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STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS OF THE NIGERIA AGRICULTURAL TRANSFORMATION AGENDA (ATA)

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Abstract

Agricultural Transformation (AT) requires a new and different approach to policy making and implementation. It entails search by government for greater integration and co-ordination, looks for an approach that is characterized by greater partnership between federal, state and local government, economic entities, private industry and other community groups. The process involves diversification in the sector to meet changing domestic and trade demands. This study was mainly contents review of relevant literature and use of situation analysis. We examined agricultural policies changes in Nigeria and draw some lessons from successful agriculturally transformed countries. The results show that, bypassing small farmers during the process of AT is capable of marginalizing a large group of the rural population and cause social tensions. AT requires a comprehensive long term strategy that needs to be supported by long term commitment from the government and international development partners. The various steps Nigeria had taken in its AT process are necessary but not sufficient conditions for a successful transformation. Successful AT must be broad-based with efficient infrastructural investments in roads network, irrigation, consistent energy supply, high-speed and affordable communications, clear and consistent long-term policies, good working relationship among ministries and governmental bodies, effective rule of law, and good adaptation and mitigation measures consistent with sustainable development.

Keywords: Transformative function, Sustainable development, Situation analysis, Value chains,

Introduction

Agriculture is a major driver of the Nigerian economic growth and a crucial sector in achieving vision 20:2020. Nigeria is yet to be self-sufficient in food production but still import food at an unsustainable rate of 11% per annum. The Nigeria agricultural sector has continued to be plagued by a host of challenges ranging from low crops yield, policy inconsistencies, inefficient and outmoded production techniques, low quality of produce, heavy post-harvest losses, limited access to mechanization and quality inputs, limited value-addition and facilities to credit, irrigation, storage, processing and inadequate extension services. The past reforms of the sector over the years have been characterized by lack of continuity, consistency and commitment (3Cs) to agreed policies, programmes and projects as well as an absence of a long-term perspective. Transformation of the Nigeria agricultural sector is therefore a necessary instrument if the country is going to achieve a 3-fold increase in domestic agricultural productivity by 2015 and 6-fold increase by 2020. Agriculture transformation is not only about food but also about the economy. The dimensions of this

transformation are not only economic but also include formal and informal institutional changes which are sociological or political in character (Colman and Nixon, 1994). Agricultural Transformation Agenda (ATA) promises to utilize agricultural value chain approach which had received little attention in some developing countries including Nigeria (UNIDO, 2009). The value chain approach includes: input supply, service delivery, aggregation of output and processing.

This study analysed the Strengths, Weaknesses, Opportunities and Threats (SWOT) ATA in Nigeria by responding to questions such as whether Nigeria has any lesson to learn from transformation theory, and from other countries that have successful agricultural transformation experiences? What are the country's broad options to achieve agricultural transformation in 2011 to 2015?

Specifically, we reviewed the major concepts (agricultural transformation, and agricultural value chain and its components), draw major lessons from the past agricultural reforms in Nigeria and state the implications for future development strategies. We examine the framework of the ongoing ATA and draws out some lessons from countries that have successfully transformed their agriculture using similar approaches. Finally, we provide new insights into prospective agricultural transformation in Nigeria.

The Concepts of Agricultural Transformation and Value Chains

Agricultural Transformation: Agricultural transformation is characterized as a process of sustainably modernizing agriculture and such a process is often measured by significant improvement in land and labour productivity, greater market-orientation and production diversification, as well as increased domestic and international competitiveness (Diao, 2010). Agricultural transformation is the process of converting household-oriented, subsistence-type structures (that is, decision-making units in rural households that are concerned with production primarily for home consumption and subsistence needs and that have relatively few and highly imperfect market connections to the urban economy and to world markets) to commercial units that have highly efficient linkages to the urban and world economies (Timmer, 1988). Along the same line, Staatz (1998), sees agricultural transformation as the process by which individual farms shift from highly diversified, subsistence-oriented production towards more specialized production oriented for the market or other systems of exchange (e.g., long-term contracts). Agricultural transformation is a process based on significant long-term productivity increase leading to increase in people employed in agriculture and releasing labour to be transferred to other sectors of the economy (Timmer, 2009). Ikpi (1993) in his own opinion; looks at agricultural transformation as involving, acceptance and increase use of improved technology, increase in farm sizes, investments in agricultural production and processing, whether it is consumption-oriented, or commercial-oriented and response to prices that leads to desirable technical change. The process involves a greater reliance on input and output delivery systems and increase in integration of

agriculture with other sectors of the domestic and international economies. Agricultural transformation is dependent upon investment in agriculture, and this investment will pay off if “the man who farms has the opportunity and incentive to transform the traditional agriculture of his forebears (Schultz, 1964). Institutional change in general and market development in particular are necessary parts of transformation. Most economists agree that the quality of institutions can explain differences in growth and transformation processes by shaping incentives to develop new technologies and innovation (Easterly and Levine 2003; Rodrik, et al., 2004). The onset of the transformation process however, does not necessarily require extensive institutional reform; rather, institutional reform should be seen as an endogenous part of the transformation process (Rodrik, 2003).

Value Chains: The value chain literature is diverse and confusing but principal distinctions can be made. The concept of value chain analysis was popularized by Michael Porter who analysed firms’ competitiveness in a context where products are transformed by adding value step-by-step until the products finally reach the consumers. Since these works, the value chain approach has diffused into a wide array of scientific studies and practical development approaches and nowadays constitutes an important concept complementing other development approaches such as enterprise development, sectoral development, as well as territorial or integrated regional development. For instance, the United States Agency for International Development, uses a value-chain approach in its work to support the development of microenterprises in developing countries (USAID 2010); the United Nations Industrial Development Organization had also employed a value-chain approach to capacity building for market access and development in developing countries, including for agrofood chains (UNIDO 2009, 2010); the International Labour Organization (ILO 2010) has a Value Chain Development program as part of its job creation and enterprise development department that seeks to develop value chains that “channel more benefits to the poor and create more jobs effectively” (ILO 2010; Herr and Muzira 2009). In addition, Gammage (2009) developed a gender-sensitive form of value chain analysis that identifies how many men and women are involved in the different activities in the chain and how the different marketing activities are targeted to different genders. Bolwig *et al.* (2010) have also developed a conceptual framework to integrate poverty and environmental concerns more fully into value-chain approaches to development.

Value chains have both structural and dynamic components. The two core concepts embedded in value chain are “chain” and “value”. Value chains are mechanisms that allow producers, processors, buyers, sellers, and consumers to be separated by time and space. The chain component of value chain refers to a supply chain. In agriculture, a supply chain comprises the processes and actors that take agricultural products from production on the farm - including the inputs into that production - to the fork of consumer, and to its disposal as waste (Hawkes, 2009). Focusing on a single commodity like rice, the supply chain involves all the operations starting from the inputs into the raw materials and incorporating each of the transformations required to turn it into the final product (Hawkes and Ruel, 2011).

Agricultural value chain therefore encompasses the full range of activities (Figure 1), what and where value is added in the chain by these activities, and actors involved in adding value through their inputs or services as it transforms from the farmer's field to the consumer's table and disposal after use (Kaplinsky and Morris, 2001). Value chains include input suppliers, producers, processors and buyers and supported by a range of technical, business and financial service providers. When value is added to the agricultural product as it passes through the chain by value-adding activities, the process is known as value addition.

The main aim of a value chain is to produce value added products or services for a market by transforming resources and use infrastructures within the opportunities and constraints of its institutional environment. Value chain approaches identify why foods are not available in specific communities and identify and implement solutions to break down these constraints. Value-chain analysis in agriculture is used to quantify the costs, profits, returns, and prices of the food commodity as it passes through the chain, as well as who captures the value (Hawkes and Ruel, 2011). The entire chain is also affected by a range of crosscutting inputs and processes, including natural and human resources and capital, technology, and policy. It incorporates productive transformation and value addition at each stage of the value chain. Value addition results from diverse transformational and marketing functions including production, bulking, cleaning, grading, packaging, transporting, storing and processing. Value added is created at different stages and by different actors throughout the value chain. Value added may be related to quality, costs, delivery times, delivery flexibility, innovativeness, etc. The size of value added is decided by the end-customer's willingness to pay. Opportunities to add value depend on a number of factors, such as market characteristics (size and diversity of markets) and technological capabilities of the actors. Moreover, market information on product and process requirements is a key to being able to produce the right value for the right market. In this respect, finding value adding opportunities is not only related to the relaxation of market access constraints in existing markets but also to finding opportunities in new markets and in setting up new market channels to address these markets. The transformative functions can either be done by the value chain actors themselves as part of their business, or as service functions by service providers at cost or for free. Value chain activities are not isolated from one another. Rather, one value chain activity often affects the cost or performance of other ones. Hence, value chain analyses need to understand the dynamics of how demand is changing at both domestic and international markets, and the implications for value chain organization and performance.

One of the most common applications of the value-chain approach to pro-poor economic development has been to agriculture. This is perhaps not surprising given the large proportion of poor people who work in agriculture, their vulnerability to the consequences of global agrofood restructuring, and their problems of market access. Organizations such as USAID (2010), FAO (2010), IFAD (2010a, b, c), UNIDO (2009), ACIDI/VOCA (2009), and Winrock International (2010) are increasingly applying a value-chain approach to their agricultural development projects. The basis of these approaches is that poor farmers will benefit if they can appropriate a greater amount of the returns accruing from the chain, particularly in light of the differentiation strategies pursued by global agribusiness.

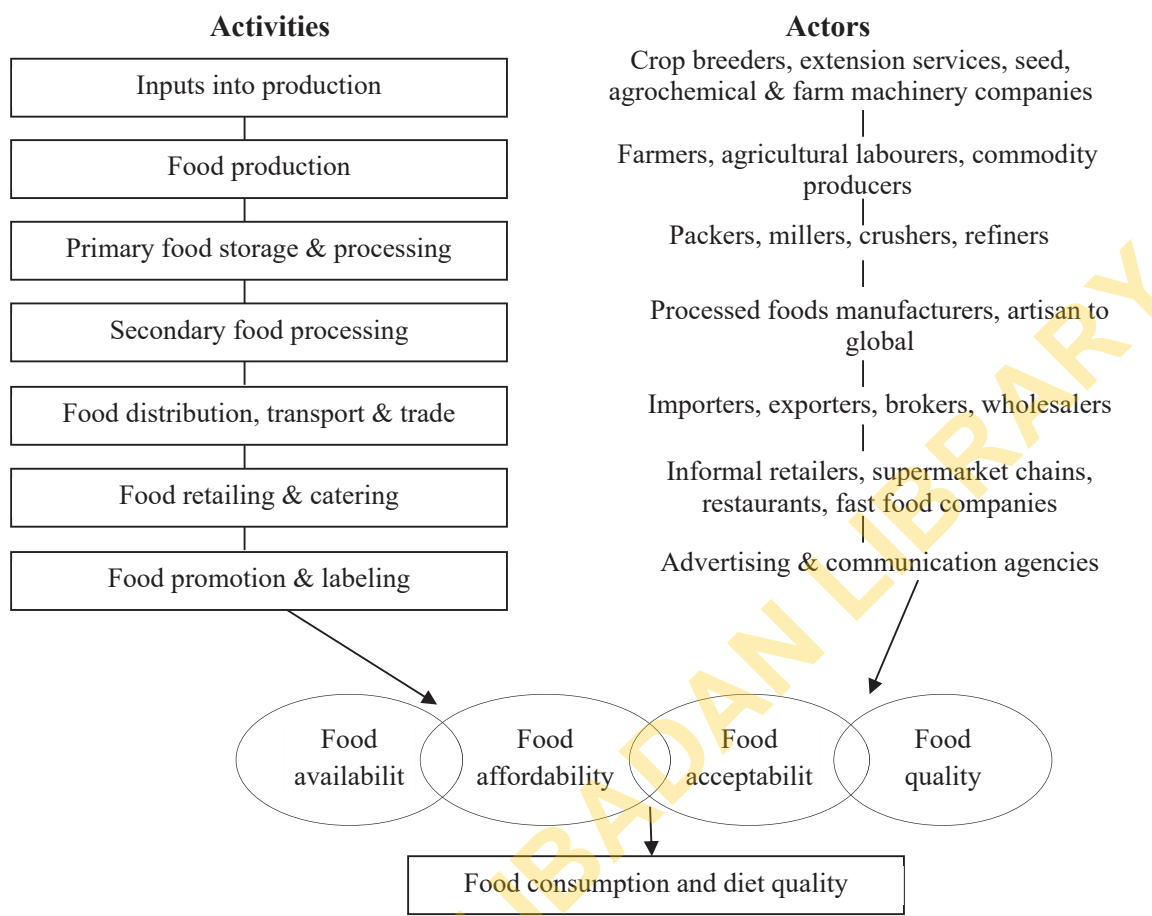


Figure 1: A simplified representation of a food supply chain

Source: Hawkes and Ruel (2011). Value Chains for Nutrition. A paper presented at 2020 conference paper 4: Leveraging Agriculture for Improving Nutrition and Health February 10-12; New Delhi, India.

Methodology

The study involved desk review of relevant literature such as journals, technical documents, government gazettes, Central Bank of Nigeria (CBN) annual reports and bullions, published materials from the National Bureau of Statistics and the National Planning Commission (NPC), among others. Internet resources were also consulted. Analysis of the relevant information took the form of content reviews and assessment of research findings. We employed Situation Analysis specifically, the SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis to analyze the threats and weaknesses of ATA.. Simple comparative approach was also employed to analyse agricultural transformation that have taken place in some countries from which important lessons were drawn.

Results of Findings and Discussions

The Paradox of the Past Agricultural Policies and Programmes Reforms in Nigeria

The basic policy that guides the agriculture sector is the new agriculture policy (2001). It replaced the 1988-2000 agricultural policy. It covers a wide range of issues which affect and determine agriculture outcomes and states government policy on them. The policy outlines government position on commodity pricing, agricultural trade, exchange rate, agricultural land, food production, industrial raw material crops, agricultural extension, agricultural credit and insurance, rural bank deposits, produce marketing, commodity storage and processing, agricultural cooperatives, water resources development, agricultural mechanization, rural infrastructure, agricultural statistics, agricultural investment and advisory services. A key aspect of the policy was that, it assigned supportive roles to the government while investments in the sector are to be left to private sector initiative. In addition to the new agriculture policy, other policies to guide agriculture related activities include the National policy on integrated rural development and the national policy on food and nutrition. To accelerate agricultural transformation, it is first necessary to understand the agricultural sector's initial condition, past reforms and programmes.

There are evidences that Nigeria had formulated quite a number of agricultural policies to guide the agricultural sector and make the country self-reliance, self-sufficient through increase in productivity of good quality exportable crops, modernization of agricultural activities, and creation of employment opportunity. But while some were successfully implemented, some have been abandoned; others have been restructured with only few still in place. Among the past Nigeria agricultural reform policies/programmes are: the farm settlement scheme; Agricultural extension and technology transfer policy; National Seed Service (NSS) in 1972; Agricultural co-operatives policy in 1973; National Accelerated Food Production Programme (NAFPP) and Agricultural Development Projects (ADPs); centralization of fertilizer procurement and distribution policy in 1975; water resources and irrigation policy which brought about the establishment of eleven River Basin Development Authorities (RBDAs) in 1977; Agricultural and Rural Management Training Institute (ARMTI); Trade policy on abolition of export duties; Agricultural Credit Guarantee Scheme Fund (ACGSF); Agricultural co-operatives policy in 1979; Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) now Nigeria Agricultural Bank; Agricultural commodity marketing and pricing policy in 1977 which led to the establishment of six national commodity boards; mandatory sectoral allocation to agriculture. Other past policies and programmes include: Operation Feed the Nation (OFN); Green Revolution Programme; Land use policy in 1978. the Directorate of Foods, Roads and Rural Infrastructure (DFRRI); Nigerian Agricultural Insurance Company (NAIC); Trade liberalization policy and abolition of export duties; National Agricultural Land Development Authority (NALDA); Agricultural mechanization policy of 1971 and 1975 which was instrumental to the creation of the Ministry of Science and Technology and the establishment of some Universities of Science and Technology and other specialized Universities for Agriculture, National Centre for

Agricultural Mechanization (NCAM) in 1990 and rural banking scheme. The existence of agricultural research policy in Nigeria has led to the establishment of more than 14 agricultural research institutes such as the National Root Crops Research Institute (NCRI). There was also policy that eliminated price control and commodity boards, we also have the agricultural input subsidy policy on fertilizer, seed, agro-chemicals and tractor hiring services. In recent time, Nigeria initiated the Special Programme on Food Security (SPFS) (now National Programme on Agriculture and Food Security NPAFS), the presidential initiatives on specific agricultural commodities, National Fadama Project, Fish farm estate development, south-south cooperation initiative and Nigeria-France project on agricultural development, the economic reform called National Economic Empowerment and Development Strategy (NEEDS I and II) programme in 2004 and 2007 respectively to encourage private sector participation in the development of the economy and to influence improvement in the production, processing and distribution of agricultural commodities. In 2008, there was the 7-point agenda of which the major policy offshoots were the National Food Security Programme and the five point agenda. The main agricultural goals enunciated under the agenda are diversified economy, food security, employment generation, economic linkages, exports and poverty reduction. It acknowledges that low productivity, low quality of private sector investment, lack of domestic and international competitiveness, weak domestic policies and institutions, inadequate funding and lack of organized land titling and tenure as the main challenges of agricultural development in Nigeria. The key agricultural elements of the agenda are land reform, commercial agriculture, irrigation development, institutional support and market stabilization. Under the commercial agriculture programme, arable land was to be developed in the states for use by well-trained and motivated commercial farmers, who are to cultivate carefully selected ecologically suitable and commercial market-responsive crops. The federal, state and local governments are to play complementary and reinforcing roles. The National Food Security (NSF) Programme document was to “ensure sustainable access, availability and affordability of quality food to all Nigerians and for Nigeria to become a significant net provider of food to the global community.

However, while many of these policies and programmes were once initiated, many of them have either been merged through restructuring or scrapped due to factors such as political pressure, change of regime, instability in funding (Idachaba, 2000). For instance, Federal Agricultural Coordinating Unit (FACU), the Agricultural Projects Monitoring and Evaluation Unit (APMEU) and Projects Coordinating Unit (PCU) have been scrapped and later transformed into the National Food Reserve Agency (NFRA). The Nigerian Agricultural and Co-operative Bank (NACB) and the Peoples Bank and the Family Economic Advancement Programme (FEAP) were sometimes ago merged to form the Nigerian Agricultural Co-operative and Rural Development Bank (NACRDB) and now the Nigeria Agricultural Bank. The National Agricultural Land Development Authority (NALDA) was scrapped with its functions merged with the rural development department. The implication of these findings is that, factors that have negatively affected the survival of other programmes and policies in Nigeria are capable of affecting the ATA if necessary steps are not taken.

The Nigeria's Strengths and Opportunities to Achieve the Past Agricultural Reforms and the Missing Links

The results of situational analysis of the Nigeria agricultural sector with the Strength, Weaknesses, Opportunity and Threats (SWOT) analytical approach show that many of the Nigeria agricultural policies and programmes were good. Nigeria has untapped agricultural potential with about 84 million hectares of arable land but only 40% utilized; 279 billion cubic meters of surface water beside ground water, and untapped irrigation potential with 3 of the 8 major river systems in Africa (Figure 2) and ample rainfall (Akinwunmi, 2012a). The country is also endowed with diverse and rich vegetation capable of supporting a large livestock population, and an extensive coastal region that is very rich in fish and other marine products. As part of the weaknesses, Nigeria mainly provide raw agricultural commodities to world markets rather than been involved in processing/value addition. Nigeria set aside on annual basis proportion of the national funds to support agricultural production inputs such as

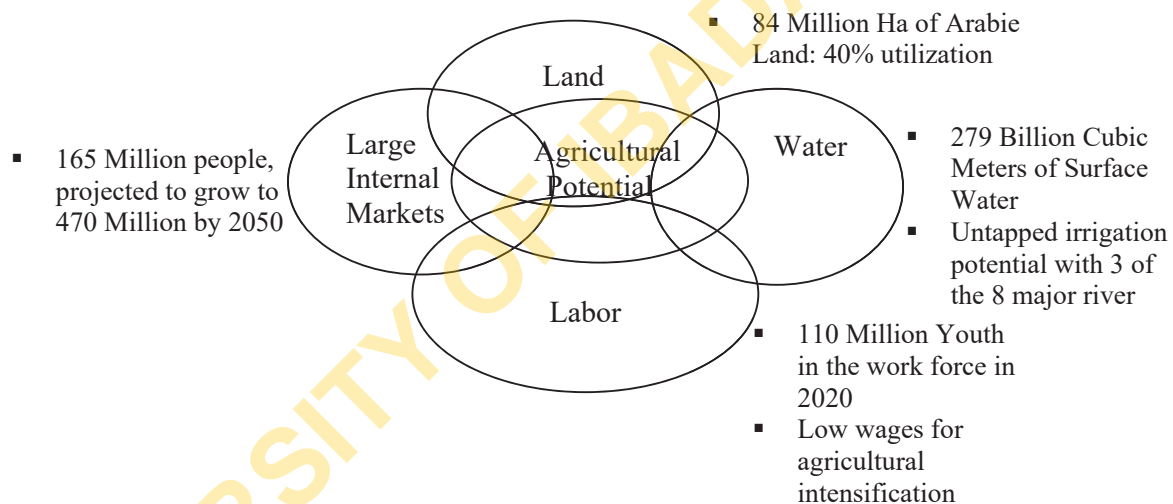


Figure 2: Nigeria Untapped Agricultural Potential

Source: Akinwunmi (2012a). "Unlocking the Potential of Agriculture in sub-Saharan Africa: Nigeria's Transformation Agenda for Agriculture". A paper presented at the symposium on "growing food: New places, new technologies" Johns Hopkins University School of Advanced International Studies April 17th 2012

seeds and fertilizers, but with little attention to the value chains by which agricultural products reach final consumers and to the intrinsic potential of such chains to generate value added and employment opportunities. Many of the good policies have no effect on the sector because of policy instability/inconsistency, policy somersault, lack of policy transparency, poor coordination, poor implementation and mismanagement of policy instruments owing to high level of corruption in the system, poverty, effects of climate change, inefficient energy supply, low level of infrastructural development, non-competitive nature (owing to non-

standardized agricultural product quality) of agricultural products from the country in the export market, low government investment in agricultural sector (less than 3% of annual budget since 2003) against the government commitment at Maputo of 10% target. Other weaknesses include: Nigeria weak rule of law, problem of insecurity and fair competition discouraging private sector development. Modern inputs used in agricultural production are often not produced locally. Fertilizers are imported into Nigeria, making the country agricultural sector more import-intensive. In addition, many modern inputs (e.g. improved seeds) are often location-specific.

The Framework of the Nigeria ATA and the Level of Implementations

The vision of the ATA is to achieve a hunger free Nigeria through an agricultural sector that drive income growth, accelerate achievement of food and nutritional security, generate employment and transform the country into a leading player in global food markets and to grow wealth for millions of farmers. The agriculture transformation accordingly was necessitated by the fact that, the entire human population of Nigeria has doubled in the last 30 years from 80 Million in 1982 to 165 Million in 2012, with a projected figure of 450 Million by 2050; the percentage of the population in urban areas has also doubled in the last 40 years from 24% to 49%, the increased population has led to increase in meat and fats consumption (food demand); over 4 million youths are entering the workforce every year; about 50% vegetables and fruits, 30% tubers and roots and 20% grains suffer for postharvest losses (Akinwumi, 2012b). So, the agricultural transformation is designed to make the agricultural sector a business project against development project through private investment in the sector, and execute integrated projects via value chain processes (integrating food production, storage, food processing and industrial manufacturing), generate employment, and transform the country into a net exporter of agricultural commodities. The ministry of agriculture in effort at implementing and achieving the transformation objectives has developed four key principles in executing the programmes. The first principle called 'subsidiarity' which touches every part of the country's agricultural value chain simultaneously. The second approach, involves working within a framework of strategic partnerships with the private sector, civil society and particularly farmers. The third principle is to treat agricultural endeavour as an investment which must generate return like any other viable business, while the fourth focuses on using bottom-top approach to engender accountability and delivery of results in the entire programme.

In order to facilitate the actualization of government vision for the agricultural sector, Agricultural Transformation Implementation Council has been initiated and headed by the president. Found in the council are: Agricultural Value Chains Group whose focus is on increasing the productivity, value addition and linkage to markets for all priority agricultural commodities; Agricultural Infrastructure Group made up of the Ministries of Agriculture and Rural Development, Water Resources, Works, Aviation, Power and Transport working together to stimulate private sector investments through increased provision of public goods for strategic value chains; Agricultural Finance and Investment Group whose focus is on

developing conducive environments to stimulate private sector investments along strategic commodity value chains as well as leveraging commercial bank financing into agriculture at affordable rates.

In efforts to implement the ATA, Nigeria government has established a Nigerian Seed Venture Capital Fund with the goal of raising the use of hybrid seeds from 8,000 metric tonnes to 1,000,000 metric tons, per year. Another facility introduced to boost agriculture is the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) to de-risk agricultural financing and mitigate against the impact of natural disasters on losses of agricultural investments by facilitating low interest credit to farmers through commercial banks and the liberalization of the insurance sector to increase farmers access to cost effective agricultural insurance schemes in the country. The ministry of agriculture has established 18 Staple Crop Processing Zones (SCPZ) as a cluster-based value chain strategy to attract private investors to set up food processing plants in areas of high food production, reduce current high levels of post-harvest losses, add value for increased local content of foods, link farmers in clusters to food manufacturing plants, establishment of a national farmers data base. The Federal Government is establishing marketing corporations to facilitate marketing of agricultural commodities. The marketing corporations which will be owned by agricultural value chains and run as private sector-led institutions are to coordinate the production, investments, grades/standards, market price stabilization etc for all value chains in Nigeria. As part of government effort for a successful transformation through the value chain approach, over 18 High Quality Cassava Processing Plants have been imported by the government. The plants will process 1.3 Million metric tons of cassava annually. About 137 Small Medium Enterprise (SME) cassava flour mills are being upgraded across the country, with capacity of 63,000 MT per year (Federal Ministry of Information, 2012).

Federal Government has approved ₦30 billion for the implementation of Growth Enhancement Support Scheme (GES) to make improved inputs available to small scale farmers at 50 per cent subsidy (Adesina *et al.*, 2011). The scheme is to improve the availability of fertilizer to the farmers, improve the accessibility of farmers to fertilizer and address the issue of affordability. In each year, five million farmers are targeted. The total subsidy quantum of between 50 per cent - 25 per cent was to be borne by the states that have opted to participate in the programme, and 25 per cent contribution from the Federal Government. To achieve this, government had developed an electronic wallet which would enable farmers to buy farm inputs such as fertilizer and seedlings at subsidized rates. The e-wallet has also been introduced to farmers in some parts of the country. This is used the same way phone handsets are being used with their subsidy loaded in them to enable them to purchase the needed inputs from the dealers after verification. In this case, if fertilizer sells for ₦5,000, farmers only pay ₦2,500 and government pays the other through electronic transfer.

To ensure food security and create wealth, 11 commodity value chains: rice, sorghum, cocoa, maize, soybean, oil palm, cotton, cassava, livestock, fisheries and horticulture, have been formulated as part of plans to achieve huge increase in production, starting from 2012 (Table 1). On cassava, about ₦460 million has been committed by the Federal Government for the

implementation of the national cassava value chain programme, aimed at maximizing cassava industrial potentials.

Table 1: Target commodity value chains for investments by geopolitical zones in Nigeria

Zones	Target Commodities
North -East	Cotton, Onion, Tomato, Sorghum, Rice, Cassava, Livestock and Fisheries
North -West	Cotton, Onion, Tomato, Sorghum, Rice, Cassava, Livestock and Fisheries
North-Central	Maize, Soybean, Rice, Cassava, Livestock and Fisheries
South-South	Oil Palm, Cocoa, Rice, Cassava, Livestock and Fisheries
South-East	Oil Palm, Cocoa, Rice, Cassava, Livestock and Fisheries
South -West	Oil Palm, Cocoa, Rice, Cassava, Livestock and Fisheries

Source: Akinwunmi *et al.*, (2011): Transforming the Cassava Sector in Nigeria. Report of DATCO, Shareholders Meeting at Abuja, December 15

Strengths and Opportunities - of the Ongoing Nigeria ATA

There are opportunities with the new ATA for Nigeria to secure abundant investment funds, participation of private investors, and prospects for good market at high prices for agricultural products within and outside the country. ATA with the value chains approach is capable of creating jobs to reduce unemployment in the country through the various activities in the chains. Farmers also have prospect of getting better access to agricultural inputs.

Threats and Weaknesses that can Jeopardize the Achievements of ATA.

This study observed that, the Nigerian agricultural transformation is capable of leading to high competition in the market for agricultural products due to globalization. This implies that the large proportion of the poor in the country have to compete for agricultural products. To overcome this therefore, low-cost food grains will still be important to the poor because of the low real wages. The present state of development of agricultural inputs, farm machinery and equipment, decaying rural infrastructure, declining value of total credit to agriculture, declining domestic and foreign investment in agriculture are capable of hindering the country at getting the full benefits derivable from agricultural transformation through the value chains and private sector-led. The increasing rate of withdrawal of manufacturing companies from backward integrated agricultural ventures is also not a good signal to the survival of ATA.

Lack of application of proper agronomic practices in land preparation, planting, weeding and use of fertilizer by the Nigeria smallholder farmers that dominate the country agricultural

sector owing to familiarity with their old tradition is capable of jeopardizing the full benefit of the ATA without provision of adequate extension services both from the private and public. In addition, limited storage capacity, market information, coupled with poor infrastructure which increases transport costs making smallholder farmers to just consume their raw products themselves instead of selling it at competitive prices will affect several stages of the value chain and the competitiveness of domestic agricultural products compared to the imported commodity. Effect of climate change without appropriate mitigation and adaptation strategies like commercial irrigation infrastructures is capable of hindering agricultural production and once this is affected other activities in the value chains will equally have problem.

The private-sector agents such as input suppliers, buyers, or both have also several roles in agricultural transformation. They typically have access to capital and organizational know-how. Private-sector agents can also link smallholder farmers to markets effectively. Large “nucleus” farmers, agri-dealers, and warehouse operators can market the output of many smallholders at once, reaping economies of scale that give smallholders better prices than they could get on their own. But this private sector’s participation in agricultural development in Nigeria perceived to be constrained by lack of political will, weak institutional structure from the government, high cost of doing agribusiness in relation to high corporation/business tax and low level of infrastructural development especially energy as well as multiplicity of taxes. All these are capable of discouraging private investment in Nigeria agriculture and survival of ATA.

Success Stories of Countries that have transformed their Agricultural Sector and Important Lessons to Learn

Several countries have succeeded in transforming their agriculture sectors, turning them into important sources of growth and export earnings, and thus increasing their contribution to poverty and hunger reduction. The success of agricultural transformation of these countries poses opportunities and challenges for Nigeria seeking to transform her agriculture. Analysis of the selected countries as case narrative was based on similar characteristics they share in agriculture sector with Nigeria. For instance, the natural resource conditions for agricultural production in Thailand is similar to that of Nigeria, the farm size is predominantly small in Thailand just like Nigeria, there is extensive cultivation of rainfed crops as we have in Nigeria. Thailand has also experienced political instability and a series of regime changes just like Nigeria but the agricultural transformation of Thailand is observed as been successful because of the country’s large public investments in infrastructure, particularly in transport and power generation, high private investment rate owing to secure and attractive environment, and consistent government policies. Thailand had also significantly outperformed other Asian countries in terms of agricultural mechanization and government’s support was an important factor in agricultural transformation in Thailand. The government’s support for technical change came primarily through public investment, particularly in irrigation, research (e.g. development of hybrid maize), credit provision, and extension services leading to about 28% irrigated arable land in Thailand compared to 0.8% in Nigeria.

While the level of government expenditure on agriculture, especially on agricultural research, was not comparable with countries like Nigeria; Thailand lending policies greatly encouraged the purchase of machinery and increases in land holding sizes. Thailand's agricultural transformation was also characterized by gradual intensification through mechanization and the adoption of new technologies and inputs. Mechanization became an important factor for both agricultural expansion and intensification. Nigeria only has 10 tractors per 1000 ha compared to Thailand with more than 241 tractors per 1000 ha. The tractorization of agriculture lifted constraints on the pace of cultivated area expansion and increased the extent of cultivation, particularly for upland crops. Similarly, the adoption of rice-tillers, threshing machines and water pumps promoted the development of double-cropped rice areas. Diversification was also an important characteristic of agricultural transformation in Thailand. The diversification process occurred both in crop production and in the broader agricultural sector. Diversification in agriculture also helped the rapid expansion of the agro-business sector. A relatively large proportion of the exports classified as manufactured came from the processing of agricultural products; these include tinned fruits, frozen chickens and frozen and tinned seafood. The private sector, including farmers, agro-businesses and traders, played a leading role in agricultural transformation. Most agricultural commodities were handled by private traders, both in domestic markets and exports, and linkages between producers and markets were developed through a well-established merchant network. This network played an important role in stimulating agricultural innovation. Middlemen frequently acted as technical, commercial and financial advisers to farming communities. In summary, significant investment by the Thai government in the development of the agricultural sector catalyzed unprecedented growth in the manufacturing sector and enabled Thailand to have one of the lowest unemployment rates in the world today at 1.2%. How much is Nigeria government investing in its agriculture in order for ATA to survive?

Another case analysed in this study is the case of India that had adopted the value chain model similar to what Nigeria is using in its ATA. India is successful in their agricultural transformation because the country concentrated its effort on processing, trading, marketing and retailing in all the segments of supply chains. The traditional way of food production are replaced by practices more similar to manufacturing processes, with greater co-ordination across farmers, processors, retailers and other stakeholders in the value chain. Nigeria can have full concentration in certain aspects of the supply chain rather than working toward achieving all at its initial stage of ATA.

In Morocco, government has been able to achieve certain level of success in there agricultural transformation through an "outgrower" program. The program revolves around a nucleus farm, with 50 hectares of land leased by the government to a commercial farmer who makes a commitment to work with surrounding smallholders. The commercial farmer facilitates access to inputs (such as bank loans, seed, and advisory services) for the smallholders, in return for the right to market their output. Morocco created an agricultural-development agency to encourage and direct these investments and manage the contracts. One of the government's key roles for the survival of the program has been ensuring equity in the relationship between out-growers and nucleus farmers. The Mexican government is also

surviving in its agricultural transformation through their political stability, macroeconomic stability, land reform and favorable external conditions. Government actively supported the development and use of modern technologies (seeds), the promotion of modern inputs (especially fertilizer), and the mechanization of production. Public research institutes were the major players in the development of new agricultural food crop technologies, providing major high-yield varieties for food crops. Besides the public seed company into production and distribution of the food crop seed varieties, there exist private sector led technology development for industrial crops such as cotton and sugar cane. The adoption of modern inputs and the mechanization of production were also made possible by increasing farmers' access to financial services. Nigeria can also harness the strengths of the existing research institutions and strengthen their partnerships with farmers and the private sector, to ensure that the products of their researches meet the needs of stakeholders.

China undertook its agricultural transformation on a massive scale with initiation of programmes at the micro-level to assist the smallholders. These include extension programs in every village; agricultural engineering that emphasized small tools, machines, and systems; and incentives that engendered self-financing, iterative improvements, and incremental learning. The Chinese government also got all the environmental factors right in order to succeed in transforming its agriculture. By contrast, Nigeria on many occasions tries to tackle problems with large-scale models and expansive programs that are inappropriate for smallholders. Many commercial chains involve contracts between the farmer and manufacturer in which technical support is provided by the company to the farmer and no donor intervention is involved in China. For example, General Mills contracted farmers in China to grow corn for their food products by providing them with seeds and financing their purchased inputs (WEF, 2009).

In Peru, before the implementation of FENACREP (Federación Nacional De Cooperativas De Ahorro Y Crédito Del Perú) project to increase farmers' access to financial services, strengthen farmers links with production and marketing value chains in rural areas like Nigeria NIRSAL initiative, five key conditions were met, namely: presence of groups of organized producers, with productive and market potential; minimal basic infrastructure, particularly roads, communications and electricity; end buyers willing to participate in the chain's construction or consolidation, or in both; presence of solvent and solid financial institutions, committed to the rural sector and with offices near the production areas; presence of projects or private technical assistance providers and the presence of projects offering technical assistance. The United States of America has largely succeeded in transformation of their agricultural sector because of its political stability, consistent policies, accountability and transparency and judicious use of resources. Can ATA survive in Nigeria where corruption has retarded progress through diversion of public funds into private pockets and diversion of inputs meant for farmers into the hands of unintended beneficiaries?

Conclusion and Pathways to Success in the Nigeria ATA

Conclusions

This paper provides basic information to the various ways value-chains and agricultural transformation concepts have been interpreted and applied; combines lessons from successful agriculturally transformed countries and Nigeria's history of agricultural reforms to provide effective pathways for a successful agricultural transformation in an unavoidable micro and macro environments. Experiences from all successfully transforming countries suggest that agricultural growth must be broad-based with inputs from other sectors and private investors. Findings from countries such as Thailand where majority of rice consume in Nigeria today is imported, Morocco and Mexico show that bypassing small farmers during the process of agricultural transformation is capable of marginalizing a large group of the rural population and is capable of causing social tensions. Productivity growth led by adoption of modern technology should be a key for agricultural transformation rather than just increase in land area cultivated by farmers. Agricultural transformation and development requires a comprehensive long term strategy and such a strategy needs to be supported by long term commitment both from the government and international development partners. Agricultural transformation through value chains and private driven approaches in an environment that has not fully developed its infrastructures, nor adequate mitigation and adaptation strategies against unavoidable environmental factors such as climate change has very low probability of survival even though the approaches hold great potentials of boosting rural incomes, employment and alleviating rural poverty. External conditions in the global environment, globalization and climate change have great impact on agricultural transformations and are likely to remain important in the future. The success of many Asian countries poses opportunities and challenges for African countries such as Nigeria that is transforming its agricultural sector. Transforming agriculture requires increased efficiency and modernization across the whole economy since supply of modern factors within a country still depends on factors and activities outside of agriculture.

Pathways to Success in Agricultural Transformation

Put together, the identified case studies confirm some of the steps Nigeria and other countries can adapt in their efforts at transforming their agricultural system.

First, deregulation of seed and fertilizer sectors, marketing reforms, innovative financing for agriculture and development of a new agricultural investment framework as it is presenting happening in Nigeria are necessary conditions for a good agricultural transformation, they are however not sufficient for a successful transformation. Agricultural transformation goes beyond changing the structure of production. Successful agricultural transformation with value chain and private sector-led approaches requires development of both hard infrastructure and soft (human capital, institutions) in the transformation process. Infrastructural investments in terms of good roads network and irrigation; new flights to target export zones, consistent energy supply, high-speed and affordable communications for market access, supportive fiscal policies (lower taxes on inputs, equipment), effective rule of law are other key elements that need to be put in place. Increase in income inequality has the potential to slow down the development process and that persistent poverty embodies a significant challenge for the success. Low-cost food grains will therefore be important to

the poor at this early stage of transformation with no provision for increase in real wages in Nigeria.

Different ministries and governmental bodies must work together to create an enabling environment. In addition, there must be a clear, consistent and long-term policies that will also help increase and sustain investors' confidence in the sector. Private agents such as farmers or farmers' organizations, input suppliers, warehouse operators, buyers, and traders, including international trading companies are all very important to be carry along in the transformation process with policy support and massive public investments to create an enabling environment. It is important to change the incentive structure as part of a dedicated sectoral and fiscal policy that strengthens research, extension education and services as well as physical and institutional infrastructure for sustainable agricultural transformation. There could also be incentives in form of land tax exemptions besides lower cost credit to stimulate private investment.

In addition, to effectively transform the Nigeria agricultural sector, production of agricultural machinery and adoption of modern technology by farmers is also very paramount so as to overcome hired labour constraint. Government should however be careful while lending its support to mechanization through importation of equipment and provision of credit to private tractor service centers which in return provide fee-based tractor services to farmers at the expense of encouraging local production or assembly.

Successful value chains in countries that have employed this approach are built on a common vision, communication, cooperation, trust, adaptability, interdependence and commitment. There is need for the government to develop a motivating environment in the sector and provide more incentives for value additions. There is need to undertake more business development services to support farmers and help them set up and manage cooperatives and small scale processing plants. Factors (such as drudgery, tediousness and frustratingly low income associated with the traditional methods of farming) that impedes young people's willingness to participate in agricultural practice should be checked through the introduction of improved technologies capable of reducing the associated drudgery and cumbersomeness to make farming attractive to young people.

Despite private investment in agricultural transformation, the public investment of at least 10% of the country annual budget is not too much for a successful agricultural transformation. Government, beside provision of favorable environment in terms of infrastructure, needs to invest in agricultural research, provide extension services to majority of farmers as well as promote environmentally-sustainable watershed management and irrigation. The country will also need to tackle a number of public health challenges, including sharp increases in the prevalence of malaria and HIV/AIDS affecting agricultural productivity as well as food safety issues in the agro-processing industry. Priority should be given to adaptation measures that bring about mitigation consistent with sustainable development.

Getting access to markets as contained in the Nigeria ATA is not a sufficient condition for developing agricultural value chains to sell agricultural products, supporting infrastructure, resources including knowledge and capabilities are conditional for the chains to be

successful. To achieve economic growth through agriculture, Nigeria need to increase the competitiveness of the value chains which take key crops into international marketplaces and to achieve economic growth that is sustainable and reduces poverty, value chains must operate with expanded opportunities for food producers and processors.

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