

Nigeria: In-depth Assessment of Extension and Advisory Services

Developing Local Extension Capacity (DLEC) Project

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ACRONYMS

AATF	African Agricultural Technology Foundation
ADPs	Agricultural Development Programs
AESON	Agricultural Extension Society of Nigeria
AETA	Agricultural Extension Transformation Agenda
AGRA	Alliance for a Green Revolution in Africa
AIP	Agro-Inputs Project
ASTCM	Agricultural Services Training Center & Marketing Private Company
BASICS	Building a Sustainable, Integrated Seed System for Cassava in Nigeria
BSc	Bachelor of Science Degree
CABI	Centre for Agriculture and Bioscience International
CARE	Cooperation for Assistance and Relief Everywhere, International NGO
CEW	Community Extension Workers
CIP	International Potato Center
CRS	Catholic Relief Services
DAI	Development Alternatives, Inc.
DfID	Department for International Development
DLEC	Developing Local Extension Capacity Project
EAS	Extension and Advisory Services
FCMB	First City Monument Bank
FDAE	Federal Department of Agricultural Extension
FMARD	Federal Ministry of Agriculture and Rural Development
GDP	Gross Domestic Product
GES	Growth Enhancement Support Scheme
HND	Higher National Diploma
HNI	Human Network International
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICTs	Information and Communication Technologies
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IT	Information Technology

IVR	Interactive Voice Response
JICA	Japan International Cooperation Agency
KNARDA	Kano State Agricultural Development Authority
KPIs	Key Performance Indicators
LGA	Local Government Area
M4P	Making Markets Work for the Poor
MADE	Market Development for the Niger Delta project
MARKETS II	Maximizing Agricultural Revenue & Key Enterprises in Targeted Sites Program II
MIKs	Field Agents that Supervise Trust Groups
MIS	Management Information System
NAERLS	Nigerian Agricultural Extension Research and Liaison Services
NAQAS	Nigerian Agricultural Question and Answer Service
NIFAAS	Nigerian Forum for Agricultural Advisory Services
NIRSAL	Nigeria Incentive-bases Risk-sharing System for Agricultural Lending
NGN	Nigerian Naira
NGOs	Nongovernmental Organizations
NPFS	National Program for Food Security
OIP	Open Innovation Platform
PIND	Partnership Initiatives in the Niger Delta
PropCom	Promoting Pro-Poor Opportunities in Commodity and Service Markets
REFILS	Research-Extension-Farmer-Input Linkage System
SAFE	Sasakawa Africa Fund for Extension Education
SAKSS	Strategic Agricultural Knowledge Support System
SMS	Short Message Service
SSAB	Sustainable Smallholder Agri-Business Program
TG	Trust Group
USAID	United States Agency for International Development
USSD	Unstructured Supplementary Service Data
VLE	Village-level Entrepreneurs
VSE	Village Seed Entrepreneurs
YEAP	Youth Employment in Agriculture Program

CONTENTS

Acronyms	3
Executive Summary	6
Introduction	9
Conceptual Framework.....	9
Methods.....	13
Results.....	13
Frame Conditions Related to Extension.....	13
Governance Structures and Policy Environment.....	14
EAS Policy Environment and the Public Sector	15
Research and Extension Links.....	19
Donor Projects	20
Private Sector.....	23
NGOs	24
Organizational and Management Capacities and Cultures.....	25
Methodologies Used by Service Providers	29
Public-private Partnership Methods	30
ICT Approaches.....	34
Community-driven Extension	37
Other Methods	38
Market Engagement.....	40
Access to Inputs.....	40
Credit	41
Livelihood Strategies	43
Community Engagement	45
Conclusions and Recommendations.....	46
References	51
Annex 1. IFAD Funding Recommendations	54
Annex 2. List of Agriculture-related ICT Platforms in Nigeria.....	55
Annex 3. List of Interviewees	56
Annex 4. Private sector involvement in EAS in Nigeria	59

Figures

Figure 1. Conceptual Framework for the Study.....	11
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EXECUTIVE SUMMARY

This report presents an in-depth analysis of the extension and advisory services (EAS) system in Nigeria. The document produces actionable recommendations for improvement of EAS using the “best-fit” framework that examines the services from a systems perspective and then analyzes the EAS system through six EAS characteristics – the governance structures and policy environment; organizational and management capacities and cultures; advisory methods; market engagement; livelihood strategies; and community engagement. The recommendations are intended for any EAS stakeholder interested to improve extension, be they federal or state governments, donors, the private sector, nongovernmental organizations (NGOs) or others. This report is based on a literature review on the Nigerian extension system and interviews with a variety of EAS actors during the period November 2016 - January 2017.

The overall frame conditions (political, business and community environments; agroecology; and the overall agricultural innovation system) affect EAS. Nigeria is a large federal country with close to 80 percent of land available for agriculture (both crops and livestock). Approximately half of the available land is being used for crop production. Support to extension and advisory services has changed over time, as has the role of agriculture in the Nigerian economy. Currently Nigeria is struggling with economic recession due to its dependence on oil exports and depressed global oil prices.

With regard to governance structures and the policy environment for extension, Nigeria has an impressive infrastructure for agricultural extension, including dedicated extension offices or Agricultural Development Programs (ADPs) in each state, a large number of agricultural research institutions and extension training programs, a system to connect them to farmers called the Research-Extension-Farmer-Input Linkage System (REFILS), and a body of 7,000 extension agents (28 percent female). Most of these structures were established with World Bank funding in the 1980s and have since suffered from a severe lack of funding and coordination in times of both economic growth and recession. However, there is growing involvement of the private sector in EAS.

While government revenues to support programs are consequently lower at the moment, there is a renewed focus and political will in both agriculture and extension. Today, there are several policies and programs to support agriculture, and new initiatives involving EAS. This shift can be seen from the Growth Enhancement Support Scheme (GES), which launched an e-Wallet system to distribute fertilizer subsidies directly to farmers through mobile money, and through the Agriculture Promotion Policy. In EAS, this increased support is evidenced through the development of a new extension policy and the establishment of the Federal Department of Agricultural Extension Services (FDAE) in December 2012. These are significant framework conditions that can be leveraged for more sustainable, effective and efficient extension. We recommend the legislation of the draft extension policy to optimize and coordinate roles of local, state and federal governments, NGOs and the private sector, as well as financing each with an annual, non-project based budget.

Pluralism, especially private sector involvement in EAS, has been growing. Various initiatives across public, private and NGO actors point to increased pluralism within EAS, but coordination among

actors continues to be a challenge. Public-private partnerships are clear areas of opportunity. One of the largest public-private partnership on extension in Nigeria is the Anchor Borrowers Programme, launched by the Central Bank of Nigeria.

To coordinate, set standards and promote and regulate pluralistic extension, we recommend a mechanism at the federal level to provide oversight. Also, we recommend the federal government revitalize the REFILS system to link extension, research, the private sector and farmers.

With regard to governance and management capacities and cultures, adequate staffing of the EAS system and agent capabilities to deal with issues, such as markets and climate change, have presented challenges. With renewed focus on EAS in recent years, several initiatives have been launched with the aim of mitigating these challenges. These initiatives include the N-Power program, which is hiring some 100,000 youth in extension, as well as renewed state interest and support for extension services, including those by agro-dealers and other private sector actors.

To address these issues, we recommend reforming and expanding public and private extension agents' basic training, and ensuring continuing education to increase skills, reach and job motivation. A performance-based management system for extension staff linked to salaries and promotions is also recommended.

With regard to advisory methods, Nigerian EAS uses a wide variety of approaches. However, we see the biggest opportunities in ICT-enabled extension, which we define as EAS systems and programs that utilize appropriate information and communication technologies for information sharing, capacity strengthening, program and performance management, and other EAS activities. Key opportunities for ICT-enabled extension include the use of Interactive Voice Response (IVR) to enable farmers to authenticate input quality and for the private sector to establish ICT-enabled extension that is profitable and sustainable.

Additionally, we recommend coordination of information provision through the Farmer Helpline with input provision from the e-Wallet system. Another opportunity is to adapt the Anchor Borrowers Programme to right-size loans for inputs, use group loans instead of individual loans and verify that people signing up are farmers by leveraging the existing Nigerian e-ID system. Finally, the government can facilitate public-private extension partnerships that leverage low-cost ICT directly with private-sector companies and establishes what level and kind of extension can be profitable and sustainable in the long-run.

There are also many opportunities with regard to market engagement by EAS providers. For instance, the One-Stop-Shop agro-input centers were launched by the federal government under the Agricultural Transformation Agenda to ensure the availability of inputs and markets for small-scale farmers. Farmers' access to credit and quality agricultural inputs has been a problem. Thus, we recommend the development of a sustainable, ICT-enabled public-private extension model enabling training for agro-dealers and other private providers; bundling of extension advice with other market services, like inputs, outputs, finance, transport and storage; and the use of ICTs, such as IVR, to enable farmers to authenticate the quality of the inputs they purchase.

Finally, we present recommendations with regard to livelihood strategies and community engagement, both of which pay particular attention to women and youth farmers. Livelihood strategies should focus the content of extension programs; specifically, on commodities and agricultural activities that are socially acceptable and appropriate for women and youth. Community

engagement opportunities include support to the N-Power program to help youth to establish profitable agribusinesses, and strengthening of agricultural clubs for secondary and university students.

With this holistic picture of extension and advisory services in Nigeria, it is clear that some of the most pressing needs are for sustainability and scalability in Nigerian EAS, so that many producers can be reached by a well-coordinated pluralistic set of providers in a manner that is financially sustainable and meets government development objectives. In this regard, private-sector engagement and information and communication technologies (ICTs) can be of enormous assistance. However, ICTs are a stand-alone method or tool that must be incorporated into an effective system that also has supportive policies, appropriate governance structures, sufficient human and organizational capacities and relevant outreach methods.

In conclusion, this is an opportune moment to revitalize extension and advisory services in Nigeria due to the private sector activity, existing EAS infrastructure and renewed government interest. There are many options for investors to make to revitalize the extension system. Among the many options, we highlight several different types of investments, each of which has tradeoff with regard to scale and outcome desired. Annex 1 of the report outlines opportunities for future investment and collaboration under the United States Agency for International Development (USAID) in Feed the Future Developing Local Extension Capacity (DLEC) project.

INTRODUCTION

In an effort to raise incomes and increase resilience of smallholder farmers and their families in Feed the Future countries, USAID funded the DLEC project. This project is led by Digital Green in partnership with the International Food Policy Research Institute (IFPRI), CARE International and multiple resource partners. DLEC works with country stakeholders and USAID missions to scale and improve locally relevant, cost-effective and pluralistic agricultural extension systems that bring together information technologies and community-based organizations. By collaborating with USAID missions, host-country governments, public and private EAS providers, rural civil society organizations and host-country research institutes, DLEC helps host-country extension systems become more effective, accountable, scalable and sustainable. The first stage of DLEC's work includes conducting diagnostic assessments of local EAS contexts and capacities in FEED THE FUTURE and aligned countries.

This report reviews existing documentation on EAS in Nigeria to recommend areas for potential investment and serve as an input into the design of an on-the-ground engagement under DLEC. The evidence generated through the on-the-ground engagement will contribute to the knowledge base of best-fit practices for strengthening EAS in Nigeria and may provide a basis for future investments in the country. The modified DLEC best-fit conceptual framework described in Figure 1 structures and focuses the DLEC project and this report.

CONCEPTUAL FRAMEWORK

The modified DLEC framework (Figure 1) uses the original best-fit framework (Birner et al., 2009) to analyze extension services and to determine EAS areas to focus on-the-ground activities on within DLEC's manageable interests. The frame conditions (political environment, business environment, civil society/collective/community environment, agroecology and broader agricultural innovation systems) are outside DLEC's manageable interests. The best-fit framework includes certain characteristics of EAS, plus the agricultural innovation system. EAS characteristics within the original best-fit framework include governance and structure, organizational and management capacities and cultures, and advisory methods. The DLEC framework adapted this original best-fit framework and added additional characteristics: market engagement, livelihood strategies and community engagement. The "manageable" outcomes of this framework include the system-level performance areas of access, quality and sustainability. The ultimate impact at the farm household level is outside DLEC manageable interests.

The building blocks for EAS are also useful for framing recommendations for engagement. They are as follows:

- ◆ Customer – farmers and their unique needs
- ◆ Content – knowledge being shared
- ◆ Methods – how information and knowledge is shared
- ◆ Provider – who shares information and knowledge

This report also addresses cross-cutting EAS issues, such as women and youth engagement, climate change resilience, food and nutrition security, and use of information and communication technologies (ICTs).

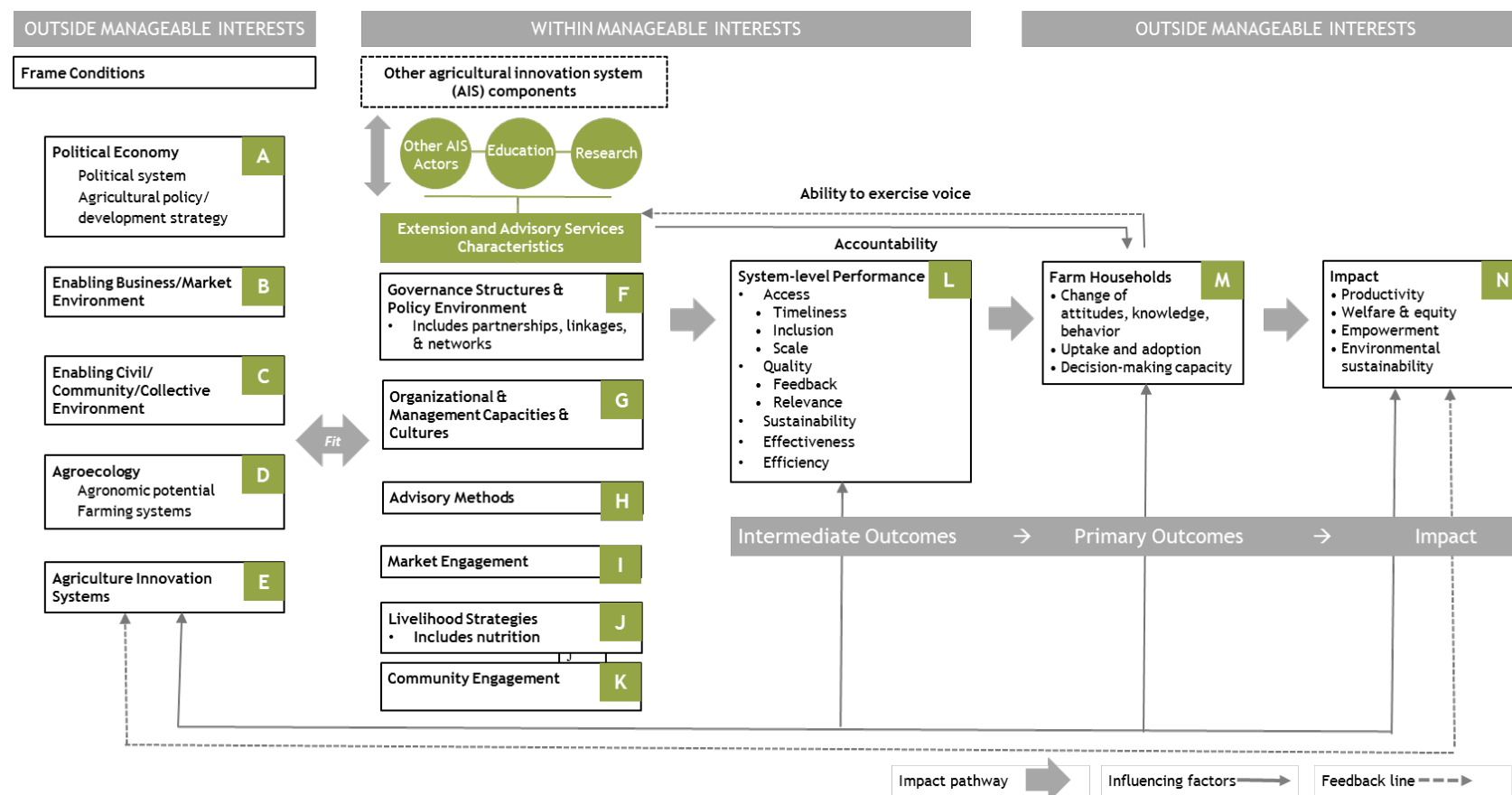


Figure 1. Conceptual Framework for the Study

Source: Adapted from Birner, et al. 2009.

METHODS

This in-depth report is based on a review of major literature on the Nigerian extension system and interviews with a variety of EAS actors in Nigeria from government, research institutions, NGOs, donor projects and the private sector. The literature is from both peer-reviewed academic sources as well as project documents and other grey literature. The opinions and perceptions of key stakeholders who were interviewed are included to give nuance to the report, but should be taken as just that, the opinion of one stakeholder. Confidentiality is preserved through only listing the sector of interviewees. Interviewees are listed in Annex 4.

RESULTS

Frame Conditions Related to Extension

We begin by outlining the frame conditions for EAS from the best-fit framework above, including the policy environment and political economy, business and market environment, civil, community and collective environment, agroecology and the overall agricultural innovation system landscape.

Nigeria is the most populous country in Africa, with 182 million people, and an economy US \$481 billion in 2015 (World Bank, 2017), the largest on the continent. Despite abundant natural resources, there is much poverty, with about 112 million Nigerians living below the national poverty line according to Nigeria's National Bureau of Statistics. As of 2008, 23 percent of children were undernourished (IFPRI, 2017). Life expectancy was at 52 years in 2014 (World Bank, 2017). An estimated 50 million youth are unemployed today (IFPRI, 2017), contributing to social instability.

Politically, the 36 states in Nigeria play a major role in governance, and the federal government exercises relatively limited power. However, it gives guidance and coordination to the states in terms of agricultural programs and implements some agricultural projects. Each state has a network of ADPs that are responsible for providing extension delivery in 36 states and FTC. A 2010 study conducted by the Nigerian Agricultural Extension Research and Liaison Services (NAERLS) ranked ADPs based on the funding and qualified staff available to conduct EAS. Of the twenty-two ADPs surveyed, 68 percent were ranked as having weak or very weak funding sources (Auta & Dafwang, 2010). Today most are donor-driver with no tangible budget allocations from their state governments.¹

Agriculture is the largest sector of the Nigerian economy with 70 percent of the population working in agriculture. Agriculture contributes 23 percent of GDP (FMARD, 2016a). Since the 2014 decline in global oil prices, Nigeria's economic growth has slowed. The economy contracted 1.7 percent in 2016, and is expected to grow only one percent in 2017, as compared to 6.3 percent in 2014 (World Bank, 2017). Critically at this time of declining oil revenues for the government, agriculture contributes 75 percent of all other export earnings (FMARD, 2016a).

However, less than one percent of cultivated land is irrigated, significantly depressing total land productivity (FAO, 2016). Despite 77 percent of the land in Nigeria being available for agriculture,

¹ Education stakeholder personal communication, 2 March 2017.

Nigeria spends NGN 1.3 trillion (approximately US \$4.1 billion) annually in food imports (Matsilele, 2017) (Elebeke, 2017).

Support to agriculture and extension services has gone up and down in response to the overall frame conditions and economy. Until the early 1970s, Nigeria was self-sufficient in food production, and agriculture was the main source of foreign exchange earnings. Following the discovery of oil, the agriculture sector stagnated as resources were shifted to development of the petroleum industry (World Bank, 2016).

Agriculture represents two percent of the national budget, despite Nigeria's participation in the Maputo Declaration where they committed to fund agriculture at 10 percent (FMARD, 2016a). The first National Policy on Agriculture was adopted in 1988, but not legislated. The policy was then revised in 2001. Since 2001, a number of agricultural programs have been announced by the successive presidential administrations. However, they seem to have been largely ineffective in improving food security or livelihoods (CTA, 2011).

In 2012, the Nigerian government introduced the Growth Enhancement Support Scheme (GES), which launched an e-Wallet system to distribute fertilizer subsidies directly to farmers through mobile money to avoid the graft and losses that had previously occurred. Currently, e-Wallet has 15 million subscribers, several million of whom are women farmers (Adesina, 2017).

In 2016, the federal government of Nigeria launched a follow-on policy to the Agriculture Transformation Agenda called the Agricultural Promotion Policy, or the Green Alternative, which highlights the need to fund, coordinate and improve quality of extension services across the country.

Exciting trends in the enabling environment of Nigeria include the increase of mobile phone use as well as the attraction of more private-sector agribusinesses. Mobile phone penetration in Nigeria is at 94 percent, with smart phones at about 30 percent penetration and feature phones at 70 percent penetration (Adepetun, 2017). Nigeria has also moved toward the privatization of input markets. During the time that Akinwumi Adesina was the Minister of Agriculture (2010 – 2015), “the number of seed companies operating in Nigeria increased from just 11 to more than 100. The new fertilizer market mobilized five billion naira from private investors during this time” as well and major global players such as Syngenta started doing business in Nigeria (Adesina, 2017).

Governance Structures and Policy Environment

In the previous section on frame conditions, we looked at the macro level and the enabling environment played by the federal government and broad policies. This section and the next on organizational and management capacities and cultures focus on the meso level, which links between the policy level and EAS implementation level (where we look at methods) through governance structures, organizational policies and EAS program management. The meso level also includes the links to education, research, the private sector and farmers.

The first EAS characteristic that we look at includes the governance structures and EAS policy environment, including the links between education, research, the private sector and farmers.

Overall, Nigeria has an impressive infrastructure for extension, including dedicated extension offices or ADPs in each state, a large number of agricultural research institutions and extension training programs, a system to connect them all, the REFILS and an extension workforce of 7,000 public

agents (28 percent female) and an unknown number of private agents employed by agribusiness companies and non-governmental organizations. Most of these public initiatives were established with World Bank funding in the 1990s and have since suffered from lack of funding and coordination in times of both economic growth and recession. With renewed focus and political will, these significant assets can be leveraged for meaningful extension.

Given the drop in oil revenues a few years ago, the government is taking a fresh look at agriculture as the second leg to the economy, particularly as a source of foreign exchange. Some actors are hopeful that this is a golden moment for agricultural reform. However, government budgets are still low, and it is unclear whether agricultural reforms introduced now will continue if oil prices revive and incentives for reform reduce.

EAS Policy Environment and the Public Sector

During the first half of the 20th century, EAS in Nigeria focused on export crops, including cocoa, rubber, palm oil, cotton and groundnuts, with little attention paid to food crops or livestock. This focus on export crops started under colonization and continued until the oil boom in the 1970s. The Ministry of Agriculture was established in 1954, but suffered from extreme lack of coordination among its various departments in crops, livestock, fisheries and forestry (CTA, 2011).

During the early 1970s, attention shifted almost entirely away from agriculture and its contribution to gross domestic product (GDP) declined while food prices soared (CTA, 2011). “During the period 1970-1982, agricultural growth rate stagnated at less than one percent with sharp decline in the production of export crops. Per capita calorific food supply declined from surpluses in 1960s to a deficit of 38 percent in 1982, while Nigeria turned a net importer of vegetable oil, meat, dairy products, fish and grains, notably rice, wheat and maize with the food import bills rising astronomically.” (CTA, 2011:9)

During this period, the federal government launched several programs to improve agriculture and food security, including providing EAS for the first time (previously a state subject) and distributing subsidized agro-chemicals. Several World Bank-funded ADPs were initiated with state governments in 1975, and more added in 1980. The ADPs were well received and spread quickly, reaching nationwide coverage by 1989. All ADPs included an autonomous project management unit, an adaptive research component, an input delivery system, a rural infrastructure component for rural feeder roads and water supply, and a systematic extension delivery strategy. The management of the ADPs was well coordinated with the federal government, and some consider this period to be the zenith of agricultural extension in Nigeria (CTA, 2011). Extension agent coverage was one agent to 1,000 – 1,500 farm families (FMARD, 2012). However, as there was no plan to self-sustain or transition the ADPs, once the World Bank withdrew funding in 1995, the whole system rapidly declined (CTA, 2011; FMARD, 2012).

In 2001, the National Policy on Agriculture was revised and explicitly mentioned extension for the first time (FMARD, 2012). Although extension had always been a critical responsibility of the government, no policy had explicitly recognized it as such until 2001. The revised policy indicated that states had primary responsibility for extension and that this should gradually devolve to local governments, while the federal government should collaborate with them. Funding for extension was intended to be shared among the federal, the 36 plus Federal Capital Territory (FCT) states, and the 774 local governments (CTA, 2011).

In 2011, the Technical Center for Agricultural and Rural Cooperation commissioned a report that identified key opportunities to improve EAS as:

- ◆ “A friendly and stable policy environment [as]...a critical requirement for sustainable agricultural development that will ensure food security and improved quality of life for Nigerians.
- ◆ Adequate, regular and timely funding [as] absolutely necessary for the national extension and advisory service to make the desired impact. This must be complemented with adequate and well-trained staff, who must continue to have opportunities for capacity building while in service.
- ◆ [The importance of]...all partners...[paying]...their counterpart funds as at when due.
- ◆ [The necessity of]...a strengthened and well-coordinated REFILS [as] an imperative for effective and efficient extension and advisory service performance.” (CTA, 2011:3)

In 2012, the Extension Transformation Group in Federal Ministry of Agriculture and Rural Development (FMARD) highlighted the following major challenges for EAS in Nigeria in their final report on the extension component of the Agricultural Transformation Agenda, under the Jonathan administration. These challenges are almost identical to the needs identified by CTA the previous year:

- ◆ “Lack of a legislated agricultural extension policy, compounded by policy inconsistencies in the agricultural sector;
- ◆ Grossly inadequate and untimely funding;
- ◆ Poor leadership and coordination;
- ◆ Low private sector participation and
- ◆ A very weak Research-Extension-Farmer-Inputs Linkages system driven by ineffective top-down, supply-driven, extension approaches.” (FMARD, 2012:10)

The Agricultural Extension Transformation Agenda (AETA) outlined in the above report recommended the establishment of a Department of Agricultural Extension, to replace the Federal Agricultural Coordinating Unit and Project Coordinating Unit that operated previously under World Bank support to the ADPs (FMARD, 2012). This department was formed in December 2012, and is now working on Nigeria’s first legislated extension policy with the assistance of the International Fund for Agricultural Development (IFAD).²

The focus of the new extension policy is to promote pluralistic delivery.³ The policy aims to ensure that EAS is demand-led and incorporates market needs, targeting farmers who do not have access to markets today. The goal is to develop the private sector to provide services and the public sector to ensure quality control. Under this extension policy, the government wants to develop an ecosystem for both public and private players with donors, the government and farmer groups.⁴ As part of the

² Government stakeholder group interview, 16 January 2017.

³ Donor/project stakeholder interview, 23 November 2016.

⁴ Government stakeholder interview, 18 November 2016.

policy development process, they have conducted six regional consultations with inputs from local extension workers and there is a plan for a national consultation or public review in 2017.

In addition to a department of extension and a national extension policy, the Agricultural Extension Transformation Agenda also recommended:

- ◆ A farming systems research institute in the South-South zone
- ◆ Resuscitate ADPs through increased staffing (to reach one agent per 800 – 1,000 farm families instead of the currently estimated 1:5,000-10,000 ratio), a census of ADP staff quantity and quality, incorporation of farmer field schools into ADP activities and a training needs assessment
- ◆ Expand ICT methods by reinstating communications centers with each ADP, resuming regular farm broadcasts after significant negotiations with telecoms, and partnering with the private sector to develop web and mobile applications for extension
- ◆ Upgrade the Nigerian Agricultural Question and Answer Service to a Farmer Helpline available, both via IVR and a live call center
- ◆ Establish Multipurpose Community Tele-Centers in rural areas to provide youth employment
- ◆ Establish Management Training Plots as used by Sasakawa Global 2000 for key crops in consultation with the ADPs and other actors
- ◆ Train and finance unemployed youth to enter the agricultural sector
- ◆ Certify private extension providers every three years by FMARD or another government body
- ◆ Stabilize funding by establishing a formula for sharing funding between federal, state and local governments, similar to the United States or the establishment of a dedicated tax fund, perhaps from a tax on agricultural imports
- ◆ Establish a division for Women, Youth and Vulnerable Peoples in the Department of Extension and in each ADP
- ◆ Ensure provision of seeds, fertilizers and credit without which extension is of no use (FMARD, 2012)

Some of the above recommendations have been initiated, although capacity and funding remain key challenges to their success.

The Agriculture Promotion Policy or Green Alternative roadmap published by the federal government in 2016 mentions the following specific EAS goals:

- ◆ “Developing agricultural information systems; standards and institutional mechanisms for content generation, policy support, stakeholder dialogue, innovation and learning. Focus on disseminating information designed to help farmers make best choices with respect to input costs, equipment leases, agronomic practices, crop prices and weather
- ◆ Experimenting with new devices to enhance ICT and [knowledge management] capacity in the sector

- ◆ Reviving regional farm radio broadcasts designed to provide farming communities with timely advice on planting, weeding, harvesting and key prices
- ◆ Promoting the emergence of specialized agricultural information and knowledge from targeted research to address farmer priorities
- ◆ Enhancing reach, effectiveness and efficiency of the extension delivery system (through use of various methods (e.g., more extension workers and electronic extension services via SMS))” (FMARD, 2016a:17)

The Green Alternative also highlights the need to “develop and launch entrepreneurship platforms that create a pathway for women and youth to enter the agribusiness economy.” Both EAS and women and youth programs are not slated to be fully staffed or budgeted until 2018, according to the same document (FMARD, 2016a:29, 33). Additionally, during the Stakeholders Consultative Forum for the new extension policy in late 2016, many people, including FMARD staff in the states, were not aware of the existence of the Green Alternative and fewer of its content (FMARD, 2016b).

Thus, even though many of the federal policies acknowledge the critical levers for a functioning local EAS system, the lack of coordination and consultation with the state governments, who are ultimately responsible for implementing public extension, prevents success.

Most public extension agents in Nigeria are employed through state-level ADPs. The ADP offices were set up during the 1990s with World Bank assistance. During the period of the World Bank-funded ADPs, the average ratio of extension agents to farm families was 1:1,000-1,500. Extension agents were both directly recruited and seconded from the respective States’ Departments of Agriculture. Following the withdrawal of World Bank funding, massive attrition of both permanent and contract staff occurred. The deterioration in the quantity and quality of staff also led to a deterioration of quality of services (CTA, 2011).

Practically, the federal government provides the majority of funding for extension today, and state governments do most of the execution. According to FMARD, only Kaduna and Anambra are funding their ADPs, while the rest rely on donor projects.⁵ Most local governments are not aware of the various policies or their expected role in them. No role to date has been specified for the private sector in extension (although some input and output companies are engaged in it today because of lack of government extension). Private sector participation could be enhanced through improving stability and consistency of government policies (CTA, 2011; FMARD, 2012).

Some states have gone 30 years without training their ADP extension agents and 25-30 years without new recruitment. Funds are largely put toward salaries with limited resources for operational expenses, resulting in lack of motivation and inadequate training and preparation with regard to modern agriculture extension.⁶ The ADPs within each state are organized into zones, and then sub-zones, and then blocks (approximately equal to a Local Government Area or LGA⁷), and then cells

⁵ Government stakeholder group interview, 16 January 2017.

⁶ Donor/project stakeholder interview, 17 November 2016.

⁷ LGAs are the smallest formal administrative government unit in Nigeria. Their numbers vary by state, and the revenue sharing formula is based on the number of LGAs per state (educational stakeholder personal communication, 2 March 2017).

(or villages).⁸ Because the ADPs were designed to be funded through a tri-partite agreement between the World Bank (66 percent), federal government (20 percent) and state government (14 percent), they were set up somewhat in parallel to the existing agriculture department at the LGA level and expected to collaborate (Auta & Dafwang, 2010). There is an expectation that the LGAs provide some level of EAS but there is variability in the extension services they provide and ADP agents fill the gaps. Unfortunately, there is little to no coordination between ADP staff and LGA agricultural staff (FMARD, 2016b).⁹ Furthermore, the local governments have no regular budget to rely on, and only receive funds for special agriculture projects.

Research and Extension Links

Nigeria has the largest agriculture research system in sub-Saharan Africa, with 2,688 agricultural researchers and spending US \$550 million for research (ASTI, 2014). The connection between research, extension agents and farmers is, however, generally considered weak.¹⁰ Key research organizations include the 17 commodity-based research institutes, the National Agricultural Extension Institute, agriculture departments in 18 national universities, three specialized universities of agriculture, and an international agricultural research center (CTA, 2011). Most of these have funding challenges; though the Livestock Institute of Nigeria gets significant funding now, it has limited coordination with other institutes.¹¹

The Nigerian Agricultural Extension Research and Liaison Services (NAERLS) runs the Research-Extension-Farmer-Input-Linkage-System. REFILS is intended to bring together research, extension, the private sector and farmers to make sure new research is used and to guide the course of future public research. The World Bank's National Agricultural Research Project initially funded REFILS from 1995 to 2000 to good performance, primarily defined by strong communication channels between researchers and extension, researchers and farmers, and extension and farmers. However, following the ending of World Bank funding, REFILS performance declined, due both to lack of funding and coordination (CTA, 2011).

REFILS activities by NAERLS today include quarterly review meetings in each zone, an annual review meeting and feedback on the Agricultural Performance Survey that forecasts crop production for the wet and dry seasons at headquarters, and some in-house reviews hosted by the research institutes.¹² Only a few states still hold the Monthly Technology Review Meetings, while a few different states hold fortnightly trainings, but with limited contact with research institutes or the technology review meetings (monthly meetings with ADPs to discuss new technologies and their uptake chaired by the Institute for Agricultural Research) (FMARD, 2016b). However, all meetings suffer from low participation of extension agents, farmers and private-sector representatives. Extension agents usually do not have funding to travel for meetings. Some participants at a NAERLS conference in January 2017 felt that REFILS meetings were too technical and not

⁸ Government stakeholder group interview, 20 January 2017.

⁹ Donor/project stakeholder group interview, 19 January 2017.

¹⁰ Government stakeholder interview, 17 November 2016.

¹¹ Donor/project stakeholder group interview, 19 January 2017.

¹² Government stakeholder group interview, 19 January 2017.

interesting to the private sector. The suggestion was also made that REFILS should coordinate with the LGAs to organize meetings as a better way to reach farmers and the private sector.¹³

The Sasakawa Africa Association (Sasakawa) has piloted an Open Innovation Platform (OIP), similar in nature to REFILS that they are eager to expand. The OIP is a series of networking sessions set up between farmers, local governments, research institutes and private sector companies. These sessions are being conducted in 10 LGAs in Kano and 10 in Kaduna. The LGAs will take over management of the sessions from Sasakawa soon. These local OIPs then gather at the state level with a representative from each LGA and the state Agriculture Commissioner.¹⁴

NAERLS also conducts an annual Agricultural Performance Survey, the only significant agricultural survey in Nigeria, to forecast production and identify farmer needs, including for extension. The survey was conducted for 20 years, until 2016, when the funds for it were not included in the federal government's budget. Usually conducted in the last week of August, the survey is coordinated with research institutions, ADPs and FMARD and includes both primary research and a compilation of secondary data published by other agencies. The primary research includes surveys of farmers in each state – two regions chosen, two local government areas in each, 20 farmers from each local government area – for a total of around 2900 farmers each year. The FAO has given NAERLS a website for the data, but they have not been able to use it.¹⁵

Nigerian extension has a strong culture of professional development in academia. The Agricultural Extension Society of Nigeria (AESON) provides opportunity for extension academics and practitioners to collaborate in strengthening extension in Nigeria. The Nigerian Forum for Agricultural Advisory Services (NIFAAS) is a national platform for all actors in EAS incorporated in Nigeria in 2012. NIFAAS seeks to bring all agricultural EAS professionals and other actors in the sector together to share experiences and lessons learned in EAS. Based in Zaria with six zonal offices,¹⁶ NAERLS works to train and develop extension providers around the country in addition to conducting an annual agricultural survey, but struggles with inadequate funding for most of its programs. Additionally, the Agriculture and Rural Management Training Institute also provides extension training.

Donor Projects

Many donor-funded projects have been conducted since World Bank funding for ADPs ended in 1995. While these projects inject needed resources into extension, they have often faced challenges due to lack of coordination as well as to non-payment or delays of matching funds from the various levels of Nigerian governments (CTA, 2011). To address coordination, FMARD is in the process of appointing desk officers to liaise with USAID toward facilitating an alignment between USAID agriculture interventions with the Government of Nigeria's priorities as outlined in its Agriculture Promotion Policy.¹⁷ While there is much support to EAS in terms of a variety of donor projects at any given time, sustainability is an issue in that they usually do not transition support to government or the private sector and so services typically end when the projects end.

¹³ Government stakeholder group interview, 19 January 2017.

¹⁴ Donor/project stakeholder group interview, 19 January 2017

¹⁵ Government stakeholder group interview, 19 January 2017.

¹⁶ Government stakeholder group interview, 19 January 2017.

¹⁷ Government stakeholder, interview, 18 January 2017.

Government stakeholders expressed that too many donor programs are working in Niger State.¹⁸ A donor stakeholder agreed that many donors work there, and mentioned this was because the state does not pose a security risk.¹⁹

Major donor projects today include:

- ◆ World Bank Fadama III project, the largest donor project by far working in agricultural extension, works with ADPs in 36 states plus the Federal Capital Territory (though now tightening focus to 12 states and certain value chains) to deliver extension services, some subsidized inputs, and various infrastructure projects, ending in December 2019. The FADAMA project contracts with both private-sector advisory service providers and public agencies. The project's geographic focus is six northeast states affected by conflict in Nigeria (Borno, Yobe, Adamawa, Taraba, Bauchi, and Gombe). The total contribution of the World Bank (International Development Association) is US \$250 million of which 14 percent is for the agricultural extension and research sector (World Bank, 2016). Fadama services are funded 10 percent by the farmer group and 90 percent by donors (CTA, 2011). The World Bank is using a bottom-up, community-driven development approach for restoration of the livelihoods of conflict affected households. The project works with 5,000 farmers in each state; to qualify for an intervention the farmers must be linked to an offtaker (end user) who will take up the produce. The federal government wants to invest in the private sector to create jobs and increase yield. To achieve this, the project has made a private sector-led arrangement on the input side with vouchers and registered input producers, which began last year. The project uses "advisory services consultants" at a 1:150 ratio to farmers. The consultant is responsible for 150 hectares of planting over a period of six months. The first payment to the consultant is made after farmer gets inputs and the last payment of 20 percent is made when the products are delivered to the offtaker. Under Component 3 (Advisory Services and Input Support budgeted for US \$39.5 million), the project financed: (i) Advisory Services that provide support to empower Fadama users (farmers/pastoralists and other economic interest groups working within their organizations and through their Local Government Areas) to purchase advisory services from both public and private sources; and (ii) Input Support that includes adoption of new technologies by the farmers to enhance their financial capacity to purchase farm inputs (mainly seeds, fertilizers and agrochemicals) and to build savings from incremental earnings to finance future purchases. The project used a matching grant arrangement to deliver advisory services and input support. Beneficiary target groups include private operators. Across the states, 6,650 service providers were certified and 4,587 service providers (3,460 private and 1,127 public) were engaged in various project interventions.
- ◆ USAID Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites program - Phase II (MARKETS II), which contributes approximately US \$64 million to work in 25 states on specific value chains, ending in August 2017. Along with Sasakawa Global 2000, Markets II provides comprehensive training (workshops conducted on pre-season, post-harvest, group formation and dynamics, and leadership skills to build capacity) and gives stipends to select extension agents working on their projects, which has boosted enthusiasm

¹⁸ Government stakeholder group interview, 16 January 2017.

¹⁹ Donor/project stakeholder group interview, 17 January 2017.

and enhanced results. The project works in seven commodities: cocoa, aquaculture, rice, sorghum, cassava, maize and soybean.

- ◆ USAID Feed the Future Nigeria Agro-Inputs Project (AIP), which has a budget of US \$3 million and aims to attain a private sector-led agricultural input market, supporting farmers to access quality and affordable agricultural inputs, ending in 2017 (DEVES, 2017). AIP provides agricultural productivity enhancing technologies, such as urea deep placement, and provides training to agro-dealers (2,000 have been trained to date). The project also helps supply seeds, fertilizers, other agrochemicals and farm implements.
- ◆ Department for International Development (DfID) Promoting Pro-Poor Opportunities in Commodity and Service Markets (PropCom Mai-Karfi) project currently contributing GB £27 million (about US \$33 million), ending in 2017, though with possible renewal (Propcom Mai-karfi, 2017). The project is implemented by Palladium. PropCom set up a network of village-level entrepreneurs (VLEs) or village promoters with the fertilizer company Notore, who made a commission from the inputs they sold. Additional details regarding project activities and lessons learned are included in Annex 5.
- ◆ DfID Market Development for the Niger Delta (MADE) project, GB £14 million (around US \$17 million), which works with 50,000 farmers and partners with a variety of input companies, ending in February 2018. It is implemented by Development Alternatives, Inc. (DAI). MADE identifies retailers through the input companies to provide extension to farmers. Additional details regarding project activities and lessons learned are included in Annex 5.
- ◆ GIZ's Competitive African Rice Initiative (CARI) and Green Innovation Centers under the One World No Hunger Initiative. CARI works in Nigeria, Tanzania, Ghana and Burkina Faso. The project is part of an umbrella program combining value chain projects (cashew, cotton, ground nuts and rice). The green innovation centers for the agriculture and food sector program aims to promote innovations in the agriculture and food sector to increase incomes of small farming enterprises, boost employment and improve the regional food supply in the rural target regions. The project is currently active in 14 countries and coordinates its activities with local ministries as well as with programs under the special initiative One World - No Hunger and with bilateral German development cooperation programs.
- ◆ GIZ's Sustainable Smallholder Agri-Business Program (SSAB) that ends in 2018 and supports public and private extension services in providing business training for 350,000 smallholder farmers in five West African countries, including seven states in Nigeria (GIZ, 2017). The goal is to help 364,600 male and female smallholders, mainly in the cocoa producing areas to improve their incomes and food supplies sustainably from diversified production. The program has partnerships with over 50 public and civil society organizations and companies across the region. SSAB supports public and private extension services to organize business skills training for smallholders following the Farmer Business School (FBS) approach. The FBS modules teach record keeping and general accounting. Farmer groups are registered as cooperatives, which enables them to get group procurement of inputs, technical services, training, brokering/access to finance and mobilization of savings. Agro-dealers and microfinance institutions are supported by GIZ Business Service Centres to provide inputs, technical advice, market information and agricultural loans based on formal bank savings as collateral.

Many donor projects focus on value chains for specific commodities that have high market demand. These projects show promise, but must be built hand-in-hand with the private sector from the beginning to ensure sustainability after the project ends. Indeed, a variety of agricultural companies conduct extension already with the producers they source from and are open to partnership.

Private Sector

The private sector has woken up to the need and the opportunity to complement the public sector in providing extension services to farmers, for either improving farmer production for offtake or generating demand for agricultural inputs they sell. Quality inputs are in high demand and there is a dearth of seed companies, creating an opportunity for the private sector. The private sector increasingly views extension services as a corporate social responsibility and as a way to increase brand loyalty with the farmers. Successes have been seen in outgrower schemes in which a processing company organizes farmers, provides inputs and training.

This shift is a changing attitude from previous decades where the government was expected to provide all extension services.²⁰ Whether it be in the formal space with input suppliers (e.g., Syngenta); farmer organizations (e.g., cooperatives), output side (e.g., Tomato Jos), private mobile operators (e.g., Vodacom), or the informal space with large number of traders that the majority of farmers likely engage with on a regular basis, there are a large number of private sector actors. This report details interactions with a few of them, namely Notore for fertilizers; Stallion Rice Company, Dangote and Olam for rice production; Babban Gona for maize production (sold on to Nestle) and rice production; Heineken for sorghum production; Arla Foods for dairy cooperatives; Syngenta for a variety of inputs; and the public and private commodity exchanges (Africa Exchange) for storage and handling. Harvest Fields trains sprayer service providers as well as farmers directly on crop protection and through CropLife (an international agricultural industry association).²¹ British American Tobacco has also been successful at providing end-to-end services and training to farmers including credit, inputs and offtake (CTA, 2011). Due to the uncoordinated effort among these entities, as well as the lack of a national registry, it would be challenging to catalog all private actors within EAS; the important thing to note is that it is a growing sector and an important example of pluralism within extension and advisory services.

Some activities are carried out independently by these private sector actors, and some are supported by donor projects. Olam is working with USAID Markets II and IFAD. Stallion and Harvest Fields are working without donor support. Notore worked with DfID PropCom, but also works on its own. Babban Gona has also received donor support. Several seed companies have worked with Sasakawa Global 2000, including Premier Seeds, Dizengoff, Manoma Seeds and Maslaha Seeds (SAA, 2017).

There is limited coordination directly between the private sector and the government on extension. The main platform to provide an opportunity for formal engagement with the private sector is the Research-Extension-Farmer-Input Linkage System (REFILS) through its Annual Extension Review and Planning Meeting, which brings all the major actors in EAS together with NAERLS as the convener of this meeting. However, experience has shown that other than the input dealers (seeds,

²⁰ Government stakeholder interview, 17 November 2017.

²¹ Government stakeholder group interview, 20 January 2017.

agrochemicals and fertilizers), the private sector hardly ever participates in this activity convened by NAERLS. Another major activity that NAERLS convenes is the Annual Agricultural Performance Survey (APS). The APS brings together several collaborators, including the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), the National Meteorological Agency (NIMET), the Federal Ministry of Agriculture and Rural Development (FMARD) and twelve agricultural research institutes. Here as well, participation from the private sector has been almost non-existent, although starting to be more solid. There are a few reasons for negligible involvement of the private sector with NAERLS. The Institute has not proactively engaged the private sector through its market information services (MIS), which involves regularly collecting and disseminating market prices of commodities in selected markets in all the geopolitical zones. Additionally, the extension research conducted by NAERLS has not looked at the activities of the private sector. For NAERLS to have robust engagements with the private sector, it will really have to go beyond the provision of regular, routine public services, which may mean a review of its mandate.

Occasionally, a company representative will come to NAERLS' meetings, but there is no ongoing effective partnership. Some government staff expressed the notion that since quality inputs are so lacking in Nigeria, a company does not have any incentive to engage in extension to convince farmers to buy their products as long as the products are of decent quality.²² Many private sector companies and the donor projects working with them, on the other hand, see extension as a strategic play to understand their consumers' needs and better market their products.

There are two known exceptions to the private/public divide. The first is the Anchor Borrowers Program initiated by the Central Bank of Nigeria. The program provides financing and extension services for farmers producing crops for certain private sector offtakers, including Olam. Some state ADPs and Sasakawa are also involved in Anchor Borrowers.²³ As of December 2016, the program claims to have reached nearly 220,000 farmers across 17 states and covered some 250,000 hectares (Daily Trust, 2017). Although a popular program judging by the numbers, there have also been challenges, such as corruption charges. The second exception is the Agricultural Services Training Center & Marketing Private Company (ASTCM) in Plateau State. The ASTCM is a small company established in 2010 that serves around 6,000 farmers with 20 – 35 field staff, and is owned 80 percent by the state government and 20 percent privately. The company provides end-to-end services, including training, inputs, equipment rental, soil testing and crop marketing. Each field officer looks after 250 farmers, providing training for farmers by the crop calendar and on demand. ASTCM cooperates with the University of Jos, Plateau State. This alliance seems to be a one-off project between the Israeli and Nigerian governments that would be difficult to scale, particularly given the fact that startup costs were high at NGN 9 billion (US \$29 million), and the state government had to subsidize the company for the first five years until 2016.²⁴

NGOs

Few NGOs are active in extension in Nigeria, with Sasakawa Global 2000 being the most prominent (CTA, 2011). Since its country program began in 1992, Sasakawa has trained 2,000 extension agents and one million smallholder farmers in eight states of the north. It conducts these trainings of government extension agents three to five times per year on various technical topics related to

²² Government stakeholder group interview, 19 January 2017.

²³ Government stakeholder group interview, 20 January 2017.

²⁴ Private sector stakeholder interview, 19 January 2017.

agricultural production. Currently, Sasakawa works with four state governments as well as FMARD, the Anchor Borrowers Programme, Alliance for a Green Revolution in Africa (AGRA), Markets II and several other donor projects, training about 500,000 farmers a year through all of these projects.

The Foundation for Partnership Initiatives in the Niger Delta (PIND) is funded by Chevron, and works in nine states in the delta area on a variety of measures to alleviate poverty. Part of their work is focused on developing value chains for cassava, aquaculture and oil palm with farmers. The AG Leventis Foundation operates farmer training schools in six states. The Dangote Foundation and the Kofi Annan Foundation are also working together on a rice project to reach 15,000-16,000 farmers in Sokoto State by providing them with seed, fertilizer, insecticides and training, as well as buying back the rice from the farmers.

There are likely other less formal private sector and other actors who perform extension activities through the country, but, with limited coordination and no national registry, it is challenging to identify each one as well as their scale and impact.

FMARD and the Stakeholders' Consultative Forum for the new extension policy have both highlighted the need for certification of private extension providers (alongside evaluation of ADP staff). Fadama is preparing a framework to certify private extension providers that would be used for the One-Stop Centers.²⁵ Further clarification is needed on who the private extension providers are that would be certified and whether certification is only for work involving government funds, concessions or all extension-related work happening in Nigeria. Additionally, there are risks associated with mandatory certifications, in that they could disincentive private providers and further reduce extension-to-farmer ratios. Any certification scheme must balance the desire to create a more enabling and professional environment with flexible enough rules and regulations that will not turn off potential providers.

Organizational and Management Capacities and Cultures

This section continues with the meso-level analysis of organizational and management capacities and cultures. Organizational and management capacities and cultures are an important component of the meso-level of extension, providing the framework and tools to implement programs. They include program management, human and physical resources, program financing, education and training and staff incentives.

Staffing is one of the critical areas of organizational management. In response to high food import costs (US \$3 billion annually), low production and lack of food self-sufficiency, the National Food Security Programme set the goal in 2008-2011 of increasing the ratio of extension agents to farm families from 1:25,000 to 1:350, to be reached by hiring 10,000 agents each year for three years (FMAWR, 2008). In 2012, the Agricultural Extension Transformation Agenda set the goal for the states to increase staffing to one agent per 800 to 1,000 farm families (FMARD, 2012).

Estimates for the current ratio of extension agents to farm families vary from 1:5,000²⁶ to 1:10,000^{27,28}, even within FMARD. About 7,000 agents are currently employed in Nigeria.²⁹ Twenty-

²⁵ Government stakeholder group interview, 16 January 2017.

²⁶ Government stakeholder interview, 17 November 2016.

²⁷ Government stakeholder group interview, 16 January 2017.

eight percent of extension agents are female and 60 percent are over the age of 40, demonstrating the aging of the extension workforce and lack of new hires. The aging extension workforce does mirror the aging farmer population, which may help farmers relate better to their agents, but it identifies a potential challenge. (The Federal Government's N-Power program was developed for this and other reasons.) Attrition of ADP staff has also been high due to poor working conditions (CTA, 2011).

The majority of public extension agents undergo specialized training in agricultural extension. The first level includes an Ordinary National Diploma – an additional two years after High School, followed by a Higher National Diploma (HND) – an additional two years after the Ordinary Diploma. The next level is the Bachelor of Science (BSc) degree in Agricultural Extension, which entails five years of schooling following High School. Most of the extension agents at the interface with farmers have an Ordinary National Diploma in most states in the north, and most in the southern states have a HND. With the lull in the activities of the ADPs now, most of the agents on their own are returning to school for degrees; some even for masters. The Sasakawa Africa Fund for Extension Education (SAFE) enables mid-career extension professionals to obtain university degrees. SAFE started in 2003 at Ahmadu Bello University and now includes four universities in Nigeria. Some 379 extension professionals have completed the mid-career BSc program (SAFE, 2017).

To improve youth employment opportunities and ensure peace in the country, the federal government has launched the N-Power Programme to hire 500,000 young people, ages 18 to 35, to work in education, health and agriculture. N-Power Agro (which focuses on extension services) was slated to hire 300,000 of the total, but now is targeted for 100,000. The recruits will receive basic training plus two years' practical experience on the job, while being paid a flat stipend by the federal government (NGN 33,000 or US \$100/month). The program refers to them as "paid volunteers" (FGN, 2016). Because this program is under the current administration, it is not clear whether it will be continued when the next administration takes office in 2019.

The federal government used a private agency for the recruitment and selection of candidates for each state, while the states were responsible to select the recruits for their own states. The employment scheme will use a phased approach with 30,000 hired in Phase I (year 1), 30,000 in Phase II, and 40,000 in Phase III, all by the end of 2017. To date, 57,000 have applied for agriculture or extension positions. The government is targeting a 50:50 ratio for men to women, but the response from women has not met this target. The program will target women-specific recruiting advertisements in early 2017.³⁰

The first tranche of 30,000 volunteers are due to be trained in 2017 for three to four weeks at the local governments where they will work.³¹ Each of the 774 LGAs will receive around 38 volunteers. Budget has been allocated for stipends, and the government has procured tablets for each recruit. They should start on the ground under the local governments in 2017.³²

²⁸ Donor/project stakeholder group interview, 18 January 2017.

²⁹ Government stakeholder group interview, 16 January 2017.

³⁰ Government stakeholder interview, 16 January 2017.

³¹ Government stakeholder interview, 17 November 2016

³² Government stakeholder interview, 18 November 2016.

The training curriculum for N-Power Agro is being developed with Sasakawa, NAERLS and agricultural universities and research institutes. The curriculum was reviewed at the end of 2016 by the private sector, in part to get their buy-in. The federal government wants the private sector and state governments to employ the young people after their two-year stint, though few companies have shown an interest in this and state governments are barely able to pay their existing staff with the recession. Eventually, FMARD would like to establish a permanent training school and system that will continue to train young graduates. Continuing education of the new hires is desired, and some mentorship will also be provided. In addition, there is a plan for a virtual support platform that the agents can use to send in queries and get advice from experts from the universities and research institutes.³³

Coordination with the state and local governments has been good. All interested state and local governments registered with the program. States selected their candidates from the federal list (which avoided local favorites being slated by state governments) and helped map who would go to agriculture versus health versus education. States then divided up the agricultural staff among different agriculture support departments, then among parts of the ADP. For example, Kaduna State is getting 1,554 N-Power staff to work in agriculture, of which 800 will be extension agents and the remainder will have administrative jobs. The ADP would like to hire good performers upon conclusion of the two-year program, but that will depend on an improvement in the economy and state government revenues.³⁴

Each state ADP has a focal officer to coordinate with the volunteers. While the volunteers will be based at the ADP offices, they are not reporting directly to the ADPs and are being managed federally. Work planning and performance management of such a large number of new staff will be a challenge. FMARD is interested in the volunteers doing farmer and land surveys on a large scale that may help with land titling and census needs, but that is currently at a conceptual stage.³⁵ Such a massive hiring and training program is ambitious and can only be judged over time. Past experience in Nigeria and in the extension literature shows that hiring and paying salaries is only the beginning of an extension service—operational funds, continuing education and strong links with knowledge actors are all critical elements that must also be provided for.³⁶

Funding provided by state governments typically only covers the salaries of ADP extension staff, and there is little or no operational budget for travel, communication, training or field programs with farmers (CTA, 2011). According to a government stakeholder, EAS lack capacity, knowledge, personnel and material, and have not adequately dealt with gender and youth issues.³⁷ Over 60 percent of agents have smart phones (with the majority being Android) that could be used to support activities, but no allowance for data or communication costs or tools to use on their phones.³⁸

³³ Government stakeholder interview, 18 November 2016.

³⁴ Government stakeholder interview, 20 January 2017.

³⁵ Government stakeholder interview, 18 November 2016.

³⁶ Donor/project stakeholder interview, 17 November 2016.

³⁷ Government stakeholder interview, 17 November 2016.

³⁸ Donor/project stakeholder interview, 17 November 2016.

The Kaduna State ADP is considered to be the highest functioning ADP in Nigeria.³⁹ The average farmer in Kaduna is more progressive than farmers in other northern states, which makes extension easier and more valued. Farming is the main source of income for most people in Kaduna, so the state government has been relatively supportive of the ADP. Kaduna has several large dairy farms and some of the largest private grain markets in Nigeria. Kaduna has been a center for agricultural extension since before Nigeria's independence. The Institute for Agriculture Research was established near there in 1925. The Kaduna ADP collaborates with a variety of donor projects, including Markets II, AGRA, African Agricultural Technology Foundation (AATF), GIZ/Green Innovation Centers and Sasakawa.⁴⁰

Despite these advantages, the Kaduna ADP still struggles to provide basic EAS. Currently, they have 129 agents, giving them a ratio of one agent to 4,700 farming families in Kaduna. They now have 40 motorcycles, largely funded by donor projects. There is no fuel allowance, except through donor projects. Someone from the ADP meets monthly with research institutes. NAERLS provides fortnightly training for agents (and their headquarters is only a couple of hours drive away), but the ADP representatives felt the training was not up-to-date, too short in duration and lacking in field demonstration to complement classroom training.⁴¹

A meeting with 20 Kaduna ADP staff and stakeholders in January 2017 highlighted the following opportunities for improvement of ADP-based EAS:

- ◆ Funds for travel
- ◆ Access for farmers to better inputs, particularly seeds and fertilizers
- ◆ More continuity in government programs
- ◆ Increased number of agents
- ◆ Focusing government program funds in the field rather than the office
- ◆ Increasing trust of clientele through better communication of government departments with agents and better seasonal timing of government support
- ◆ Sustainable exit plans for donor projects
- ◆ Better incorporation of farmer feedback into EAS programs

During the same meeting, several farmers reiterated the need for programs to occur at a useful time, not after the season, and that inputs must be supplied before the rains, when planting begins. A private company emphasized the need for training on modern techniques, like proper spacing of crops and handling of pesticides and seeds.⁴²

NAERLS provides training to the 36 ADPs, including a pre-season training in each of their six zones based on problems discovered during their annual Agricultural Performance Survey. However, ADPs typically do not have funds to travel to NAERLS for training. Usually only five

³⁹ Donor/project stakeholder group interview, 18 January 2017.

⁴⁰ Government stakeholder group interview, 20 January 2017.

⁴¹ Government stakeholder group interview, 20 January 2017.

⁴² Government stakeholder group interview, 20 January 2017.

agents from each state come to the training session, with more coming from whatever state the training is hosted in.⁴³

The World Bank Fadama project is the largest donor project currently working in agricultural extension, and contracts with both private advisory service providers and public agencies. Sometimes the non-public providers, like Sasakawa Africa Association, hire extension agents from ADPs to staff the project. A variety of other donor projects also hire ADP staff to implement extension activities. Typically, this is not in conflict with their government duties, but simply provides travel, communication and programmatic funding, plus training to do basic EAS they would not normally be able to.

In spite of the limitations regarding the ADPs, there are some examples of states and other actors providing new funding and incentives to reinvigorate it:

- ◆ The Labana rice mill in Kebbi State purchased 25 motorcycles for extension agents with a monthly fuel allowance.⁴⁴
- ◆ Delta State has provided 71 motorcycles (with a commitment for 95 total) to extension agents (Channels Television (Nigeria), 2017)
- ◆ Kano state recently hired 740 new agents, and asked Markets II to train 100 of them. This training was done in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and Sasakawa.
- ◆ The Markets II and Sasakawa Global 2000 provide comprehensive training (workshops conducted on pre-season, post-harvest, group formation and dynamics, and leadership skills to build capacity) and give stipends to select extension agents working on their projects, which has boosted enthusiasm and enhanced results.⁴⁵

No particular cooperation on training between the public and private sectors was observed.

Sasakawa runs its own program Sasakawa Global 2000 in addition to supporting most of the major extension programs of donors and government in Nigeria. They have only 32 core staff, but train thousands of government staff and provide them with small stipends beyond their regular ADP salaries to participate in projects.⁴⁶

Methodologies Used by Service Providers

We now move to the micro level, where projects and programs are implementing various EAS methods based on their organizational goals and capacities, influenced by the overall enabling environment. There are a variety of methods used by the different service providers in Nigeria.

⁴³ Government stakeholder group interview, 19 January 2017.

⁴⁴ Donor/project stakeholder group interview, 18 January 2017.

⁴⁵ Government stakeholder interview, 17 November 2016.

⁴⁶ Donor/project stakeholder group interview, 19 January 2017.

The National Program for Food Security (NPFS) mandated the establishment of One-Stop-Shop agricultural service centers, agro-input centers launched by the federal government under the Agricultural Transformation Agenda to ensure the availability of inputs and markets for small-scale farmers, to be funded by state governments and run by the private sector, namely financial institutions. The centers were intended to have key performance indicators of yield per hectare achieved relative to the level of inputs and mechanization. They were to be monitored by independent third parties, specifically commercial banks, who would process payments for the private sector managers of the One-Stop centers as well as provide lending services to farmers. However, due to many challenges, the programs never took off; namely, an implementation plan was not specified, there was no consultation with key stakeholders such as the states and private banks that were charged with funding and running the program, and the intent to place extension agents at the lowest administrative level that currently does not support agents at a ratio of one agent to 350 farm families was unrealistic (CTA, 2011⁴⁷).

The Federal Department of Agricultural Extension (FDAE) is reviving this model and launching six centers in 2017. Funding has already been set aside for them. They will be run by an independent Board of Directors, with all relevant businesses involved, and partially government funded. The four divisions within FDAE (the Division of Youth and Women, the Field Extension Services Division, the Technology, Innovation and Advisory Services Division, and the e-Extension and Communications Division) will all coordinate with the centers.⁴⁸

Public-private Partnership Methods

In Nigeria, as in many countries, farmers may not be as willing to pay for information as they are for products.⁴⁹ Hence, most extension work performed by the private sector must be embedded within the costs of the inputs they sell or the produce they procure, thus becoming an integrated or bundled service. Many programs, and particularly those involving the private sector, follow a value chain approach.

Anchor Borrowers Programme

Perhaps the largest public-private (non-donor) partnership on extension is the Anchor Borrowers Programme of the Central Bank of Nigeria, which launched in 2015 to boost production of rice and wheat. (This was triggered in part by concerns of the volume of foreign exchange being spent to import rice.) This program links groups of farmers to buyers or offtakers (e.g., Olam) for rice and provides training (including through ADPs), access to inputs and credit to the participating farmers. The Central Bank has set aside NGN 40 billion to be lent at nine percent to farmers through this program. The Nigeria Incentive-based Risk-sharing System for Agricultural Lending (NIRSAL) is the buyer of last resort for farmers, in case they cannot sell to the rice mills.⁵⁰

Anchor Borrowers was piloted in Kebbi state with 20,000 rice farmers with loans of NGN 126,000, partly in cash and partly with inputs. This pilot was supported by JICA, IFPRI and CARI. Yields increased two to three, from 2.2 tons to five to six tons under the program. Some states visited Kebbi of their own initiative to learn and replicate the program. As of December 2016, the Central

⁴⁷ Supplemented by education stakeholder interview, 27 February 2017.

⁴⁸ Government stakeholder group interview, 16 January 2017.

⁴⁹ Donor/project stakeholder interview, 22 January 2017.

⁵⁰ Donor/project stakeholder interview 17 January 2017.

Bank of Nigeria claims to have approximately 220,000 farmers from 17 states participating in the program. Kuro Communications LTD, who is responsible for training the farmers involved, claim that 300,000 farmers have been trained already and another 700,000 farmers will be trained by the end of December 2017 (Daily Trust, 2017).

The Kaduna ADP considers the Anchor Borrowers Programme to be the only successful collaboration they have had with any private sector companies. The Kaduna ADP identifies or forms farmers groups and connects them to the Anchor Borrowers Programme, and then handholds them through the process. For example, they verify that farms are prepared properly to qualify for crop insurance and recently negotiated a deal to compensate farmers for low-quality seed received through the program. They provide about half of the training for farmers, though the contract is through a private agency (that hires their staff).⁵¹

However, Kaduna's level of collaboration with Anchor Borrowers may not be common. Sasakawa was approached by a poultry company, who wanted to participate in the Anchor Borrowers Programme, but needed assistance with training and organizing farmers and did not want to work with the state ADP to perform this training.⁵²

Anchor Borrowers is considered a good program in theory, but has had a variety of implementation problems.^{53,54,55} Olam is a multi-national food company (second in the world for rice) that works with the Anchor Borrowers Programme. The major issue they found was that farmers were given loans that were larger than were needed for inputs, and then could not be repaid. Farmers often waited for prices to increase and did not sell at their committed time. Only 60 percent of farmers sold to Olam by their deadline at the end of December 2016. Anecdotaly, other offtakers experienced much worse results, with less than 20 percent of farmers delivering on time.⁵⁶ Olam suggested that side selling could be reduced by using group loans as opposed to individual loans so that the group members could hold each other accountable, although this has yet to be tried.⁵⁷

Another critique of Anchor Borrowers is that the Kaduna ADP and local news articles have mentioned that farmers have been overcharged for subsidized fertilizers under the scheme (Peter, 2017). On the other hand, about 25 percent of the farmer groups that the Kaduna ADP works with have not delivered on time to offtakers per their contracts because they are trying to get a higher price in the market from other buyers. Additionally, over half of the 30,000 people registering for the Anchor Borrowers Scheme in their area were not real farmers, but were other individuals taking advantage of the program to obtain a loan. Fraud has also been alleged (Peter, 2017). Other areas of improvement for the program include Train the Trainers programs for cluster leaders, better mapping of landholdings to ensure farmers get the right type and amount of inputs for their farms,

⁵¹ Government stakeholder group interview, 20 January 2017.

⁵² Donor/project stakeholder group interview, 19 January 2017.

⁵³ Donor/project stakeholder interview, 17 January 2017.

⁵⁴ Government stakeholder group interview, 20 January 2017.

⁵⁵ Donor/project stakeholder interview 17 January 2017.

⁵⁶ Private sector stakeholder interview, 22 January 2017.

⁵⁷ Donor/project stakeholder interview 17 January 2017.

ICT extension to follow up with farmers, and faster addressing of pests and other problems encountered by farmers to avoid crop failure and insurance claims.⁵⁸

The Labana Rice Mills also work with 5,000 outgrowers under the Anchor Borrowers Programme, while sourcing from an additional 1,250 farmers and supporting them with seed, fertilizer and basic irrigation equipment, as well as agronomic advice (Sarki, 2017).

Olam partnership with Markets II and IFAD

Olam runs the largest rice farm in Africa in Nassarawa State, which supplies their mill in Benue. They also source part of their rice for milling from farmers in Nassarawa, Benue and Kaduna. They work with donor programs for most of these farmers. Olam sourced from 600 farmers in 2015, 4,003 farmers in 2016 and are planning to quadruple that to 16,000 farmers in 2017. In the long run, they are targeting to source 20 – 25 percent of total mill production directly from farmers. Their mill can be expanded up to 200,000 tons of production. Given expected sourcing this year (approximately 1.5 tons/farmer), 25 percent of total production would translate to about 33,000 farmers for their current mill. Typically, they target to only procure 30 – 50 percent of a farmer's total rice yield, as the farmers keep the rest for family consumption and for conversion into cash when needed.⁵⁹

In Nassarawa, Olam started working with Markets I in 2006. The program worked well but faced challenges after management changes in 2008. Initially, a lot of people were in the field versus the office. Stakeholder meetings were regular and included managing directors and other high-level people. Training programs were high quality, and Training of the Trainers programs were two days versus two hours now. Demonstration plots were compulsory. Now the Markets II team does three to four hours of training for 100 lead farmers and takes credit for training 3,000 farmers. Olam's linkage with Markets II is not as close as before.⁶⁰

In Benue, Olam works with IFAD, which, like Markets II, tends to focus on training lead farmers in a manner that does not necessarily trickle down. The difference is that IFAD provides grants for farmers, which are popular, though not sustainable. Specifically, IFAD provides a grant for 50 percent of the cost of inputs. Olam provides a loan for 20 percent of the cost of inputs, and the rest is paid by the farmer. This program will be expanded to 8,000 – 9,000 farmers and the focus is more on coordinating farmers and creating awareness, rather than providing advice or training. Training programs for farmers are run only once or twice a year.⁶¹

Olam stated they are willing to share costs with other actors for extension programs. The country manager emphasized the importance of recording detailed data on each farmer, providing site-specific fertilizer, ensuring quality demo plots are set up and most importantly reaching beyond lead farmers, as lead farmers do not really train other farmers much.

Making Markets Work for the Poor (M4P)

The MADE and the PropCom project of DfID both work with agricultural input suppliers to provide extension services to farmers growing certain crops and then connect the farmers to buyers

⁵⁸ Government stakeholder group interview, 20 January 2017.

⁵⁹ Private sector stakeholder interview, 22 January 2017.

⁶⁰ Private sector stakeholder interview, 22 January 2017.

⁶¹ Private sector stakeholder interview, 22 January 2017.

or markets for those crops. Both of these DfID programs prefer to work with input companies than crop buyers to educate farmers because they believe input companies are more motivated and better organized to serve farmers. They believe that unless crop buyers have formal contracts to buy produce from farmers, they may not be as invested in providing extension services to farmers as they could risk the farmer side-selling or selling to another buyer for a higher price. However, MADE is considering partnering with some cocoa companies, who have expressed interest to collaborate with MADE and go to villages where MADE has already conducted extension.⁶²

MADE identifies retailers through the input companies to provide extension to farmers. They look for small retailers in rural areas, who will be motivated to learn and explain new concepts to farmers. PropCom worked to set up an entirely new network of village-level entrepreneurs (VLEs) or village promoters with the fertilizer company Notore, who made a commission off the inputs they sold. Since they were working in less aware areas with less experienced people, the VLEs for PropCom required subsidization for the first year because they usually do not sell anything until the second season.

Notore owns and operates the first urea plant in sub-Saharan Africa. They worked with public extension agents in 2008 to 2009. They trained and paid the agents, and set up demo plots. However, during a temporary cash flow shortage with Notore, the agents stopped working and the demo plots died. After that Notore decided the public extension agents were unreliable and started working with PropCom to develop their own internal extension workforce.⁶³ Over the last five to six years, they have trained 3,000 VLEs, although only around 850 are currently active.⁶⁴

Under the VLE model established with Notore and PropCom, the VLE is responsible to set up five demo plots each year with the participation of 30 farmers each. The company provides the inputs, and the farmers share the work of cultivation and the income from harvest. The VLE produces a video of the demo plot and the control plot; the Centre for Agriculture and Bioscience International (CABI) has helped to provide technical support on video production. At the end of the season, they show the video in the village square along with the participating farmers. (This is currently shown with a laptop and generator and could benefit from easier-to-use lower cost approach.) Many people watch soccer matches on TV in the villages, and they show the demo video during intermission. The VLE is expected to gather the information of 750 farmers each year, which is verified with a Notore Field Executive. The VLE usually sells small bags of fertilizer (one or 10 kilograms) to farmers starting from the second season and earns a commission. They often receive credit from Notore distributors in order to purchase their inventory to sell, but this is not available to farmers.⁶⁵

Another VLE-type model is through a Bill & Melinda Gates Foundation-funded project called Building a Sustainable, Integrated Seed System for Cassava in Nigeria (BASICS) project that is implemented by the International Potato Center (CIP) and Catholic Relief Services (CRS). In BASICS, the team is focused on creating a sustainable cassava seed system in five states by establishing 150 village seed entrepreneurs (VSEs) that each serve 1,000-2,000 farmers in their

⁶² Donor/project stakeholder interview, 22 January 2017.

⁶³ Private sector stakeholder group interview, 18 January 2017.

⁶⁴ Private sector stakeholder group interview, 18 January 2017.

⁶⁵ Private sector stakeholder group interview, 18 January 2017.

village and surrounding areas. The project has identified 57 VSEs thus far and working to training them on cassava seed multiplication and marking. Early business modeling indicates that the VSEs will not be profitable by solely producing and selling seed, so the BASICS team is looking at ways to ensure the sustainability of the seed producer and intends to explore how the VSE can provide other services for a fee, such as aggregation of input demand or even supply of inputs, aggregation of produce and/or agronomic advice. The project is just getting underway and there are no results from the program yet.

Babban Gona is another agricultural franchise that provides a private-sector channel for cost-effective delivery of enhanced agricultural technologies and end-to-end services that optimize yields and labor productivity, while simultaneously improving market access. Babban Gona works with 10,000 farmers in Kaduna and Kano states, with field sizes ranging from less than one to 20 hectares of land. The farmers are organized into approximately 2,000 Trust Groups (TGs) that are supervised by 130 field agents (or MIKs). MIKs visit each TG assigned to them every week, usually 100-200 fields (many farmers have more than one field) across 20-40 TGs. They collect a range of data from farmers, including input usage and timing of crop activities. MIKs are usually from the villages they work in and complete an aptitude test as part of the recruitment process. They are trained in-house by Babban Gona. Best performers are recognized once per year across a variety of categories, including highest yield, first to reach target and accurate field mapping.⁶⁶

MIKs train TG leaders, who are selected based on leadership skills, agronomic knowledge and trustworthiness as judged by their peers. The TG leaders form groups of farmers that are also screened by Babban Gona on soil health, hard-working nature and commitment to follow specified agricultural practices. Farmers pay NGN 9,500 (approximately US \$30) upfront to receive their batch of fertilizer and herbicide and also receive a group loan. Large-scale farmers, who are trust group members, have the option of becoming agro-dealers and receiving wholesale prices from Babban Gona on inputs and additional training.⁶⁷

ICT Approaches

ICT has been used in a variety of ways to deliver EAS, including radio, TV, call centers, phone applications and some use of tablets and video. The only ICTs that seem to have reached significant scale are radio broadcasts, which are less now than in the 1990s due to funding constraints. Not much is being done with regard to using ICT for performance management, monitoring and evaluation; the focus is on information sharing.⁶⁸

The Nigerian Strategic Agricultural Knowledge Support System (SAKSS) was set up in 2010 to create a unified ICT platform for the sector. The Minister of Agriculture chaired the steering committee, but progress has been minimal (FMARD, 2012). FMARD has a National e-Agriculture Web Portal online at <http://www.eagriculture.gov.ng/eAgricPortal/>, but it seems to have stalled at a testing phase, with only one article is listed under the extension section and only two organizations under “Where to Get Agro-chemicals.” A government stakeholder mentioned they are developing a portal and database to link all ADPs.⁶⁹

⁶⁶ Private sector stakeholder group interview, 18 January 2017.

⁶⁷ Private sector stakeholder group interview, 18 January 2017.

⁶⁸ Donor/project stakeholder interview, 25 November 2016.

⁶⁹ Government stakeholder group interview, 16 January 2017.

The Agricultural Market Information Service project, funded by the Bill & Melinda Gates Foundation and implemented by the FAO, is developing processes with FMARD and Niger and Kaduna states to track and publish data online for wheat, maize, rice and soybeans (<http://www.amis-outlook.org/technical/nigeria/en/>). A list of public and private sector agriculture-related ICT platforms from the Agricultural Extension Transformation Agenda can be found in Annex 3 of this report.

During the 1990s with World Bank assistance through the National Agricultural Technology Project, most all of the ADPs produced and broadcast radio and TV programs, with the states providing free airtime. These programs, particularly television, dropped off significantly after the ending of World Bank funding and commercialization of the TV and radio channels (CTA, 2011). The exception is Kano, whose Kano State Agricultural Development Authority (KNARDA) has been able to maintain an agricultural radio station that broadcasts for about four hours daily. Today, NAERLS and Sasakawa Global 2000 also air radio programs, and Fadama has worked on establishing community radio stations.

NAERLS uses radio and television as part of their information outreach. There are 14 NAERLS programs broadcast in different radio stations across the country. From the 14 radio programs, a total of 6,938 releases have been made. They are broadcast in English, Hausa, Igbo, Yoruba and Pidgin English (Ekoja, 2002). NAERLS would like to air longer broadcasts and run them more frequently. However, broadcasting charges are expensive and NAERLS' budget has reduced, limiting the number of programs they can air. They would like to use satellite TV to reach a greater audience with less money. Due to language use in the region, the programs can be of use beyond Nigeria.⁷⁰

NAERLS also provides a weekly 15-minute broadcast on commodity prices, as well as via their website and in print form. However, out of 1,000 markets, they only capture commodity prices for 13. Some think the price information is not current enough to be useful.⁷¹

NAERLS is also trying to start e-extension with the help of GIZ and Ahmadu Bello University. In 2011, NAERLS started working with Esoko to build an management information system (MIS) database and short message service (SMS) system, but that seems to no longer be active (FMARD, 2012). NAERLS would like to digitize farmer and commodity data collection. At the moment, the entire NAERLS data collection system is paper-based.

The NAERLS-run Farmer Helpline was highlighted as a goal in the Agricultural Extension Transformation Agenda, and is being set up a call center (actually an interactive voice response system, since it is based on live and offline functionality), leveraging NAERLS expertise to answer farmer questions. NAERLS established a facility for the Helpline in Zaria in 2014 and plan to establish branches at their six zonal offices as well, though so far only one is ready (in the north-west zone). The Helpline service will be offered in English, Pidgin, Hausa, Yoruba and Igbo languages.⁷² The plan is for the helpline to have a maximum 24-hour response time to farmer questions. This helpline builds off of the former Nigerian Agricultural Question and Answer Service (NAQAS).

⁷⁰ Government stakeholder group interview, 19 January 2017.

⁷¹ Donor/project stakeholder group interview, 19 January 2017.

⁷² Government stakeholder group interview, 19 January 2017.

NAERLS is currently negotiating with MTN on call rates for the Helpline, ideally to allow toll-free calls from farmers. Equipment was recently purchased. They are working with Novus Agro to make an electronic database of NAERLS content for the Farmer Helpline. There is also a need to do capacity building of agents and operators. They are getting some support from the University of Nebraska at Lincoln on training. Launch date of the Helpline is unclear.⁷³

Cellulant, the developer of the e-Wallet system that is used to distribute some fertilizer subsidies in Nigeria, is working to expand their platform, Agrikore, from unique farmer IDs to a broader service, including connection to inputs and markets, aggregation, and extension and advisory services. Given the 15 million farmers already registered with the platform, there is a significant opportunity to leverage the existing platform for extension.

MADE is working to increase use of ICT for their extension programs. They contracted an ICT study that found that 60 to 65 percent of Nigerian farmers are able to receive SMS, and many companies have databases of farmers, but do not know how to use the information to increase their sales. MADE is interested to create four to five minute documentaries to be shared on WhatsApp as well as an IVR platform with a daily message on weather and crop actions. They have put out a bid for ICT value-added services companies to develop a customized farmer extension platform for agri-input companies. As part of this program, ICT services companies must negotiate a subscription agreement upfront with agricultural input companies for what information will be paid for. The most interested input companies so far are Saro Agrosiences and BASF, with some interest from Syngenta, Candel and Bayer, as well.⁷⁴

Vodacom is implementing their Mezzanine product with the Kaduna state government. Mezzanine is an information technology (IT) solution for African governments across health, education and agriculture that was previously implemented in Kenya and Tanzania. They have already implemented the health module in Kaduna and are working on the education module now. The agriculture module, the Connected Farmers platform, is intended to give farmers access to markets, information (including market prices and which inputs to get and where) and finance (including input vouchers). They intend to gather detailed information on each farmer and register off-takers and input suppliers, then make that information available by giving farmers smartphones. Vodacom is largely reliant on the state government for information and direction of the project, but no funds are available yet for agriculture. Vodacom is looking for donor support to scale up the project.⁷⁵ They have also announced an expected launch in March 2017 (Matshele, 2017). Long-run sustainability is not clear.

Another innovative partnership using ICTs is between Airtel Nigeria and Human Network International (HNI)'s "3-2-1" Service. The 3-2-1 Service, launched in Nigeria in November 2016, is a free service that provides information to mobile phones on-demand, on agriculture, commodity prices, weather and other information in five national languages: English, Hausa, Igbo, Pidgin and Yoruba. The public service messages are created and curated by committees convened by HNI; CRS is the content provider on agriculture, Weather Bug-Earth Networks on weather, and Novus Agro on commodity prices. To make the service work, Airtel is delivering the 3-2-1 Service content

⁷³ Government stakeholder group interview, 19 January 2017.

⁷⁴ Donor/project stakeholder interview, 22 January 2017.

⁷⁵ Private sector stakeholder group interview, 27 January 2017.

for free to subscribers, while HNI will launch the service, develop IVR decision trees and train in-country content developers. Stakeholders will decide on and fund the content development for the service based on their relevant areas of expertise, and governments participating in the project will provide technical input and contribute to the development of the content. Airtel will offer its 34 million subscribers 10 free calls, unlimited SMS and Unstructured Supplementary Service Data (USSD; a cross between IVR and SMS) to the service. Whether the service is being availed and its long-term sustainability plan are unknown (Aniemeka, 2017).

The GIZ Centre for Green Innovation launched the smartphone application, RiceAdvice, in 2016 to bolster rice yield and youth employment in Nigeria and Mali. Currently, the application is used by public sector extension agents, and printouts are given to individual farmers.

Africa Exchange, the private commodity exchange, developed a smartphone application to distribute price and technical storage information for grains to farmers, but this does not seem to have reached any scale yet.⁷⁶

Given the relatively high rate of illiteracy (40 percent as of 2015 (Central Intelligence Agency, 2017)), television, radio, IVR and/or video remain the most effective mass communication channels.

Community-driven Extension

The Fadama project includes farmer demand-driven content, private extension providers and 10 percent cost contributions by farmers. The Fadama Project also set up user groups and community associations for communities to create their own local development plans (CTA, 2011).

Sasakawa's Community Extension Workers (CEWs) program is part of their project with AGRA. The program is distinguished in being governed and tailored by each community rather than a uniform process set by the donor. CEWs, usually teachers or former extension agents, are selected by the community, not by Sasakawa. They are trained on agronomic practices and are expected to be trained to use NAERLS' Farmer Helpline in the future. The community picks the incentive for the CEW, usually a stipend and a bike or farm services. The CEW target is to train 500 farmers over three years. Several private-sector agriculture companies have approached Sasakawa about using their CEWs for marketing their products and paying them commission, including Notore on fertilizer, Value Seeds on seeds and Harvest Fields on crop protection. This would be a more sustainable approach to extension rather than having to rely on donors alone.⁷⁷

Sasakawa has also established three Community Resource Centers through the AGRA project. The center is intended to provide access to agricultural information, a space to meet with offtakers and, eventually, some adjoining community warehousing. The community donates a structure, and Sasakawa renovates it and provides equipment. Each center has a computer, TV, DVD player and chairs. Farmers manage the center with the help of ADP staff. The center was also intended to facilitate a link between the farmers it serves and the Farmer Helpline from NAERLS, but that has been delayed.

⁷⁶ Donor/project stakeholder interview, 27 January 2017.

⁷⁷ Donor/project stakeholder group interview 19 January 2017.

Other Methods

Value Chains

Many donor projects in Nigeria use a value chain approach, where they focus on end-to-end EAS, credit and resources for farmers growing specific crops with high-market demand, and often also work to aid processors and traders. This comprehensive approach with farmers is similar to a high-touch contract farming model, as practiced by Babban Gona and to some extent by Olam, among others. Usually, this approach covers provision of appropriate inputs, good agronomic practices for the specific crops, post-harvest storage or processing, connection to buyers or offtakers, and, occasionally, access to credit. The USAID Markets II project works in seven commodities: cocoa, aquaculture, rice, sorghum, cassava, maize and soybean. PropCom focuses on maize, poultry, soybeans, shea nuts and acha nuts.⁷⁸ PIND works in three value chains: aquaculture, palm and cassava.

MADE focuses on cocoa, cassava, oil palm, maize, rice and vegetables. They try to pick markets where farmers can find sufficient quantity of demand at a good price if their production increases. Vegetables are typically cultivated by women, which is why vegetables have been included in the program. Cocoa farmers have the highest rate of adoption of any crop. The price they get from buyers is set based on five to six quality parameters. Of these, two to three quality factors can be directly affected by changes in agronomic practices. Compliance to these can lead to an extra NGN 200,000 (approximately US \$630) per ton, so cocoa farmers are very incentivized to adopt new practices.⁷⁹

In January 2017, Osun State announced they are seeking to partner with commodity buyers to set up 10 value chain programs with 50,000 farmers as part of the Osun Agricultural Value Chain Activation Initiative. Focus commodities are plantain, rice, cassava, maize, yam, tomato, soybean, cocoa, oil palm, poultry, aquaculture, small ruminants, piggyery and forestry (Vanguard, 2017).

In their partnerships with state governments, Sasakawa works in villages selected by the government. They assess the village and market situation and then tailor an intervention accordingly. They collect technology from research institutions and repackage it for farmers. Usually they spend three to four years in a given village. During the first year, they focus on improving production. In the second year, they work on market linkages and post-harvest processing. Simultaneously, they train farmers on leadership and on finding markets on their own. Given the more than 500 languages in Nigeria, pictorial guides are used in the Markets II program as part of Sasakawa's training programs. Sasakawa links farmers to feed companies and rice and flour mills as offtakers for grains. Through the Markets II program, they also link farmers to seed companies.

Targeted Information Delivery Approach/Adopted Villages

In 2009, the Agricultural Research Council of Nigeria mandated that all research institutes should set up adopted villages to test new technologies or information and their dissemination. In 2010, NAERLS designated seven adopted villages. This mandate was expanded through the West African Agricultural Productivity Program in 2012.⁸⁰ Information Resource Centers were set up in each adopted village, with a building donated by the community and furnished by NAERLS with a

⁷⁸ Donor/project stakeholder interview, 16 January 2017.

⁷⁹ Donor/project stakeholder interview, 22 January 2017.

⁸⁰ Government stakeholder group interview, 19 January 2017.

television, DVD player, audiovisual materials, publications and posters. Management training plots were intended to be established with each center (Sani, 2015).

A study of the first seven adopted villages in 2015 showed that sourcing and usage of inputs and crop production were the most frequent information requests from farmers. Video documentaries were the most preferred form of information dissemination, above radio, publications and personal contact, as the least preferred. (Although the baseline study showed that lack of frequent extension contact was a problem.) Almost all farmers surveyed said the project had increased their awareness of and access to agricultural information, but only half said it had improved their crop productivity. The study also indicated that the participating farmers were willing to pay for some extension services, but no more detail was provided (Sani, 2015).

Farmer-managed Demonstration Plots

Sasakawa often uses demonstrations on farmer-managed plots of improved seed varieties. Demonstration plot methodology has changed based on feedback from farmers. Before they did multiple demonstration plots (in partnership with participating farmers) showing partial and full implementation of an intervention based on different farmer budgets. Now, they are just doing a single plot with the best practice fully implemented.⁸¹

Formal Farm Schools

The AG Leventis Foundation operates six formal farm schools for secondary graduates offering both one-year courses and short courses in farm management. The schools are in FCT, Osun, Gombe, Kano, Ondo and Kaduna states. Schools are open to both men and women except in Kano state. They have trained 7,000 youth between 1988 and 2014. Short courses are a maximum of two weeks and are particularly valuable for married women in northern Nigeria. Training is structured as 80 percent practical and 20 percent theoretical, and includes crop production and agroforestry, animal production, rural enterprise development and agricultural engineering. Some graduates have become large farmers and exporters (Leventis, 2017).

Farmer Field Schools

Farmer field schools are a global approach that utilizes participatory, group-based discovery learning and adult education principles. NPFS started rolling out the approach with the FAO in 2007, but many states failed to pay their counterpart funds and the program stopped (FMARD, 2012). The farmer field schools approach has been instituted in nine states. SSAB also uses the farmer business school approach for cocoa. The cocoa field school curriculum was developed in partnership with World Cocoa Foundation and the Bill & Melinda Gates Foundation (SSAB, 2017).

Supply of Inputs

Supply of agro-inputs is linked with extension delivery in many of the donor-funded projects (CTA, 2011). Today, this includes IFAD's project with Olam, DfID's MADE and PropCom and USAID Markets II. The World Bank Fadama project includes input subsidies for farmers. The e-Wallet program for fertilizer subsidies also seems to have involved information provision to farmers; a helpline was set up that farmers could get information on good farming practices, although it is unknown the extent to which the helpline was used (Fadairo, Olutegbe, & Tijani, 2015).

⁸¹ Donor/project stakeholder group interview, 19 January 2017.

Agriculture Enterprise Curriculum

The Markets II project uses the Agriculture Enterprise curriculum focused on decision-making for farmers – when to buy inputs, when to sell crops, when to take out a loan and so forth.⁸²

Market Engagement

Market engagement in the context of EAS is concerned with farmers' access to credit, market-related advice, market linkages, quality inputs, group development and output markets.

Access to Inputs

The Nigerian domestic agricultural inputs manufacturing industry is relatively nascent. Farmers routinely struggle with finding inputs that are of reasonable quality, geographically accessible and available in time for the season. Two programs to be potentially leveraged include the e-Wallet system for fertilizer subsidies and the nascent Farmer Helpline maintained NAERLS.

Access to quality seeds and fertilizers is a major issue for farmers in Nigeria. Fertilizer use is incredibly low, at 15 kilograms per hectare as compared to the FAO recommendation of 200 kilograms per hectare, which has led to low productivity. Very little fertilizer is produced domestically. Most companies import agricultural inputs and sell them to the government. This practice has produced little incentive for companies to engage in extension.⁸³ However, some feel the challenge is not so much lack of demand as it is lack of availability at the right time.

Prices for fertilizers have doubled recently, while prices for other agrichemicals have increased three times. This increase is on account of most agro-inputs being imported and the unavailability of foreign exchange. Even with the difficulties of importation and higher prices leading to lower volumes sold, company revenues have remained the same, although it has created hardship for farmers.⁸⁴

In 2012, the Nigerian government introduced GES, which launched an e-Wallet system developed by the IT company Cellulant to distribute fertilizer subsidies directly to farmers through mobile money to avoid the graft and losses that had previously occurred. In the first year (2012 – 2013), 4.5 million farmers registered, but only 250,000 of them were women. As of 2016, 14 million farmers were registered, out of which three million were women. The increased participation of women farmers was due to the sensitization work of the Gender and Youth Department of FMARD.⁸⁵ At the peak of the program, in its second and third years, it has been estimated that between 70 to 80 percent of the registrants received subsidies.⁸⁶ Subsidies distributed through GES covered 50 percent of the cost of fertilizers, with 25 percent borne by the federal government and 25 percent borne by the states.

Due to a decline in government revenues from the fall in oil prices, most states pulled out of the GES in 2016. At the end of 2015, debt owed by Nigerian state governments to banks was over NGN 600 billion (US \$1.9 billion). As of 2016, the federal and state governments owed agro-input

⁸² Donor/project stakeholder group interview, 18 January 2017.

⁸³ Private sector stakeholder group interview, 18 January 2017.

⁸⁴ Donor/project stakeholder interview, 22 January 2017.

⁸⁵ Government stakeholder personal communication, 13 February 2017.

⁸⁶ Education stakeholder personal communication, 27 February 2017.

dealers NGN 72 billion (US \$230 million) under the GES for inputs they supplied to farmers (Okojie, 2016). For the 2017 dry season, the federal government will pay a 50 percent subsidy to farmers, with a special emphasis on rice. However very few farmers are growing crops during the dry season given that irrigation is under one percent of cultivated land. For the wet season, the federal government will only provide a 25 percent subsidy.⁸⁷

The Kaduna ADP mentioned that farmers used to receive fertilizer subsidies of 40 percent of cost and included free transport, but that stopped several years ago. Through the Fadama project, farmers receive 50 percent subsidy on inputs and 70 percent on equipment, and aims to reach 317,000 direct beneficiary households. According to a government stakeholder, 70 percent of subsidies are diverted to people who do not need them. Even in the Anchor Borrowers program, farmers were overcharged for subsidized fertilizers.⁸⁸

Lack of quality seeds was also cited as a major issue by the seed regulatory body, seed companies' association, Sasakawa and Olam. The Seed Association of Nigeria and the National Agricultural Seeds Council are concerned about the lack of professionalism in the seed sector and the lack of foundation seeds in Nigeria, particularly for rice. They estimate the penetration of improved seeds at only 10 – 12 percent.⁸⁹ Olam pointed out the complete lack of proper rice varieties developed for Nigeria, which is also the case for other commodities. As a result, Olam employed a team in the late 2000s (now at 40 people) to test varieties from Thailand and modify them for use in Nigeria.⁹⁰ From Sasakawa's needs assessments in villages, the main challenge farmers face is lack of improved seeds.⁹¹

Previously farmers could distinguish real inputs from fake inputs by their packaging – real inputs were usually imported, while fake or counterfeit inputs were domestic, and so the packaging quality was higher for the genuine imported inputs. However, now producers of fake inputs are packaging their products overseas with improved packaging quality, so it is difficult for farmers to tell which inputs are real or fake. It appears that no seed company in Nigeria is creating a means for farmers to verify authentic seeds, but because there is precedence in other countries, this might be an opportunity for seed companies to support this service. Lack of EAS and knowledge also means that sometimes farmers claim products are fake when, in actuality, the farmer is not using the input properly. A donor/project stakeholder noted that ICT has helped resolve counterfeit pharmaceuticals in Nigeria, and should also be able to help for agriculture.⁹²

Credit

Credit is often cited as a major constraint to improving farm productivity in Nigeria. For example, farmers' groups in a NAERLS adopted village near Zaria mentioned credit as the one thing they most valued about their interaction with NAERLS. NAERLS staff agreed that access to credit was the major driver for farmers to form groups in their adopted villages. The men's group that NAERLS started has inspired three other groups in the same village. Groups have an easier time

⁸⁷ Government stakeholder interview, 20 February 2017.

⁸⁸ Government stakeholder group interview, 20 January 2017.

⁸⁹ Government/private stakeholder group interview, 18 January 2017.

⁹⁰ Private sector stakeholder interview, 21 January 2017.

⁹¹ Donor/project stakeholder interview, 19 January 2017.

⁹² Donor/project stakeholder interview, 22 January 2017.

getting a loan than an individual, especially if associated with a respected extension actor.⁹³ Separately, farmers at a meeting with the Kaduna ADP also mentioned credit as a primary constraint.⁹⁴

Credit is a major component of the Anchor Borrowers Scheme of the Central Bank, which provides loans to farmers at nine percent in conjunction with a contract with an offtaker for sale of crops. Olam, the multi-national food company working with the Anchor Borrowers Programme, raised the point that farmers were being given loans that were far larger than needed for inputs and hence could not repay at the end of the season. For example, farmers got loans of NGN 120,000 – 190,000 (approximately US \$375 – 600) when only NGN 70,000 (approximately US \$220) was needed for their inputs, so the farmers would spend the extra money on other things. When the loan came due, it took the whole crop to cover it, so farmers started side selling to ensure they could net some profit from their crop.⁹⁵ A government stakeholder group also corroborated Olam's observation that the loans given to farmers are sometimes much larger than is needed for basic inputs, which can lead to misuse of funds and inability to repay.⁹⁶

Fortis Microfinance Bank has just started to provide value chain microfinance to groups of farmers, and occasionally individual loans in FCT, Ogun, Benue and Sokoto. They are expanding this program to Cross-River, Kebbi and Kaduna or Niger states in the first quarter of 2017, and then to three more states before year-end. In 2016, the first year of this program, they provided loans to 3,000 farmers. This year they plan to increase that to 40,000 farmers, largely through USAID Feed the Future programs. Almost all of their value chain finance is through donor projects where there is a committed buyer of crops and specific providers of inputs. These crop buyers are buying at the prevailing market rate (not a contracted rate), so side-selling is not an issue in repayment of the loan. The loans go directly to input suppliers – cash does not go to the farmers. Fortis has a 50 percent DCA loan guarantee on the principal of their value chain loan portfolio from USAID. They employ 16 agricultural loan officers/extension agents – all have agriculture degrees – that meet farmer groups on a weekly or monthly basis. Fortis is targeting one officer per 500 farmers.⁹⁷

Fortis uses private sector providers as their on-the-ground agents. These individuals also serve as agro-dealers. To identify farmers to loan to, the agents collect information on assets, land size and history of farmers. Through the Markets II project the agents received training on credit analysis, risk management and value chains. As a result, Fortis provides credit to farmers for the procurement of farm inputs through arrangements with the bank.⁹⁸

NAERLS provides 22 percent annual percentage rate loans for six months for fertilizer to farmer groups through the Ahmadu Bello University microfinance institution, and disbursed about NGN 15 million in loans last season to farmers, which is about US \$48,000.⁹⁹

⁹³ Farmer group stakeholder group interview, 19 January 2017.

⁹⁴ Government stakeholder group interview, 20 January 2017.

⁹⁵ Private sector stakeholder interview, 22 January 2017.

⁹⁶ Government stakeholder group interview, 20 January 2017.

⁹⁷ Private sector group interview, 17 January 2017.

⁹⁸ Private sector stakeholder interview, 8 December 2016.

⁹⁹ Farmer group stakeholder interview, 19 January 2017.

Credit culture is also an issue in Nigeria. A government stakeholder stated that seven in 10 farmers do not repay their loans, and often spend the money for non-agricultural activities. Olam found that some risk share with farmers works better than fully guaranteed loans for farmers. They worked with First City Monument Bank (FCMB) in Nassarawa state to lend to farmers, where FCMB took 25 percent of the risk, the Central Bank of Nigeria 50 percent, Olam 20 percent and farmers 5 percent. Elsewhere, the loans were a 50 percent risk share from the Bank of Agriculture and 50 percent from the Central Bank, which did not work as well.¹⁰⁰ A private sector stakeholder present at the Kaduna ADP meeting said that dealers cannot take the risk of lending to farmers, even though it would help more farmers to buy.¹⁰¹

Mobile lending players may be coming onto the scene in Nigeria as well, albeit at a small scale at present. However, the environment seems ripe due to governmental initiatives to improve access to financial services and broadband internet, the rate of growth in both of those fields independent of the government and the fact that only around 30 percent of people currently have access to retail credit as of November 2015. Lidya is an online bank and offers unsecured loans between US \$500 and US \$15,000. *Paylater* offers short-term loans to cover urgent cash needs. Whether farmers are accessing any of these current services is not clear (ParetoPulse, 2017).

However, the MADE project asserts that the perceived risk by farmers of major purchases of seed and fertilizer is a bigger issue than ability to pay. Being able to break bulk is important (to provide smaller cheaper units for purchase), but often credit is not required.¹⁰² Likely the need for credit varies across farmers and crops, and sometimes the need for credit may be exaggerated as an easy solution to improve farm productivity.

Livelihood Strategies

In order for EAS to improve livelihoods as opposed to simply improving agronomic knowledge, service providers must be aware of the different needs of all types of farmers — men, women, youth, elderly, laborers and pastoralists. These could include issues such as markets, nutrition, climate resilience, mechanization and others. This includes providing complementary information (for example, on nutrition), focusing on the agricultural activities most common for different types of farmers (for example, poultry rearing or vegetable cultivation with women), or holding different types of events that are particularly engaging or accessible for that type of farmer (for example, women-only events).

According to the Gender and Youth Division of FMARD, females have low access to extension information and technologies and have limited contact with extension. In the northern part of the country, which is predominantly Muslim, women cannot meet with male extension agents, so there is a need for more female agents (currently at 28 percent). In the south, this is less of an issue.¹⁰³ The Gender and Youth Division is also planning to collaborate on health and nutrition information programs for women with the Ministry of ICT and with Fadama on women-tailored EAS.¹⁰⁴

¹⁰⁰ Private sector stakeholder interview, 22 January 2017.

¹⁰¹ Government stakeholder group interview, 20 January 2017.

¹⁰² Donor/project stakeholder interview, 22 January 2017.

¹⁰³ Government stakeholder interview, 16 January 2017.

¹⁰⁴ Government stakeholder interview, 16 January 2017.

Access to land is a major issue for women, as is credit access due to illiteracy, lack of assets and risk aversion.¹⁰⁵ The Gender and Youth Division is planning sensitization programs for women to reduce their risk aversion to credit, as well as establishing specific microfinance programs for women to help banks lend to women.¹⁰⁶

In collaboration with five other ministries (Women Affairs, Health, Environment, Communication Technologies and Works), the Gender and Youth Division of FMARD created the Youth and Women in Agribusiness Investment Program in 2013 to train 5,000 youth and 3,000 women on starting agribusinesses. The courses are two to six weeks in length, and graduates receive a financial incentive for starting their business. The three most popular agribusinesses with women graduates were aquaculture, rice production and processing, and poultry production (Adesugba and Mavrotas, 2016).

The FAO-funded Youth Employment in Agriculture Program (YEAP) plans to train 700,000 youth over five years and provide credit to them.¹⁰⁷ This initiative is separate from the federally-funded N-Power program.

NAERLS staff cited women “not being able to go out” as the major impediment to any improvement in farm productivity. Most NAERLS interventions with women’s groups in their adopted villages focus on chickens and goats, which are culturally viewed as women’s activities. NAERLS staff emphasized the importance of addressing cultural barriers for women engaged in various activities, which can be bridged with training and sensitization.¹⁰⁸

Sasakawa Global 2000 recently started value chain work with women on “women-friendly technologies.” They define these technologies as those that relate to customary women’s activities and/or nutrition, are cheap and help them earn income. Primarily they set up simple processing enterprises, including rice parboiling, milling and destoning, maize milling and packaging, oil processing including expelling, packing, sealing and branding. When they started, they gave group loans for processing machines, but found that the group ownership meant no one person felt responsibility. Now a leader is appointed from the group, who takes a loan for the equipment (with a 20 percent down payment) and provides a service to the other women in the group. The leader can provide the services of the machine to other people outside the group, but the group members get training and a 20 percent discount. The program is complemented with gender sensitization training to help the men understand the value of the training for the women and what they are learning.¹⁰⁹

PropCom works on acha nut and shea nut processing, rice parboiling and poultry health, since these are popular with and culturally acceptable agricultural activities for women. They also work to popularize tillers with women farmers as these are lower cost than tractors, and women have less funds and access to credit than men (Propcom Mai-karfi, 2017).

Mechanization has become a topic of interest as labor rates continue to rise in Nigeria. As of 2015, only two percent of farmers reported to be engaged in agricultural mechanization (Mba, 2017). One

¹⁰⁵ Government stakeholder interview, 17 November 2016.

¹⁰⁶ Government stakeholder interview, 16 January 2017.

¹⁰⁷ Government stakeholder interview, 16 January 2017.

¹⁰⁸ Farmer group stakeholder interview 19 January 2017.

¹⁰⁹ Donor/project stakeholder group interview, 19 January 2017.

of the challenges to this is the scarcity of machinery with limited local manufacturing (Mba, 2017). This is particularly true for tractors, with only 20,000 tractors in the entire country.¹¹⁰ Lack of finance options hampers both the tractor owners and operators who want to increase their fleets, as well as farmers who want to lease out the tractors. An organization called Hello Tractor is attempting to address financial constraints of tractor owners/operators and agro-dealers by creating a “smart tractor” that allows owners/operators to monitor the use of their tractors remotely through an application. The application can tell them how many hectares have been serviced, what the maintenance needs are, a map of farmer demand and how much money the tractor is earning. The application also allows leaders to aggregate and organize demand, as well as book services. Currently, both Notore and IFDC use the application, and 1,000 agro-dealers are now involved. Banks can also use the application to monitor their tractor loan portfolio and anticipate risks of default. This practice has been shown to improve revenues 50-60 percent, while also decreasing the costs of time.¹¹¹

Additional technologies and farm management concepts, such as satellite farming (i.e., precision agriculture), are also being explored to help farmers make better decisions and maximize productivity. Babban Gona is beginning to work with the Bill & Melinda Gates Foundation-funded STARS project to use Unmanned Aerial Vehicles to develop an imagery-based “content” for agricultural decision making through participatory on-farm trials and crop profiling. Farmers, scientists and other stakeholders explore various uses of field-level remote sensing for a future agricultural information service. The goal is that by recognizing crops within smallholder field boundaries, it will allow EAS to quantify planted areas per crop and to implement spatially-disaggregated services for optimizing resource use, agronomic operations and harvest management. This information allows for the development of field typologies, community, clientele and supplier profiling, improved yield forecasting and reduction in agricultural investment risk. As the field of remote sensing is still maturing, it is as yet unknown whether precision agriculture takes hold in Nigeria.

Community Engagement

Finally, EAS is concerned with community engagement, that is, land size and distribution, education levels, gender roles, demographics including age, community organizations (e.g., producer organizations) and capacity to collaborate. Here we focus particularly on how to reach women farmers with respect to EAS.

At the Stakeholders’ Consultative Forum for the new agricultural extension policy in late 2016, the consensus was that farmer-based organizations are fragmented, lacking in voice and in need of capacity building in both agricultural content and management and leadership of groups. The most successful farmer groups are found in the south-south and south-east regions. These are multi-purpose cooperatives, including several commodity groups and associations that engage in other social and economic activities beyond agricultural production (FMARD, 2016b).

On the other hand, a private sector stakeholder stated that farmers are more organized in the north because farming is the major economic activity, since there is no oil revenue, and, thus, farmers are

¹¹⁰ Donor/project stakeholder interview 16 January 2017.

¹¹¹ Private sector stakeholder interview 17 January 2017.

more experienced and tend to be progressive in their farming practices (i.e., practicing row planting.)¹¹²

In the NAERLS adopted village near Zaria, the men's group of farmers said their main motivation to form a group was that they realized as a group they would get better assistance from any source. They are planning to form an apex group with other farmer groups to give them a stronger voice for marketing their crops. They said their social relations have also been improved by forming the group.¹¹³

CONCLUSIONS AND RECOMMENDATIONS

This report has presented an in-depth analysis of the extension and advisory services system in Nigeria. Based on a literature review on the Nigerian extension system and interviews with a variety of EAS actors during the period November 2016 – January 2017, the report gives recommendations to improve EAS.

Based on the analysis of extension and advisory services in Nigeria, it is clear that some of the most pressing needs are for sustainability and scalability in Nigerian EAS, so that many producers can be reached by a well-coordinated pluralistic set of providers in a manner that is financially sustainable. In this regard, engaging the private sector and using ICTs can be of assistance. However, ICTs are really a stand-alone method or tool that must be incorporated into an effective system that also has supportive policies, optimal roles for different actors, appropriate governance structures, human and organizational capacities and other relevant outreach methods.

This moment is opportune to strengthen extension and advisory services in Nigeria, due to the private sector activity, renewed government interest and many options for investors to make to revitalize the extension system. The following recommendations and Annex 1 outline opportunities for future investment and collaboration under the USAID Feed the Future DLEC project.

Based on the analysis of the six characteristics of EAS in the results section, we now offer recommendations for improving extension in those six areas. The recommendations are intended for any EAS stakeholder interested to improve extension, be they federal and state governments, donors, private sector, NGOs or others. There are a number of existing assets to leverage for improving EAS:

1. Existing network of ADPs in each state and body of 7,000 extension agents
2. NAERLS as hub of content, coordination and training
3. Increased political will with federal government, exemplified in formation of Department of Extension a few years ago and establishment of N-Power Agro program
4. Economic urgency for increased foreign exchange through agriculture to make up for loss of oil revenues

¹¹² Private sector stakeholder interview, 21 January 2017.

¹¹³ Farmer group stakeholder meeting, 19 January 2017.

5. Large array of agricultural institutes and universities for content generation
6. 30,000 minimum additional staff available through N-Power Agro program
7. Major ICT system already in place for e-Wallet system

The recommendations are listed below by the six areas, followed in parentheses by the organization(s) that should lead.

Governance Structures and Policy Environment

This part of the EAS framework (Figure 1) is about the institutional set-up of EAS, or the “rules of the game” and deals with regulation and accountability of the EAS system to the clientele. We advise that all the recommendations under this section be owned by the public sector, which has the mandate to develop and implement regulations. The private sector has the ability to contribute, but in order to ensure ownership and sustainability, these areas need to be led by the public sector.

1. Clarify optimal roles of LGAs, state and federal governments as well as NGOs and the private sector through a legislated federal extension policy, financing government entities with an annual non-project based budget (FMARD). Helpful financing options from IFAD are included in Annex 2. The recent Consultative Stakeholder Forum for development of the new Agricultural Extension Policy suggested 70 – 80 percent of funding should be paid by the federal government (FMARD, 2016b). The following related actions were recommended by the Agricultural Extension Transformation Agenda:
 - a. “FMARD to seek the commitment of State Ministers of Agriculture through the National Council on Agriculture for the tripartite funding of extension by all the three tiers of government.
 - b. FMARD to seek the support of the Federal Presidential Council on Agricultural Transformation Agenda and the Federal Executive Council to negotiate with the States and Local Governments on the sharing formula for the funding of public extension service delivery.
 - c. Seriously consider setting up a dedicated tax fund derived from agricultural commodity imports into the country (say five percent) to be channeled to the extension services” (FMARD, 2012:125) (The Consultative Forum for the new Extension Policy recommended a tax on agricultural exports instead (FMARD, 2016b).)
2. Establish mechanism within NAERLS or FDAE to coordinate and regulate and/or certify public, NGO, farmer group and private sector extension quality (FMARD). This mechanism should identify what kinds of extension the private sector can do profitably in what geographic areas, ensure there is no duplication there with donor projects or government, and then determine what other areas government or donor support is required in order to bring farmer awareness and knowledge to a minimum level where the private sector can operate.
3. Revitalize the REFILS system to link extension, research, the private sector and farmers (see details in Annex 1) (FMARD).

Organization and Management Capacities and Cultures

This element of the EAS framework is about the capacity for the provision of different public and private sector advisory services, and the ways in which these services are managed within the respective governance structures. These elements are essentially the “players” of the game, their abilities, and the way they play. In a pluralistic system, this is a shared role between the public, private and civil society sectors.

4. Reform and expand extension agents’ basic training and continuing education to increase skills, reach and job motivation, including:
 - a. Establish minimum training standards paired with easy access to remedial training for women and men staff to avoid becoming a bottleneck.
 - b. Expand training content to reach beyond basic agronomy and into post-harvest processing and marketing of key crops, business skills and functional skills (such as mobilization, communication and facilitation)
 - c. Train NAERLS and/or selected ADPs on low-cost ICT-enabled extension strategies, as well as on how to train private-sector companies with demonstrated interest in extension to generate funds for NAERLS/the ADP (see details in Annex 1)
 - d. Establish knowledge and skill standards for all EAS providers (educational institutions, including the National Universities Commission and the National Board for Technical Education)
5. Establish performance-based management system for ADP staff linked to salaries and promotions, including:
 - a. A small number of tangible Key Performance Indicators (KPIs) linked to goals of extension (i.e., farmer satisfaction, adoption, productivity, welfare)
 - b. Rewards based on achieving certain targets (ADPs)
6. Leverage and equip N-Power staff to assist with Agricultural Performance Survey of NAERLS nationwide; this information could also be used for improving extension and other agricultural programs across the country by both the public and private sectors in Nigeria as well as donor projects (FMARD and NAERLS).

Advisory Methods

This area of the framework refers to the various ways to share extension content with clientele. Currently, innovations in new technologies and practices are being led by the private sector, thus we see a major role for the private sector to enable increased reach and inclusivity through various advisory methods.

7. Integrate NAERLS' Farmer Helpline with Cellulant's E-Wallet system to facilitate a public-private partnership that creates a platform combining input provision and comprehensive advisory services (NAERLS, Cellulant and FMARD). (See details in Annex 1.)
 - a. Public sector role – budget between FMARD and states to cover costs for

- operations for several years in coordination with donor(s), run significant marketing programs to ensure farmers are aware of service
 - b. Private sector role – create awareness of Farmer Helpline and sponsor certain messages or types of support from the Farmer Helpline and facilitate input-output aggregation and marketing linked with mobile money
 - c. Donor/NGO role – share costs for operations with government for several years, support government particularly on structuring content and delivery to ensure farmers and the private sector are eventually willing to pay some amount for it
8. Adapt Anchor Borrowers Programme to right-size loans for inputs, use group loans instead of individual loans and verify that people signing up are farmers by leveraging the existing Nigerian e-ID system. Expand extension under this program with ADPs and the private sector (FMARD).
 9. Set up SMS and IVR system to increase reach of EAS and disseminate crop- and geography-specific information to farmers on commodity prices, weather, agronomic tips and inputs availability, ideally building off or leveraging the existing e-Wallet system (all EAS actors) (see details in Annex 1).
 10. Pilot low-cost ICT-enabled extension directly with private sector companies and establish what level and kind of extension can be profitable and sustainable in the long-run (all EAS actors). This pilot may include short-term subsidization of extension providers in certain markets to bring the providers to minimum levels of education or awareness, after which private-sector extension could be profitable. (See details in Annex 1.)

Market Engagement

This area of the framework refers to the market elements that EAS can use to better serve farmers, such as aggregation, finance, price discovery, and input and output markets. There is a clear role for the private sector to lead the market engagement aspect of the EAS system, within the enabling environment provided by the government.

11. Develop a sustainable, ICT-enabled public-private extension model enabling NAERLS or ADPs to provide training to agribusinesses and other private providers (such as telecom and broadcast radio/TV operators) on ICT-enabled extension (all EAS actors) (see details in Annex 1).
12. Integrate (bundle) extension advice with other market services, like inputs, outputs, finance, transport and storage (public and private EAS).
13. Use ICTs such as IVR, to enable farmers to authenticate the quality of the inputs they purchase by entering a code printed in the inside of packaging; this could also sign users up to receive time-sensitive advisories related to what they purchased (all EAS actors).

Livelihood Strategies

This element of the EAS system refers to how EAS develops content to meet the unique needs of clientele and how gender roles impact farming strategies. This area has been predominantly focused on by the public sector. However, livelihood strategies are increasingly becoming more important for the private sector to consider as they are beginning to realize that providing a holistic, integrated package to farmers inspires brand loyalty.

14. Focus the content of extension programs on commodities and types of work that are socially acceptable and appropriate for women and youth – for example, raising chicken and goats, vegetable cultivation, basic processing of foodstuffs and include nutrition elements (all EAS actors with support from Gender and Youth Division of FMARD).
 - a. Adapt public extension curriculum to include information, practices, services, etc. more relevant to women and youth (NAERLS)
 - b. Facilitate and strengthen links between different government research institutes and universities that address issues of importance to livelihood strategies, such as Department of Health, Livestock, Agriculture, Environment, etc. (NAERLS)

Community Engagement

Community engagement refers to EAS services based on local social institutions, mechanisms to articulate demand and community psychosocial characteristics. In general, civil society is best placed to engage farmers and address this aspect of the EAS system because they are often closest to the farmers and familiar with the structures in which farmers organize themselves. As the private sector becomes more embedded in communities, through integrated EAS services, it may become more engaged in this aspect of the EAS system along with civil society.

15. Support N-Power program to help youth to join or establish profitable agribusinesses (FMARD with EAS providers). Ensure that selection criteria and training programs meet needs identified by the private sector for either employees or new businesses (FMARD). Support new businesses with seed capital (donors, other investors).
16. Strengthen agricultural clubs for secondary and university students, combined with online access to agricultural information and useful smartphone apps to engage the youth (state and federal agricultural with educational ministries).

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ANNEX 1. IFAD FUNDING RECOMMENDATIONS

Financing of EAS is a critical element to a functional EAS system. The information below was laid out in a report by FMARD to give options for sustainable financing mechanism for EAS.

- a. There should be review and adoption of the formula used in funding of the ADPs during the World Bank support era.
- b. The same percentage applied for allocation of federation account resources may also be adopted for contributory funding support for agricultural extension services by the three tiers of government.
- c. A percentage of the taxes paid by agro-based companies in the country should be set aside or allocated for financing agricultural extension services.
- d. The Agricultural Development Fund or Agricultural Extension Trust Fund should be created and legislated just like is the case in the educational sector.
- e. Adoption of public-private partnership as a funding mechanism for agricultural extension services delivery (FMARD, 2016b:59).

ANNEX 2. LIST OF AGRICULTURE-RELATED ICT PLATFORMS IN NIGERIA

From the Agricultural Transformation Extension Agenda (FMARD, 2012:74-75):

PUBLIC INSTITUTION	PROJECT
Federal Ministry of Agriculture & Rural Development (FMARD)	Strategic Analysis and Knowledge Support System (SAKSS)
Commercial Agricultural Development Project (CADP)	Farmers' Market Information Kiosk (FMIK)
FADAMA III	Farmer Information Knowledge Service (FIKS)
University of Agriculture (UNIAGRIC), Makurdi	Agricultural Portal (Cyber Extension)
National Agricultural Extension Research and Liaison Services (NAERLS), Zaria	Web & Mobile Phone Based Extension
Abuja Securities & Commodity Exchange (ASCE)	Market Information System (MIS)
Michael Okpara University of Agriculture, Umudike (MOUUAU)	Agricultural Portal
Nigerian Communications Commission (NCC)	
Galaxy Backbone Plc. (Galaxy)	General ICT Infrastructural Support Platform
Central Bank of Nigeria (CBN) / NIRSAL	Knowledge Incubation Kiosk (KIK)
Bola Ige Information Centre	
PRIVATE INSTITUTION	PROJECT
Agric. Mart Information System Limited (AMIS)	Farmers' Network & AMEX (Agribusiness Mobile Information Exchange)
Esoko Nigeria (Esoko), Lagos	Market information for Agricultural Trade facilitation
Notore Chemical Industries Ltd (Notore), Port-Harcourt	Customer Information Service

ANNEX 3. LIST OF INTERVIEWEES

ORGANIZATION	PERSON
African Development Bank	Dr. Ibrahim Amadou, Chief Agriculture Economist Ms. Ometere Omoluabi, Senior Agriculture Officer
Agricultural Services & Training Centers and Marketing Ltd, Plateau State	Mr. Isaac Ben Nun, General Manager
Babban Gona	Ms. Chinwe Osuji
Bill & Melinda Gates Foundation	Dr. Audu Grema, Senior Program Officer
Competitive African Rice Initiative/GIZ	Dr. Stephan Kachelriess-Matthess, GIZ, Head of Programme Dr. Andrew A. Efisue, Value Chain Sr. Operations Manager
Diamond Development Initiatives	Mr. Adamu Garba
Department for International Development (DFID)	Mr. Yawar Naemm, Private Sector Development Advisor Mr. Andrew Gartside, Private Sector Advisor (seconded to World Bank)
Federal Ministry of Agriculture & Rural Development	Dr. Andrew Kwahari, Senior Technical Advisor to the Minister of Agriculture
Federal Ministry of Agriculture & Rural Development, Gender & Youth	Mrs. Sugra Mahmood, Assistant Director Mrs. Karima Babangida, Deputy Director
Fortis Micro-Finance Bank	Mr. Jeremiah Akoyere Jakoyere, Business Development Finance Mr. Adewale A. Aderounmu, Executive Director, Development Finance Mr. Adesida Oluwafisayo, Head of Agriculture Finance
Foundation for Partnership Initiatives in the Niger Delta (PIND)	Mr. Dara Akala
Green Innovation Centers for the Agriculture & Food Sector (GIZ)	Dr. Annemarie Matthess, Coordinator Nigeria,
Hello Tractor	Mr. Jehiel Oliver, Founder
International Fund for Agricultural Development (IFAD)	Ms. Atsuko Toda, Country Program Manager
International Food Policy Research Institute (IFPRI)	Dr. George Mavrotos, Program Director Dr. John Mazunda, Country Program Manager
Japan International Cooperation Agency (JICA)	Mr. Umar Halilu, Program Officer
Kaduna State ADP	Mr. Alhaji Dauda Ashafa, Program Manager

Market Development in Niger Delta (MADE)	Mr. Olayemi Oluwakuyide, Technical Team Manager
National Agricultural Extension and Research Liaison Services (NAERLS)	Prof. Mohammed (M.K.) Othman, Executive Director Hajia Ashad Babale, Institute Secretary Prof. Immanuel Ikani, Deputy Director for Agri-Extension, Dr. Isuk Hamadz, Assistant Director of Extension Training and Outreach, Ingena Aolawa, Assistant Director for Research, Planning and Monitoring
NAERLS Adopted Village farmers meeting near Zaria	
National Agricultural Seed Council	Mr. P. Olusegun Ojo, Director General & CEO
Notore Chemical Industries Plc	Mr. Innocent Okuku, Group Head of Commercial Services Mr. Ibrahim Suleiman, Head of Agricultural Services
Olam	Mr. Reji George, General Manager for Nigeria
Private individual	Mr. Nosa James-Igbinador, Senior Consultant, Communication & Strategy
PropCom	Mr. Rib Kirby, Market Group Director
Sasakawa Africa Association	Mr. Sani Husaini Sagagi, Deputy Country Director Ms. Esther Afor Ibrahim, Theme Coordinator, Post-Harvest & Agro-Processing Extension Mr. Idris Saidu Garko, Thematic Coordinator, Crop Productivity Enhancement Mr. Gambo Abdulhamid, Thematic Coordinator, Monitoring, Learning & Evaluation Mr. Isaac Eni, Thematic Coordinator, Public-Private Partnership and Market Access Mr. Gambo Isa, Farmer groups
Seed Association of Nigeria (SEEDAN)	Mr. Richard O. Olafare, CEO SEEDAN, MD Savannah Seeds Mr. Olelola Folarin Sunday, Seed Production Expert & Project Lead Consultant
Tomato Jos	Ms. Mira Mehta, Co-founder
USAID Markets II project	Mr. Godson Ononiwu, Director External Relations Dr. Aliyu Samaila, Director Agricultural Productivity
USAID Mission, Abuja	Dr. Melanie Edwards, Agriculture Development Officer Dr. Osagie Aimiwu, Feed the Future Team Lead
USDA	Ms. Elise Solorio, International Agricultural Program Specialist Mr. Harold Tarver, International Agricultural Program Specialist
Vodacom	Ms. Zainab Olulana, Account Manager Mr. Bala Ado, Business Development Manager

	Mr. Abu Etu, Products Head
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ANNEX 4. PRIVATE SECTOR INVOLVEMENT IN EAS IN NIGERIA

Overarching learnings from the private sector actors in EAS are outlined below. In addition, lessons learned from specific private sector actors are included in the table below. Due to the uncoordinated effort among these entities, as well as the lack of a national registry, it is challenging to catalog all private actors within EAS and the specific EAS activities they are engaged in. Therefore, there are a number of actors in the table below for whom details on activities and learnings are not available. The important thing to note is that it is a growing sector and an important example of pluralism within extension and advisory services.

General learnings from private sector provision of EAS in Nigeria

1. Private sector actors see extension as a strategic play to understand their consumers' needs and better market their products. As such, private sector actors such as Olam, Notore and ASTCM are willing to contribute to EAS because they want to be more demand driven. However, they are not willing to fund it all. For a successful EAS system, we need public and private extension actors; both have roles to play and this is the beauty of a pluralistic system and an agricultural innovation systems approach.
2. Sustainability is an issue with donor-funded private sector EAS projects as they do not usually transition support to government or private sector and services typically end when the project ends.
3. The marketplace cannot sustain extension on its own unless the extension is product-specific with a simple message.
4. Farmers will not pay for information, but they will pay for products. Therefore, extension needs to be an embedded service.
5. Mechanization is not being used by farmers due to lack of access to finance.
6. Extension can be sustained financially in high value (cash) crops, like horticulture.
7. Inputs on credit will often have lower repayment rates if given to individuals versus as a group loan because the peer pressure will encourage higher payback rates.
8. Private-sector actors often include extension activities and marketing within the same department and budget, which has advantages and disadvantages. The benefit is there will always be a budget for it. The disadvantage is that extension services are for solely the interest of the for-profit enterprise and are not demand driven

PRIVATE SECTOR ACTOR	ACTIVITIES	LEARNINGS
Africa Exchange	Public and private commodity exchange for storage and handling. developed a smartphone application to distribute price and technical storage information for grains to farmers, but this does not seem to have reached any scale yet.	
Airtel 3-2-1 service	Launched in Nigeria in November 2016, this is a free service that provides information to mobile phones on-demand, on agriculture, commodity prices, weather and other information in five national languages: English, Hausa, Igbo, Pidgin and Yoruba. The public service messages are created and curated by committees convened by Human Network International (HNI); CRS is the content provider on agriculture, Weather Bug-Earth Networks on weather, and Novus Agro on commodity prices. To make the service work, Airtel is delivering the 3-2-1 Service content for free to subscribers, while HNI will launch the service, develop IVR decision trees and train in-country content developers.	<ul style="list-style-type: none"> ◆ Since the service launched recently, it is too early to have results on how well it is working and lessons learned.
Anchor Borrowers Programme (ABP)	ABP is a public-private partnership launched by the Central Bank of Nigeria (CBN). As of December 2016, the program claims to have reached nearly 220,000 farmers across 17 states.	<ul style="list-style-type: none"> ◆ Guaranteed buyer schemes (also known as outgrower schemes) are tricky because of side selling (i.e., farmers will sell to the highest bidder, if the guaranteed buyer price is too low). There are a few solutions to side selling: (i) using the value chain approach; having a tripartite agreement (e.g. Fortis, farmers, offtakers); and (iii) offtakers buying at prevailing market price not guaranteed price). ◆ Farmers hold onto harvest until prices go up because prices are better later in season, but millers (e.g., Olam) need harvest at certain time in season and either do not/cannot wait. Only 60 percent of farmers sold to Olam by their deadline at the end of December 2016. Anecdotally, other offtakers experienced much worse results, with less than 20 percent of farmers delivering on time. ◆ The amount of credit given for inputs must be carefully calculated (i.e., given the farm plot size and % of land used for a specific crop, what would be the actual cost of inputs). This was not done in the case of the

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Arla Foods	Group of dairy cooperatives	
Babban Gona	Works in maize production (sold on to Nestle) and rice production. Receives donor support and provides a private-sector channel for cost-effective delivery of enhanced agricultural technologies and end-to-end services that optimize yields and labor productivity, while simultaneously improving market access. Babban Gona works with 10,000 farmers in Kaduna and Kano states, and 5,000 in Sokoto and Zamfara states.	

Cellulant	In collaboration with the government, Cellulant is the developer of the e-Wallet system that is used to distribute some fertilizer subsidies in Nigeria. Cellulant is working to expand their platform (Agrikore) from unique farmer IDs to a broader service, including connection to inputs and markets, aggregation, and extension and advisory services. Given the 15 million farmers already registered with the platform, there is a significant opportunity to leverage the existing platform for extension.	
Dangote	Working in rice production	
DFID-funded projects	<p>DFID's extension model involves not working with GoN. They work solely with private companies, such as Syngenta, SARO Agro Sciences, Springfield Seeds, and Candel Seeds. DFID shares costs and risks to provide and help build rural distribution networks by covering 50 percent of costs for one year. However, if the private sector partner is not recovering costs at the end of that year, DFID will drop them. DFID is working with tractor initiative. (There is an acute tractor shortage in the country with only 20,000 tractors in the whole country.)</p> <p>MADE: Implemented by DAI. Total funding amount: GBP 14 million. Project period: ends February 2018. The project works with 50,000 farmers and partners with a variety of input companies. MADE identifies retailers through the input companies to provide extension to farmers. They look for small retailers in rural areas, who will be motivated to learn and explain new concepts to farmers. MADE is considering partnering with some cocoa companies, who have expressed interest to collaborate with MADE and go to villages where MADE has already conducted extension. MADE focuses on cocoa, cassava, oil palm, maize, rice and vegetables.</p>	<p>General Learnings from DFID:</p> <ul style="list-style-type: none"> ◆ Linking extension with market systems, specifically inputs, is ideal for sustainability. Linking extension with outputs is risky and sustainability is less likely due to volatile prices and externalities such as weather challenges (drought, floods, etc.). ◆ Government input subsidies distort the market and discourage private sector involvement. For example, when the global price for oil dropped and Nigeria's revenue consequently dropped as well, the government was not able to continue all of their subsidy programs especially the fertilizer subsidy. This drop provided an opportunity for private sector actors (e.g., Notore) to step in. ◆ Voucher programs and input subsidies are susceptible to political capture, abuse and corruption. ◆ Specifically related to MADE, input extension is better than offtaker extension because: (i) public extension agents already exist for inputs; (ii) farmers are also already looking to input companies for EAS; (iii) offtakers are not well organized in Nigeria with the exception, possibly, of the cocoa value chain; (iv) offtakers are limited in their geographic spread and in how many crops they buy; (v) offtakers are interested in only a transactional relationship with farmers; and (vi) offtakers do not necessarily have expertise and have to either build their expertise or contract it out.
Market Development for the Niger Delta (MADE) project		
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<p>&</p> <p>Promoting Pro-poor Opportunities in Commodity and Service Markets (PropCom)</p>	<p>PropCom: Implemented by Palladium. Total funding amount: GBP 27 million. Project period ending in 2017, possibility of renewal. PropCom worked to set up an entirely new network of village-level entrepreneurs (VLEs) or village promoters with the fertilizer company Notore, who made a commission off the inputs they sold. Since they were working in less aware areas with less experienced people, the VLEs for PropCom required subsidization for the first year because they usually do not sell anything until the</p>	

Harvest Fields	Trains sprayer service providers and farmers directly on crop protection and through CropLife (an international agricultural industry association). Working without donor support.	
Heineken	Working in sorghum production.	
Notore	Owns and operates the first urea plant in sub-Saharan Africa. They worked with public extension agents in 2008 to 2009. They trained and paid the agents, and set up demo plots. However, during a temporary cash flow shortage with Notore, the agents stopped working and the demo plots died. After that Notore decided the public extension agents were unreliable and started working with PropCom to develop their own internal extension workforce. Over the last five to six years, they have trained 3,000 VLEs, although only around 850 are currently active.	<ul style="list-style-type: none"> ◆ Their village promoters (i.e., extension agents) are not expected to be profitable in the first year so some entity has to subsidize their activities for at least one year.
Olam	<p>A multi-national food company and one of the leading players in the global rice trade with involvement across the entire rice value chain from origination to distribution. Working with USAID Markets II and IFAD. Runs the largest rice farm in Africa in Nassarawa State and source part of their rice from million from farmers in Nassarawa, Benue and Kaduna. Targeting to source 20-25 percent of total mill production directly from farmers.</p> <p>In Benue, Olam works with IFAD, which, like Markets II, tends to focus on training lead farmers in a manner that does not necessarily trickle down. The difference is that IFAD provides grants for farmers, which are popular, though not sustainable. Specifically, IFAD provides a grant for 50 percent of the cost of inputs. Olam provides a loan for 20 percent of the cost of inputs, and the rest is paid by the farmer. This program will be expanded to 8,000 – 9,000 farmers, and the focus is more on coordinating farmers and creating awareness, rather than providing advice or training. Training programs for</p>	<ul style="list-style-type: none"> ◆ Olam found that some risk share with farmers works better than fully guaranteed loans for farmers. They worked with First City Monument Bank (FCMB) in Nassarawa state to lend to farmers, where FCMB took 25 percent of the risk, the Central Bank of Nigeria 50 percent, Olam 20 percent and farmers 5 percent. Elsewhere, the loans were a 50 percent risk share from the Bank of Agriculture and 50 percent from the Central Bank, which did not work as well. ◆ A private sector stakeholder present at the Kaduna ADP meeting said that agri-input dealers cannot take the risk of lending to farmers, even though it would help more farmers to buy. ◆ Olam stated they are willing to share costs with other actors for extension programs. The country manager emphasized the importance of recording detailed data on each farmer, providing site-specific fertilizer, ensuring quality demo plots are set up and most importantly reaching beyond lead farmers, as lead farmers do not really train other farmers much.

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Seed companies: Premier Seeds, Dizengoff, Manoma Seeds, Maslaha Seeds	<p>These are seed companies that work with Sasakawa Global 2000. Sector at a nascent stage. Council is thinking of e-certification. Quality of seed the biggest issue but, also, policies are not right. Capacity and professionalization of seed regulatory body an issue. There is a need to train quality control officers, transporters, agro-dealers - the whole value chain. There is also a problem with the link to research. Even if they get seed, farmers need access to funds and there is no foundation seed in Nigeria. Seedan company uses contract growers.</p>	<ul style="list-style-type: none"> ◆ There is a lack of quality seeds, and lack of foundation seeds, particularly for rice. ◆ No seed company in Nigeria is creating a means for farmers to verify authentic seeds. This might be an opportunity for seed companies to support this service. ◆ Lack of EAS and knowledge also means that sometimes farmers claim products are fake when, in actuality, the farmer is not using the input properly. ◆ The right policies around seeds are not in place. ▲ Capacity and professionalization of the seed regulatory body is an issue

USAID Markets II	<p>Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites program - Phase II (MARKETS II), which contributes approximately US \$64 million to work in 25 states on specific value chains, ending in August 2017. Along with Sasakawa Global 2000, Markets II provides comprehensive training (workshops conducted on pre-season, post-harvest, group formation and dynamics, and leadership skills to build capacity) and give stipends to select extension agents working on their projects, which has boosted enthusiasm and enhanced results.</p> <p>works in seven commodities: cocoa, aquaculture, rice, sorghum, cassava, maize and soybean.</p>	
Vodacom	<p>Private mobile operators. implementing their Mezzanine product with the Kaduna state government. Mezzanine is an information technology (IT) solution for African governments across health, education and agriculture that was previously implemented in Kenya and Tanzania. They have already implemented the health module in Kaduna and are working on the education module now. The agriculture module, the Connected Farmers platform, is intended to give farmers access to markets, information (including market prices and which inputs to get and where) and finance (including input vouchers). They intend to gather detailed information on each farmer and register offtakers and input suppliers, then make that information available by giving farmers smartphones. Vodacom is largely reliant on the state government for information and direction of the project, but no funds are available yet for agriculture. Vodacom is looking for donor support to scale up the project. They have also announced an expected launch in March 2017 (Matshelane, 2017). Long-run sustainability is not clear.</p>	