should develop targeted solutions for a variety of agro-ecological contexts and farming systems and combine those with complementary services to raise farmers demand and build market-based systems. Procurement and distribution of subsidized fertilizers should enhance and not inhibit input market development, increase farm income and input use; market liberalization and infrastructure development establish strong, private sector-led input supply markets.

In 2012, Akinwumi Ayodeji Adesina, then Minister of Agriculture and Rural Development of Nigeria, launched the Growth Enhancement Support (GES) programme. While the government had historically viewed agricultural expansion as a development obligation, the GES represented a major policy shift by considering expansion as a business opportunity. By transferring the supply system for farm inputs from the state to the private sector and delivering fertilizer directly to individual farmers, Adesina brought four decades of persistent and corrupt tampering with procurement and distribution to an abrupt halt.

The government succeeded in ending 40 years of corruption within 90 days of the appointment of the agriculture minister. It has adopted a high-tech approach, with subsidies delivered through an electronic voucher, the e-wallet, and there is an electronic record of subsidy redemptions, which provides transparency and accountability in the system.

Three factors drove the programme’s early success:

1. A profit-oriented agro-dealer network to supply farmers
2. Commercial lending to agro-dealers underwritten by the Central Bank of Nigeria
3. The cashless e-wallet (electronic vouchers) used by farmers for their transactions

The GES immediately went to scale. By the second year, 5 million farmers were using e-wallets to obtain subsidized improved seeds and fertilizer from 2,500 registered agro-dealers at designated redemption centres. The system’s inbuilt transparency and accountability – cornerstones of an enabling environment for investors - were also appreciated by farmers because they could at last depend on a reliable supply of inputs. The ability of the GES to evolve rapidly relies not only on the programme’s culture of innovation, but also on consistent presidential support as well as other high-level political goodwill.

We hope this discussion paper can stimulate discussion and the development of new solutions across the continent, and that Grow Africa can contribute to a learning environment where best practices can support speed and scale in execution.
EXECUTIVE SUMMARY

A RADICAL OVERHAUL OF NIGERIA’S PROCUREMENT AND DISTRIBUTION SYSTEM FOR SUBSIDIZED INPUTS IS LIKELY TO FORESHADOW A TURNAROUND IN NATIONAL AGRICULTURAL OUTPUT. MOBILE TECHNOLOGY, ALONG WITH POLITICAL DETERMINATION, UNDERPIN THE INITIATIVE’S EARLY SUCCESS.

Nigeria was once an agricultural powerhouse, claiming a significant share of the global production of groundnut oil, palm oil and cocoa. Agriculture accounted for over 80% of gross domestic product in the 1960s. Today, Nigeria is one of the world’s largest food importers, spending more than $10 billion annually on staples such as wheat, rice, sugar and fish.²

To reduce food import spending and harness Nigeria’s agricultural potential, as well as create jobs in the agricultural and agribusiness sector, the country embarked on an Agricultural Transformation Agenda (ATA) to reposition agriculture to drive Nigeria’s economy, building on the foundation established through the African Union’s Comprehensive Africa Agriculture Development Programme (CAADP) process.

The ATA is creating an enabling environment for private sector investment that will modernize and industrialize agriculture in Nigeria. A key objective of the plan has been a shift to treat agriculture as a business not a development project, with government facilitating rather than being directly involved. At the same time, the Central Bank of Nigeria has changed how it supports the financing of agriculture. In 2011, it established a $350 million risk-sharing facility (NIRSAL) to reduce the risk of lending by banks to farmers and agri-businesses to unlock access to input suppliers, agro-processors and product marketers.³

Nigeria’s reliance on food imports is due in part to underperformance in the agricultural sector, with yield per hectare 20% to 50% of that produced in similar developing countries up to 2009. A driving factor of low yields was attributed to very low usage rates of agricultural inputs and increasing the use of improved seeds and fertilizer was seen as essential to the success of the broader ATA programme.

Nigeria has been implementing large-scale fertilizer subsidies since the 1970s and fertilizer supply has been the single largest expenditure item in the federal capital account. Despite the considerable fiscal burden to the government, actual use of fertilizer by farmers was very low. The subsidy policy was widely recognized as being associated with multiple problems, including wide-scale corruption and inefficiencies. Over 776 billion naira ($4.8 billion) was estimated to have been lost to corruption in total, averaging 26 billion naira ($162.5 million) of losses annually.⁴

A key feature of Nigeria’s old system of fertilizer subsidy was a very active role of the state in fertilizer delivery. When the Minister Adesina took up office in 2011, he embarked on a radical overhaul of the national fertilizer and seed supply system, building on the successes of small pilot voucher systems operated by the US non-profit International Fertilizer Development Center (IFDC).

The Growth Enhancement Support (GES) programme was launched in 2012, with the primary objective to depoliticize the input sector by withdrawing the state from procurement of inputs and developing a private sector channel for input distribution. The

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aim was to target individual smallholder farmers through a smart subsidy, using a high-tech delivery mechanism.

Within only two years, the GES has been highly successful on several fronts. Its most striking achievement has been to build a commercial agro-dealer network that delivered subsidized inputs to 1 million farmers in the first year and 5 million in the second year.

The agro-dealer network is supported by a credit guarantee programme operated by NIRSAL, which has worked to mitigate the risks of lending by commercial banks to agriculture. In 2013, $20 billion of commercial lending supported agro-dealers to build supply chains by reducing interest rates to single digits and providing a 75% guarantee in case of default. Targets are being met with little or no default, which is creating confidence in lending to agriculture. Banking sector funding to agriculture has increased from 0.5% per cent of total industry portfolio prior to 2009 to 5% by 2014.

As part of a wider goal of modernizing agriculture, the programme adopted a high-tech approach whereby subsidies are delivered through an electronic voucher, the e-wallet. A database of individual farmers has been developed to provide an electronic record of subsidy redemptions and to create transparency and accountability in the system. The programme has recognized the need to uniquely identify farmers. A joint agreement with the new national identity card process, operated by the National Identity Management Commission (NIMC), has the potential to provide farmers with an e-wallet and a credit/debit facility on their cards.

A key objective of the GES is to increase farmer access to and use of improved seed and fertilizer by smallholder farmers. This relies on the ability of farmers to afford purchasing both subsidized and non-subsidized inputs and utilize them effectively. Farmers have been exposed to inputs that were not available before in rural areas and are starting to use improved varieties of seeds and in combination with fertilizer application, are increasing yields.

The GES was made possible by the strong leadership of Akinwumi Ayodeji Adesina, Minister of Agriculture and Rural Development of Nigeria, with political backing at the highest level. A culture of innovation has enabled the programme to evolve rapidly to improve performance. It has also been supported by the President’s Eminent Persons Group – which includes Bill Gates and former UN Secretary-General Kofi Annan – who advise on optimal strategies in implementing the ATA.

The successful use of public funds to restructure the fertilizer subsidy has in turn leveraged significant private sector investment in agriculture, with over $5 billion worth of commitments to invest in domestic fertilizer production. This will enable Nigeria to become a manufacturing export hub for urea within the next 5 years and reduce the domestic price of urea for farmers.

5. Stakeholder interview.
In 1960s, Nigeria was an agricultural powerhouse, controlling considerable market share in the production of groundnut oil, palm oil and cocoa. Two decades later, this dominance had evaporated, following the success of agricultural productivity in other parts of the world, especially South-East Asia. The discovery of local oil and gas reserves in large commercial volumes switched the attention of the federal government and the private sector away from agriculture, which required long-term planning and investment, to oil and gas, which yielded significantly greater profits over a shorter timeframe.

Work to recover the sector began in the 1980s and agriculture accounted for 44% of GDP in the first quarter of 2012, from a low of 28% in 2002. Despite the successes, a growing and increasingly urban population have resulted in Nigeria’s food import bill totalling $11 billion in 2011 and growing at an unsustainable rate of 11% per annum. The reliance on the import of expensive food was fuelling domestic inflation, exerting pressure on the Naira, displacing local production and creating rising unemployment.

Nigeria has huge potential agricultural assets, with 84 million hectares of arable land, a youth labour force projected to reach 110 million by 2020 and 279 billion cubic meters of available water from three of Africa’s eight major rivers. To take advantage of these vast resources and use them to increase domestic food production, Nigeria has started to unlock its potential and to play a major role in the world food market.

The Nigerian National Economic Transformation Agenda is working to diversify the economy from reliance on oil, promote food security and create employment, especially for youth. Seven sectors were identified under this agenda as growth drivers, one of which is agriculture.

The Federal Ministry of Agriculture and Rural Development of Nigeria embarked upon an Agricultural Transformation Agenda (ATA) to reposition agriculture to drive Nigeria’s economy, building on the foundation established through the African Union’s Comprehensive Africa Agriculture Development Programme (CAADP) process. The ATA represents the biggest effort by government to grow agriculture in the country’s history. The goals are to industrialize the sector to become more productive, efficient and competitive through a government-supported but private sector-led agricultural transformation. In particular, it aims to:

- Reduce reliance on food imports by adding 20 million MT to food supply
- Expand value addition to locally produced agricultural production
- Create 3.5 million jobs along agricultural value chains

The main policy areas targeted for change are outlined in Table 1.

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7. Ibid.
8. Grow Africa.
<table>
<thead>
<tr>
<th>POLICY AREA</th>
<th>CONTEXT</th>
<th>PROPOSAL FOR CHANGE</th>
</tr>
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<tbody>
<tr>
<td>FERTILIZER</td>
<td>Fertilizer subsidies are a major drain on Nigeria’s treasury; no regulatory/quality control system</td>
<td>Move from general subsidies to targeted-ed subsidies, and from consumption to production subsidies</td>
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<tr>
<td>SEED</td>
<td>Limited private sector involvement cripples innovation and widespread use of seed</td>
<td>Encourage and finance new private entrants into foundation seed market and seed multiplication market</td>
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| R&D               | • Lack of funding  
                    • Low-quality research outputs  
                    • Limited linkage between research and delivery | Establish and finance agricultural value chain research development funds |
| EXTENSION         | • Insufficient pool of extension workers  
                    • Policy implementation and quality of extension workers varies by state | • Expand budget for extension  
                    • Train agro-dealers and select farmers to offer basic advice on input usage |
| STORAGE AND PRICE STABILIZATION | • Public investment in silos displaces the private sector capacity in storage  
                              • Enablers for agricultural commodity exchange not in place | Build enablers for agricultural commodity exchange (e.g. market information systems, farm level storage capacity, grades/standards) |
| CLUSTER POLICY    | • Few complete value chains  
                    • Insufficient enforcement of tariff policies | Create staple crop processing zones, with new tax and financial incentives for processors, and supporting infrastructure |
| LAND USE          | • No cohesive policy today  
                    • Land Use Act of 1979 silent on designation of land for specific types of usage  
                    • Perpetuates fragmentation of land, instead of consolidation | • Reform Land Use Act  
                    • Streamline and make transparent process of obtaining and designating land titles  
                    • Specify patterns and types of land use across the country according to soil fertility |

SOURCE: Revolutionising bank lending to transform agriculture in Nigeria. Central Bank of Nigeria/Alliance for a Green Revolution in Africa (AGRA): Nigeria Incentive-Based Risk Sharing for Agricultural Lending (NIRSAL)
Through radical policy reforms, the ATA is creating an enabling environment for private sector investment that will modernize and industrialize agriculture in Nigeria. With support from all levels of government, Nigeria’s agriculture has begun to:

- Shift to treating agriculture as a business not as a development project, with government as a facilitator
- Focus on a value chain approach where Nigeria has comparative advantage
- Integrate food production, storage, food processing and industrial manufacturing by value chains ("farm-to-fork")
- Adopt import-substitution measures to drive sector growth
- Encourage investment-driven strategic partnerships with the private sector
- Address all major constraints in agricultural development, including:
  - Use of core and up-to-date technologies and expertise
  - Knowledge sharing and feed-back loops
  - Focus on transparency and reducing transaction cost

Development partners are supporting the ATA through commitments of over $3 billion, from the World Bank, UNDP, African Development Bank Group, DFID, USAID, IFAD, WFP and the Bill & Melinda Gates Foundation. Domestic foundations, such as the Tony Elumelu Foundation, have also come on board.

**HOW IS THE TRANSFORMATION TAKING PLACE?**

Since the 1980s, many attempts were made by the central bank to stimulate lending, such as:

- Agricultural Credit Guarantee Scheme Fund (ACGSF) ($358 million) established in 1978 to guarantee loans made by commercial banks to farmers
- Agricultural Credit Support Scheme ($313 million) established in 2006 to advance credit to farmers at low interest rates
- Commercial Agriculture Credit Scheme ($1.25 billion) provides on-lending to large-scale agricultural projects

These financial schemes were hampered by bureaucratic and administrative bottlenecks that have eroded the confidence of commercial banks. For instance, the ACGSF had over 4,000 outstanding unprocessed claims as of 2005, one of which dated back 25 years.12

**NIGERIA INCENTIVE BASED RISK SHARING SYSTEM FOR AGRICULTURAL LENDING (NIRSAL)**

In 2011, the Central Bank of Nigeria decided to change how it supports the financing of agriculture. NIRSAL was established to generate a $350 million risk-sharing facility to reduce the risk of lending by banks to farmers and agri-businesses and unlock access to input suppliers, agro-processors and product marketers. NIRSAL focuses on guarantees rather than on placing credit/funds directly with banks, using a mix of incentives and penalties to shape financial system behaviour. It also breaks with tradition by introducing a holistic approach that addresses both finance and agricultural value chains.13 A key metric of NIRSAL’s success will be raising formal lending to around 10% by 2017.14

**FUND FOR AGRICULTURAL FINANCE IN NIGERIA (FAFIN)**

FAFIN was launched in October 2013 to generate inclusive growth in agriculture and to increase commercial capital available for agriculture. The focus of FAFIN is on tailored, long-term capital to small and medium enterprises (SMEs), including traditional and dynamic (e.g. high-growth or graduating) SMEs

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across the agriculture value chain, especially input companies, mechanization providers and processors. It is capitalized initially by the public sector (€28.5 million from the FMARD and KfW), but scaled with private sector capital to €100-200 million over 10 years. It is managed by an independent, private-sector fund manager.

INITIAL RESULTS OF THE ATA

Since 2011, the ATA has achieved significant success in the following areas:

• Nigeria’s food import bill has fallen by more than half to $5 billion from $11 billion in 2012 (15)
• Formal letters of intent from domestic and international companies committing to invest nearly $5 billion in the agriculture sector (16)
• FAFIN reached its capitalization target of $100 million
• Sector value chain development:
  • A 10 billion naira ($63 million) Cassava Bread Fund is helping to fast track the roll out of cassava bread brands across the country
  • Rice milling capacity in Nigeria went up 200% in 2013
  • Four private sector oil palm investors expanded their integrated operations in plantations and refineries with investments over $350 million
  • A strategic Staple Crop Processing Zone programme has been established to serve as integrated infrastructure platforms to accelerate investments in large-scale agro-processing
  • FMARD has established an Agribusiness and Investment Unit to attract more global and domestic commercial operators and investors to the sector.

16. Grow Africa 2014 annual reporting by companies - report still to be printed at time of this publication.
POOR ACCESS TO INPUTS BY FARMERS: THE OLD SYSTEM OF FERTILIZER SUBSIDY

A significant constraint to increasing crop yields under the ATA was the low use of agricultural inputs. Nigeria has been implementing large-scale fertilizer subsidies since the 1970s with the broad objective of promoting agricultural productivity. Between 1980 and 2010, fertilizer supply was the single largest expenditure item out of 179 items in the federal capital account. It consumed more than 56% of federal government capital spending on agriculture with over 873 billion naira ($5.4 billion) spent on fertilizer subsidies. Despite the considerable fiscal burden to the government, actual use of fertilizer by farmers was very low.

A key feature of Nigeria’s old system of fertilizer subsidy was a very active role of the state in fertilizer delivery. The federal government was in fact the sole procurer of fertilizer, which it then re-sold at subsidized prices to distributors for delivery to 36 states, where state distribution committees allocated quantities between the 776 local government authorities. These local authorities distributed it to warehouses at the ward level, where farmers came to purchase it, on the expectation that they would be charged the subsidized price.

The subsidy policy was widely recognized as being associated with multiple problems, including wide-scale corruption and inefficiencies. Massive diversion of supply benefited middlemen and rent seekers and fertilizer was routinely smuggled to neighbouring countries. The lengthy and cumbersome bureaucratic tendering process often caused late delivery of inputs and there were frequent concerns about quality. Over 776 billion naira ($4.8 billion) was estimated to have been lost to corruption in total, averaging 26 billion naira ($162.5 million) of losses annually. Smallholder farmers received about 30% of subsidized fertilizer at subsidized prices, although figures suggesting less than 11% of farmers used fertilizer in 2011 are frequently quoted.

SETTING THE SCENE FOR TRANSFORMATION OF THE SYSTEM

In June 2006, global leaders gathered at the Africa Fertilizer Summit in Abuja, Nigeria, convened by NEPAD, with support from The Rockefeller Foundation and other donors. The main outcome of the summit was the Abuja Declaration on Fertilizer for the African Green Revolution, to which African Union Member States committed to increasing fertilizer use from 8 kilogrammes to 50 kilogrammes of nutrients per hectare by 2015. It also called for governments to make fertilizer more affordable and available.
to African farmers through targeted subsidy programmes. Commitments were made to develop and strengthen the capacity of the private sector and establish national financing facilities for input suppliers to accelerate access to credit.\textsuperscript{22}

IFDC had first implemented a paper voucher fertilizer programme in 2004. Following the Abuja Declaration, they revitalized the initiative and implemented the scheme in two Nigeria states national scale up. A major constraint of the pilot was that it was dependent on the bureaucratic and inefficient government system of procurement, which meant that inputs were still poor quality and delivered late. The voucher scheme highlighted the potential as well as the challenge that a fundamental change in the procurement process of inputs was required. After years of lobbying, the change in leadership in the FMARD finally created the opportunity for the pilot voucher scheme to be scaled up to a national programme. (Kano and Taraba) in 2009. It was a collaborative effort between the government (federal and state), private-sector suppliers and dealers, and IFDC. Farmers were entitled to a 50-60% discount on three to four 50kg bags of fertilizer (the entitlement varied by state). The study found that 94% of farmers participating in the programme received a higher quantity of fertilizer at an affordable price than non-participant farmers, which created the basis for a successful model for national scale up. A major constraint of the pilot was that it was dependent on the bureaucratic and inefficient government system of procurement, which meant that inputs were still poor quality and delivered late. The voucher scheme highlighted the potential as well as the challenge that a fundamental change in the procurement process of inputs was required.\textsuperscript{23} After years of lobbying, the change in leadership in the FMARD finally created the opportunity for the pilot voucher scheme to be scaled up to a national programme.


The Growth Enhancement Support (GES) programme was launched in 2012 and was designed to break the cycle of inefficient and ineffective fertilizer and seeds support delivery to the targeted beneficiaries. The primary objective was to depoliticize the input sector by withdrawing the state from procurement of inputs and developing a private sector channel for input distribution. The aim was to target individual smallholder farmers through a smart subsidy, using a high-tech delivery mechanism.

The aims of the GES is to migrate smallholder farmers from subsistence farming to commercialized systems over a 4-10 year period in order to facilitate trade and competitiveness. It will provide targeted support for seeds and fertilizer to 20 million farmers within five years; five million farmers are to be targeted each year and each group will receive support for four years. The $2.5 billion programme is projected to generate an overall benefit/cost ratio of 16 to 1. The estimated annual cost per farmer is $30, with an anticipated yearly individual benefit of $500.

GES COMPONENTS

The following sections of the report will outline the main building blocks of the GES and which have enabled the programme to meet its objectives. They are summarized below (see Figure 2):

- Development of a competitive agro-dealer network: Private Agro-dealers are selected to participate in the GES. Those selected are allocated to one or more redemption centres (government-owned or private warehouses), and are responsible for delivering quality inputs in adequate quantities and on schedule.
- Stimulating the banking sector to finance the agro-dealer network: Commercial banks extend concessional loans to agro-dealers through a credit-guarantee scheme (operated by NIRSAL) of 50 billion naira.
- Uptake by farmers: Individual farmers are registered on a national database. Each farmer is entitled to a 50% subsidy on the price of two 20kg bags of fertilizer.
- Delivery of the e-wallet through an IT platform: Prior to the start of the rains, the subsidy is delivered to farmers as an e-wallet (an electronic voucher). A mobile commerce network operator designs and delivers the e-wallet.

BUILDING A STRONG NETWORK OF AGRO-DEALERS

The GES drew on lessons learned during the Nigeria Agro-Dealer Support (NADS) project. Implemented by the International Fertilizer Development Center (IFDC) in 2008-2011, NADS worked with local partners to build agro-dealer capacity and strengthen technical and business knowledge, as well as provide services such as field demonstrations, soil testing and teaching best agricultural practices to farmers.
FIGURE 3. GES structure

GES Design Architecture

This flow chart provides an overview of how Growth Enhancement Support was conceptualized and implemented.

Flow of cash
- Flow of fertilizer
- Flow of loans
- User interface
- Reports / Information

States
- FMARD and Participants
- States contribute half of the support

Fertilizer purchase is through:
- a. Importing
- b. Manufacturing
- c. Buy locally

Field Agents and Data Center
Field Agents appointed by FMARD visit farmers in the field and register them for the subsidy. Data center digitizes the data and gives Cellulant.

Data Center
- Agro-Dealer
- Farmers

LOCAL GOVERNMENT AUTHORITY
- Agro-Dealer
- Farmers

Bank B
- CBN confirms to FMARD that money is in Escrow and FMARD advises CBN to move money to GES trust accounts at commercial banks.

Cellulant
- Provides mobile technology to manage and monitor activities between the supplier, agro-dealer, banks and farmers.

Banks
- Lends money to Agro-dealers at a special rate for the GES program.

Suppliers
- a. Suppliers appoint agro-dealers they want to work with
- b. Cellulant provides supplier with a user interface to manage agro-dealers.

Agro-Dealer
- Suppliers
- Agro-dealers
- Suppliers

States
- FMARD and Participating States contribute half of the support.

Contributes N1.375/kg of fertilizer
- Agro-dealers
- Farmers

Central Bank of Nigeria
- CBN

CBN
- CBN

Reports / Information
- Field Agents
- Agro-Dealer
- Farmers

Addenda

NADS compiled Nigeria’s first comprehensive directory of agro-dealers to assess where and how product flow could operate through the private sector. It ascertained the dealers’ turnover and product availability, mapped their relationships with input suppliers, and found that the government’s procurement of fertilizer had stifled the dealers’ business opportunities and dampened enthusiasm for expanding their market.

The survey profile of the dealers was not promising. The government had elbowed them out of the marketplace, and most were small-scale businessmen averaging very low turnover ($1,500 per year). At least half the dealers had no bank account and relied on informal sources of financing; many were itinerant with no business premises, and recordkeeping was poor. The primary business was the sale of fertilizer and crop-protection products. Less than half of those surveyed sold seeds.

In the first year, the GES registered more than 1,000 agro-dealers, who were each allocated at least one redemption centre (each centre serves around 3,000 farmers). By the second year (2013), 2,500 agro-dealers had been registered. The government committed to paying dealers 50% of the retail price on all bags of fertilizer sold to farmers with e-wallets, and 90% of the retail price of improved seeds.

Shortfalls in the dealers’ performance emerged at the end of the first redemption period. Inputs were supplied late and in insufficient quantity, and recordkeeping and reconciliation were poorly done. A more rigorous selection process was introduced to ensure transparency and accountability. Registration of input suppliers and agro-dealers now requires validation through due diligence and performance reviews. The Ministry of Health, Ministry of Environment as well as FMARD are developing a curriculum for agro-dealers to raise their standards of operation.

A network of regional agro-dealer associations has been developed to support private sector interests. They support access to finance through credit packages to members, carry out advocacy work and educate members on the use of products and services. Ideally, they would provide business training on recordkeeping, accounts, etc. The associations are still developing and working to support members operating under the GES.

26. Results from a baseline survey for agro-dealers. IFDC, 2011.
27. Stakeholder interviews.
28. Stakeholder interviews.
GES offers the following business opportunities to agro-dealers:

- A guaranteed market of millions of farmers nationwide
- A wider range of services in the value chain, from research and extension support to market linkages and infrastructure development
- Higher sales volumes, as farmers purchase inputs at retail prices in addition to those that are subsidized.

**INCENTIVIZING LENDING FROM COMMERCIAL BANKS**

Agro-dealers need finance, not only as working capital, but also to expand retail outlets and supply farmers year round. At the beginning of the GES programme, the banking industry had low expectations for the agricultural sector, estimating an 80-100% default rate. Akinwumi Ayodeji Adesina, Minister of Agriculture and Rural Development of Nigeria, assuaged bankers’ concerns with assurances that the GES would fix the value chains, reduce transaction costs and lower risk. This has been achieved by:

- Fixing value chains: Reforming access to inputs by farmers is a key step in the broader agenda to increase yields and boost domestic production of staple crops, such as rice, sugar and cassava, to lower imports and encourage the development of agribusiness.
- Reducing transaction costs and building efficient systems: The GES was designed to provide a closed-loop system of lending to agriculture, whereby funds are loaned to input companies, the GES provides an avenue to sell inputs directly to farmers and repayment is made partly from the subsidy and partly from commercial sales.
- Reducing risk: In 2011, FMARD, the Ministry of Finance and participating banks brokered an agreement that addressed the challenges of financing agricultural inputs. High interest rates were reduced through a back-end loan, whereby the ministry paid 8% interest to banks, and agro-dealers paid 7%. In lieu of collateral, the ministry provided a sovereign guarantee to cover 75% of a loan in the event of default. Based on this formula, about six banks loaned $25 million in 2012, which was considerably lower than the target.

In 2013, NIRSAL replaced the Ministry of Finance as guarantor. Under the Input Lending Framework (2013–2016), a financing and guarantee agreement for the GES was set up which gave agro-dealers access to $300 million billion through commercial banks. The terms of financing were switched to front-ending, to place responsibility for repayment with the agro-dealer and reduce discomfort of the banks.

Loans are capped at 18% rate of interest, which includes NIRSAL’s 1% administration fee, and the rate is subsidized at 50% of the actual interest rate paid by the agro-dealer who then claims 9% from NIRSAL. The guarantee remains at 75% of the loan’s principal amount and interest accrued.

Subsequently, the central bank’s governors met again with Minister Adesina and reported that they had a default rate of 0% the previous year. As a result of the increased confidence by the banks, lending grew to $125 million in 2013 through 113 loans dispersed by 13 commercial banks; loans were expected to increase to $250 million in 2014. In addition, the commercial banks requested an increase in the lending cap for agro-dealers from $2 million to $5 million and offered to double the loan period to 12 months.30

**LENDING CRITERIA**

The agro-dealer:

- Is registered with GES
- To provide a letter of introduction from the supplier and letter from the state government confirming the agro-dealer’s appointment to a redemption centre
- To provide a 10% equity contribution made in stock or cash
- To demonstrate sufficient capacity and experience

To ensure the system operates smoothly, the NIRSAL is expected to approve or decline a loan application within 10 working days after submission. Penalties are increased to ensure the system performs. For instance, while the current commitment refunds 50% of the interest paid by an agro-dealer on a monthly basis, the Central Bank of Nigeria prefers changing this to payment of the interest subsidy once the loan is liquidated.31 Reconciliation is done at the end of each redemption cycle. NIRSAL favours weekly reconciliation for greater efficiency and speed.

**MONITORING LOANS**

The banks monitor loans through an online portal to the GES management information system. Hosted by Cellulant, a mobile-commerce network operator contracted under the GES, the system provides a history of each agro-dealer’s activities as well as a live record of redemptions (where the mobile network is available).

In the programme’s early stages, banks struggled to monitor agro-dealers and stock levels at redemption centres. The problem was overcome in 2013 when the GES introduced supply-chain managers to oversee the flow of inputs and provide “lender comfort”, as loans are made against physical stock. The managers confirm the arrival of correct stock volumes and periodically report stock levels to lenders, the guarantor and Cellulant for inventory control, collateral management and cash flow reconciliation. They check the number of redemptions made, which are checked against any stock returned to the input supplier at the end of

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29. Interview with Akinwumi Ayodeji Adesina, Minister of Agriculture and Rural Development of Nigeria.
30. Stakeholder interviews.
31. Stakeholder interviews.
the redemption period. As the reconciliation agent, Cellulant is also required to provide regular proof of sales volumes made at specific sites.

CHALLENGES

• Poor network coverage in some areas of the country has delayed submission of reconciliation documents and weak understanding of lending requirements has delayed repayment. The banks have addressed this by training agro-dealers and simplifying documentation.
• Improving monitoring of agro-dealers has de-selected those who are significantly underperforming
• Under the terms of the Input Lending Framework, borrowers are required to make periodic bank deposits as sales are recorded. Many agro-dealers tend to use their cash elsewhere instead of repaying loans and while this is a significant challenge, banks consider the risk levels to be tolerable.

While significant improvements have been made to the financial arrangements for the GES, a number of issues have yet to be addressed, including:
• Loans disbursed are usually large ($490,000 to $1 million) and generally target distributors rather than agro-dealers.
• Many agro-dealers cannot yet meet the commercial banks’ lending criteria, even under the credit-guarantee scheme.

FIGURE 4. Credit IFDC Photography
ELIGIBILITY OF FARMERS

The GES is a poverty-targeted subsidy programme. Those eligible to register must be fulltime farmers with a landholding size of 3 hectares or less. All adults in a household may register individually, which takes into account the local practice of men and women in the same family farming separate landholdings.

Farmers are self-declared and provide information on their land size at registration. It is challenging for farmers to declare accurately their land size because the land tenure system does not clearly delineate land owned or used. It is also not possible to verify whether a farmer is indeed a farmer.

REGISTRATION

The GES uses an “on demand” registration process, whereby eligible individuals are invited to register for the programme at designated centres established at the ward level. Complementary outreach and information campaigns use radio and broadband advertising and public notices to inform farmers about registration. Registration takes place over a period of 1-2 weeks in each location; there are no limits to the number of farmers who can register in each location.

The registration process has evolved since the start of the programme. Initially, state officials were asked to give details of the farmers in their area and paper forms were made available for farmers to complete and submit. The information on the questionnaire was later transferred to an electronic database.

To avoid the need for manual input of such high volumes of registration forms, the system was revised in 2013. Optical Mark Recognition forms were used for registration, whereby enumerators marked the information on a pre-printed sheet, which was later scanned and uploaded into the database. Farmers were requested to visit an enumeration site in person. They were also provided with a tear-off slip as proof of registration.

In 2014, a range of different approaches were under consideration to shift from paper registration, depending on the mobile network availability:

- Using the NIMC portal with a good network to register farmers electronically, including biometric data capture (see next section on e-wallet); this process will reduce costs for the GES and avoid duplication of effort between the GES and the National Identity Management Commission (NIMC) process. It should also provide real-time data entry, which provides a check on fiduciary risk.
- Where the network is weak or absent, registration data will be recorded electronically and imported into the database.
- TAP technology is registering 500,000 farmers in two states using an electronic system (see next section on e-wallet). 32

32. Stakeholder interviews.
FARMER IDENTIFICATION

A key objective of the GES is to provide transparency and accountability in the use of public funds. It therefore needs to demonstrate that the intended inputs are reaching the target group and farmers are not able to redeem more than one e-wallet. For this to happen, each farmer has to be identified uniquely.

The original intention was for a mobile phone number to be the unique identifier, with farmers receiving the subsidy through an e-wallet direct to their own phone. The low phone ownership at the start of the programme created challenges with this system, which were exacerbated by significant gaps in mobile network coverage (see next section on e-wallet).

Recognizing that this has been a weakness in the system, the GES has started a collaboration with the NIMC. The NIMC is currently registering all citizens and issuing them with general multi-purpose cards that have a unique national identification number. These multi-purpose cards function as a national identity card, an ATM card and a credit card, provided they are linked to a wallet or account. The joint initiative between the GES and NIMC, known as the Nigeria Agricultural Payment Initiative (NAPI), aims to provide every farmer with a chip-based identity card with an E-Wallet linked to a mobile phone. NAPI is rolling out at a much slower rate than the GES, with only 1 million cards issued by 2013. As such, the GES is continuing with its existing system for farmer registration and delivery of the subsidy.

FIGURE 5. The new, multi-purpose national identity card issued by NIMC

34. Cellulant 2013 Wet Season GES Program Report.

MANAGEMENT INFORMATION SYSTEM

The management information system of the GES provides a single registry of all beneficiaries. Its role is the unique identification of eligible farmers in order to know that the right people are receiving the input subsidies. In addition, it ensures that agro-dealers are paid the subsidy money due to them honestly and transparently in a timely manner, based on their sales volumes. This enables government to account for the expenditure of public funds on inputs for farmers.

Data is transferred between, and accessed by, the different components of the programme. Besides providing a central store of information that is accurate, secure and trusted, it can potentially link GES recipients with other initiatives, such as mobile money and household nutritional interventions. The management information system is managed by Cellulant; a set of standard operating procedures provide checks, balances and penalties for non-compliance. The system also plays a key role in reconciliation and provides regular reports directly to FMARD.

NATIONAL DATABASE OF FARMERS

Prior to the GES, Nigeria had no database of farmers, which presented a number of challenges in the design of the programme, including setting the target for the number of farmers to reach. The target was set at 20 million farmers with 5 million registered per year for four consecutive years. These ambitious targets were met for the first two years and of the 10.3 million registered, 2.6 million were women.

Those eligible to register must farm fulltime and on less than 3 hectares of land. All adults in a household can register, as it is common practice for husband and wife to cultivate different plots.

Initially, registration was carried out manually, with completion of forms at ward level and farmers were not requested to be present. This created challenges around “round tripping”, where subsidized fertilizer is sold on the open market and an additional subsidy is claimed by the same individual, who may not be a farmer. A verification process was carried out in 2014 to correct errors and validate the individuals registered. It is expected that the total number of registered farmers will reduce after the verification process.
INITIAL DELIVERY VIA MOBILE PHONE

The GES programme was initially designed to deliver the fertilizer subsidy to farmers by mobile phone. Following registration, farmers received notification on their phone that the subsidy was available for collection at a designated redemption centre and an authentication code was provided by SMS for presentation in return for inputs.

This system was reliant on good network coverage throughout the country and broad ownership of mobile phones by farmers. After the first year, it was evident that neither were adequate. It was estimated that overall about 50% of farmers had phones (although this number fell to 30% in areas of poor or absent network availability), but only 25% of farmers had a valid mobile number registered in the system. Furthermore, network coverage was absent or erratic in many places. This resulted in a variety of challenges in accessing inputs with some farmers not able to receive e-wallets and instead obtaining scratch cards from state GES coordinators. Of those who did receive e-wallets, some were unable to activate them because of the poor network connection. Long delays resulted in collection of inputs taking between three days and two weeks.

The poor network availability also resulted in challenges with reconciliation. Many redemption centres were forced to record transactions on paper, which delayed the reconciliation process and provided opportunity for fraudulent transactions. Out of 1,200 agro-dealers operating in the second year of the programme, about 300 disputes were escalated by Cellulant for further investigation by the Economic and Financial Crimes Commission in 2013.

GES 2.0: NEW TECHNOLOGY TO DELIVER THE E-WALLET

As a result of the challenges with the network coverage, two technologies have been piloted to provide more effective delivery of the e-Wallet:

TAP

The TAP uses near field communication to transfer data between devices when operating either in online or offline mode by touching one device against the other. The TAP technology is used for electronic registration of farmers and it captures biometric data (photo) and has been designed specifically to address the issue of unique identification of farmers. A specific card is issued to each farmer at registration; this card is presented to the agro-dealer at redemption.

Point of Sale (POS)

The POS is a device that records electronic transactions both offline and online. It will be used by agro-dealers to make electronic transactions during the redemption process, with the NIMC card that farmers will present for unique identification.

Both TAP and POS address challenges in the current programme around redemption and reconciliation. They both aim to provide agro-dealers with an electronic device that has the capacity to work in offline and online modes. This means that no redemptions can be made without a GES card and that all sales will be recorded electronically, removing some of the key opportunities for fraud. All records will be transmitted electronically when the devices are brought into network coverage, which should reduce the reconciliation times dramatically and improve agro-dealer liquidity. The electronic system will also improve access to accurate data in a transparent, efficient and timely manner.

Future plans

There are future plans to attach the e-wallet to a basic transaction savings account and include a partner wallet, whereby clusters of farmers can be linked to pooled services such as cooperative savings, lending or membership schemes, mobile banking, bill payment services, etc.
PROGRESS AROUND FERTILIZER DELIVERY TO FARMERS

REDEEMING INPUTS

During the first year of operation, farmers encountered a number of challenges in accessing fertilizer and seed:

• Poor supply of inputs
• Poor-quality fertilizer
• Congestion and long waits at redemption centres
• Several visits required before being able to purchase fertilizer
• Omission of farmers’ names from the register when registration began late in an area

These issues have been addressed by the use of supply-chain management services to oversee the whole redemption process and ensure that farmers receive their entitlement from agro-dealers and the government reimburses the agro-dealers correctly. They also ensure that federal and state governments are served effectively by agro-dealer input supply.

Further improvements that have been recommended in various review documents include introducing operating standards that would commit FMARD to specific delivery targets, establishing a procedure for complaints if targets are not met, and increasing the number of redemption centres to eliminate the long lines experienced at some locations.

RECONCILIATION

At the end of the redemption cycle, agro-dealers are reimbursed from an escrow account held at the central bank on behalf of FMARD. The initial reconciliation process was littered with pitfalls, most of which have been eliminated with the introduction of the e-wallet and POS. The reconciliation process proceeds as follows:

1. Transactions from each redemption centre are compiled by the state and submitted to the federal government with a request for payment (copied to Cellulant)
2. Cellulant reconciles them against the platform’s electronic records
3. Agro-dealers receive a certificate confirming that fertilizer has been redeemed
4. Cellulant investigates any discrepancies
5. Discrepancies with a margin of more than 3% are investigated further. The investigation has two steps:
   • The agro-dealer’s receipts are reviewed in Abuja
   • When necessary, the case is presented to the Economic and Financial Crimes Commission, a law enforcement agency investigating financial crime

REPORTING

Cellulant submits weekly performance reports to FMARD reflecting indicators such as farmer participation and service delivery. The federal GES committee scrutinizes the reports and recommends solutions to the problems raised. This quick response to challenges is important to the GES’s success in delivering a large volume of inputs to many farmers in a short period of time.

BUILDING THE DEMAND SIDE: UPTAKE OF THE GES BY FARMERS

One of the main objectives of the GES is to increase farmer access to and use of improved seed and fertilizer by smallholder farmers. There are several points of consideration:

Farmer awareness

Farmers’ awareness of the GES was low in the first year and many did not initially trust that the programme was genuine. They were not used to being supported by the government and farmers initially thought that SMS messages about the offer of subsidized fertilizer were fraudulent. These concerns were quickly dispelled over the first year of operation.
Affordability

Two 50kg fertilizer costs 5,000 naira ($34), which is a significant expense for a smallholder farmer. In the first year, farmers who were unaware of the programme did not have the cash immediately available to spend on fertilizer. There are plans for financial inclusion to support farmers to be able to afford inputs through savings, including attaching the e-wallet to the new national identify card. Another possibility to increase uptake is to provide inputs in smaller packages.

Input efficiency

Use of fertilizer and improved seed has historically been very low in Nigeria and farmers are unfamiliar with many of the products. The USAID Markets II programme is working in collaboration with IFDC to improve the technical ability of smallholders to effectively use the fertilizer and improved seeds that are now much more widely available. To optimize the use of the subsidized inputs, a pilot programme is underway for 60,000 farmers, with plans to scale up nationwide.

Developing value chains

Farmers are asked during registration which crops they grow and are allocated accordingly to different value chains under the broader ATA. This entitles them to access to different kinds of inputs, specific to that value chain, particularly improved seeds.

Purchase of additional inputs

The GES currently provides a 90% subsidy on a 50kg bag of improved seeds and a 50% subsidy on two 50kg bags of fertilizer. However, a 3-hectare plot requires a higher quantity of inputs, for instance 500kg fertilizer is recommended for 1 hectare of rice. The challenge for the GES is to stimulate purchase of inputs by farmers beyond the quantity available under the subsidy programme. A possible way to increase sales could be to shift redemption from warehouses to agro-dealer retail outlets to provide farmers with greater exposure to a broader range of available products.

Developing inclusive business models

The GES model has the potential to develop smallholder inclusive business models, which are attractive to banks for financing. The redemption sites provide a ready-made grouping of 3,000 farmers, which could be organized into clusters and co-operatives and linked to off-takers such as processors.
BROADER IMPACT OF THE GES

EFFECTIVE FINANCE TO AGRICULTURE

Lending to agriculture is generally on the upward trend from Nigerian banks, with the banking sector funding to agriculture increasing from 0.5% of total industry portfolio prior to 2009, to 4.9% of the banking industry loan book in April 2014. Banks have taken confidence that agriculture in Nigeria is now being treated as a business and are in discussions with the regulator on how to increase lending to the sector.39

For instance, the United Bank of Africa has always lent to agriculture, but the GES has stimulated lending to agriculture within the bank, with growth taking place in branches in rural areas. About 7% of UBA’s portfolio is now in agriculture, an increase from 5% in 2012. It has also stimulated lending in other sectors.

The GES has also demonstrated that lending to agriculture is profitable. At the 2013 Nigerian Economic Summit, Philips Oduoza, chief executive officer of the United Bank Africa, acknowledged that agriculture has the lowest level of non-performing loans in the bank, at 0.06%.

USING PUBLIC FUNDS TO LEVERAGE SIGNIFICANT PRIVATE SECTOR INVESTMENT IN FERTILIZER SUPPLY

The Nigerian fertilizer market is dominated by imports, but the success of the GES in reforming fertilizer distribution across the country, combined with the availability of natural gas in Nigeria, is attracting a growing number of investors in domestic fertilizer production.

Natural gas comprises over 60% of the variable cost of urea production. A national Gas Master Plan was developed in 2008 and reinforced by the Gas Revolution Agenda of 2011, which aims to monetize the 15 billion cubic meters of waste natural gas that is usually flared, releasing 400 million tons of carbon dioxide per year as greenhouse gas into the atmosphere. The plan provides incentives for additional private sector investors to meet the potential to produce 30 million tonnes of urea per year and enable Nigeria to become a manufacturing export hub for urea within the next five years. This would also reduce the domestic price of urea for farmers.

Over $5 billion of investment commitments have recently been made in fertilizer production:

- Nigeria has had the only urea fertilizer plant in sub-Saharan Africa since 1981. This plant, now known as Notore Chemical Industries, was state-owned until 2005 and it has been undergoing significant restructuring since 2009 to increase capacity and performance. Notore Chemical Industries Limited signed a $1.3 billion joint venture with Mitsubishi Corporation in 2012, which aims to double current urea output and start ammonia production
- Dangote Group, a West African manufacturing conglomerate, invested $3 billion to build an ammonia and urea facility
- Indorama Eleme Petrochemicals Limited (Indonesia) signed agreements with 16 global development finance institutions, including the African Development Bank and IFC; is investing $1.2 billion in urea plant to start operation in 2016
- Greenpark Petrochemical Company invested $380 million to transport and construct a urea plant from Alaska
- Nagarjuna Fertilizer and Chemical Limited (India) signed an MoU with Xenel Corporation of Saudi Arabia to build an ammonia and urea facility.40

LESSEONS LEARNED

The GES has registered 10.3 million smallholder farmers who have produced 15.5 million metric tonnes of food; food security has improved for 30 million people in farming households.

LESSON: A national fertilizer subsidy programme can substantially increase crop yields and improve food security for smallholder farmers.

Over $4.8 billion was estimated to have been lost to corruption in total through the previous fertilizer subsidy programme, averaging $162.5 million of losses annually. Smallholder farmers received about 30% of subsidized fertilizer at subsidized prices. The government succeeded in ending four decades of corruption within 90 days of the appointment of the minister of agriculture.

LESSON: It is possible to break the cycle of wide-scale corruption and inefficiency in national fertilizer subsidy programmes.

Consistent support from Goodluck Ebele Jonathan, President of Nigeria (2010-2015), gave GES its head start.

LESSON: Entrenched systems that paralyse productivity cannot be dismantled without high-level commitment and political goodwill.

The GES changed the role of government in the delivery of fertilizer subsidies by withdrawing the government from procurement of inputs and building a network of commercial agro-dealers to supply farmers.

LESSON: Investment confidence grows in an operating environment conducive to business and free of government interference.

Commercial lending to agro-dealers and input suppliers was $200 million in 2014, with few or no defaults. The banking sector’s confidence in agriculture continues to increase as its agriculture portfolio grows smoothly.

LESSON: A demonstrable reduction in risk and transaction costs yields dramatic changes to commercial lending to agriculture.

The GES created Nigeria’s first national database of smallholder farmers, which enables the programme to trace input delivery to individual farmers for fiduciary risk purposes. The database will also assist future programmes to plan and target farmers with individual requirements.

LESSON: The delivery system is key to the effective implementation of the GES and enables government to account for the expenditure of public funds on inputs for farmers.

As part of a wider goal of modernizing agriculture, the programme has used a high-tech approach whereby subsidies are delivered through an electronic voucher, the e-wallet. Challenges with the mobile network coverage have generated innovation around delivery of the voucher direct to individual farmers. Alternative systems are being piloted that can record electronic transactions both online and offline.

LESSON: Transparency and accountability are underpinned with cutting-edge technology.

Akinwumi Ayodeji Adesina, Minister of Agriculture and Rural Development of Nigeria, developed a culture of transparency and problem solving and the programme design evolved significantly over the first two years of implementation.

LESSON: The ability to have a flexible and adaptive response to challenges in programme design makes for early and rapid success.

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