

Agricultural Transformation Agenda in Nigeria: How Prepared is the Technology Transfer-Sub System?

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Abstract

The Agricultural Transformation Agenda is aimed at making agriculture work for Nigerians especially rural farmers such that it becomes not just a development programme but also an income generating commercial activity. If this would be achieved, the technology transfer sub-system with the mandate of extension services to the farmers need to be strengthened. The study investigated how prepared the sub-system is with reference to the on-going transformation. Ninety three staff of the Agricultural Development Programme were used for the study. Data were collected by the use of questionnaire and analysed using mean score and percentage. Results show weak capacities with regards to training/human resource development (60%), equipment acquisition (75%) and workforce (90%) in the technology transfer sub-system. The results also reveal capacity building for extension personnel (M=4.0), proper funding of extension (M=4.0), proper staffing of extension service (M=4.0), favourable agricultural extension policies (M=4.0) as some of the strategies for strengthening the sub-system. The study therefore recommends that government should provide enabling environment for the sub-system to make them relevant and effective in the on-going Agricultural Transformation Agenda.

Keywords: Agricultural Transformation Agenda, technology transfer sub-system, extension, agriculture

1. Introduction

Agriculture is an important sector of the Nigerian economy with high potentials for employment generation, food security and poverty reduction. Agricultural sector in the 1960s provided the main source of employment, income and foreign exchange earnings for Nigeria. This was due to focused regional policies based on commodity comparative advantage (Azih, 2011). As at 1961, Nigeria was the leading exporter of groundnut with a world's share of 42%. The country also had 27% of the world's palm oil export, 18% of cocoa and 1.4% of cotton as the major West African cotton exporter. Up to the early 1970s, agriculture accounted for well over 80 percent of Nigeria's Gross Domestic Product (GDP) and the major value of the country's exports (Oluigbo, 2012). Regrettably, the discovery of crude oil in the late 1960s and the huge financial gains benefitted from it made the government to shift its priority from agriculture to crude oil and relied on food importation as a means of feeding her citizens. The "glory" of agriculture however declined over the years hence Nigeria dominance in the export of groundnut was eclipsed by China, United States of America (USA) and Argentina as at 2008. Indonesia and Malaysia took over in palm oil; Cote d'voire and Ghana also become the leading exporter of cocoa while Mali and Bukina Faso led cotton exports (Azih, 2011). Consequently, Nigeria is currently one of the largest importers of food in the world, spending over \$10 billion annually importing wheat, rice, sugar and fish (Fertilizer Suppliers Association of Nigeria (FESPAN), nd). Petroleum thus became the pivot around which the nation's economy revolved such that today, any quake in that sector has adverse negative effects on the whole economy.

Concerned about her sole dependence on crude oil for its foreign exchange and food importation as a means of achieving food security, several governments in Nigeria have made several forays at policies for the development of her agricultural sector (Obiora and Emodi, 2013). Precisely, since 1980, several interventions, policies and programmes have been executed by different governments aimed at redirecting Nigerians to the farms. Examples include the River Basin Development Programme (RBDP), Operation Feed the Nation (OFN), Green Revolution (GR), the Directorate for Food, Roads and Rural Infrastructure (DFRRI) and Agricultural Development Programme (ADP). Notwithstanding these interventions, import bills of Nigeria kept soaring such that she imports approximately US\$3.5 billion in food products annually making food imports to grow at an unsustainable rate of 11% per annum (www.doreopartners.com).

Agriculture as an important sector of the economy has high potentials for employment generation, food security and poverty reduction. Unfortunately, these potentials have remained largely untapped notwithstanding the numerous programmes/policies of the past governments (Federal Government of Nigeria (FGN), 2008). The incumbent government has embarked on Agricultural Transformation Agenda (ATA) as part of the Federal Government effort to revamp the agriculture sector to ensure food security, job creation, diversify the economy and enhance foreign exchange earnings. For a successful ATA, the three sub-systems especially the technology transfer sub-system needs to be viable and efficient. Three important sub-systems are recognized in the agricultural innovation system namely: the knowledge/technology generating sub-system (knowledge generating

sub-system includes research institutes, universities, colleges of agriculture and training institutes), technology transfer sub-system (transfer sub-system includes public agricultural extension agencies, NGOs/private agencies) and utilization/application sub-system (utilization sub-system consists of farmers and farmers' association). In Nigeria, Agricultural Development Programme (ADP) is the major public agency of the Ministry of Agriculture mandated to provide extension services making them the major actors in the technology transfer sub-system.

In the on-going ATA, for farmers to utilize/apply innovation generated by the knowledge/technology generating sub-system, there must be an efficient technology transfer sub-system. This justifies the overall essence of this study aimed at determining how prepared the sub-system is in the on-going ATA. To achieve this, the following questions become pertinent: In terms of human resource development, what capacities do the technology transfer sub-system in the southeast, Nigeria have and which is lacking? What capacities do they have with regards to training, acquisition of equipment/facilities/human resource needed for efficient delivery of their services? Does the sub-system need strengthening, if it does, how will that be achieved. The paper therefore aims at:

- 1) determine the capacities of the sub-system in terms of training, equipment/facilities acquisition and human resource development;
- 2) ascertain strategies for strengthening the sub-system towards achieving ATA.

2. Materials and Methods

The study was carried out in Southeast Nigeria. The Zone is located between Latitudes 04° 30' N and 07°30' N and Longitudes 06° 45' E and 08°45' E. It covers an area of 29,908 square kilometres with a population of about 16,381,729 (Federal Republic of Nigeria, 2007). The area comprises the geographical location of the following states: Abia, Anambra, Ebonyi, Enugu, and Imo. Each state has Agricultural Development Programme (ADP) representing the technology transfer sub-system.

Economically, the southeast is primarily an agricultural zone. The soils of the region are largely sandy, mostly loose and porous. The commonest crops grown in the zone include cassava, yam, cocoyam, maize, ugu (*Telferia occidentalis*), plantain/banana, oil palm and coconut while major animals reared include goat, sheep, poultry etc.

All the ADP staff in south east, Nigeria constituted the population of the study. Three states (Abia, Anambra and Enugu) were randomly selected from the five states that make up south east.. Umuhia, Aguata and Enugu North agricultural zones of Abia, Anambra and Enugu States respectively were used for the study. The three (3) Directors of Extension in the three states were purposively selected, because they were expected to know what capacities exist in the sub-system. In addition, simple random sampling was used to select 30 other ADP staff (ranging from zonal manager, zonal extension officer, block extension supervisors to extension agents) in each state. Thus, a total sample size of 93 was used (i.e. 3+ 30x3).

Structured and pre-tested questionnaire was used for data collection. The questionnaire was divided into two sections based on the objectives of the study. Section 1 was devoted to information on capacities of the sub-system in terms of training, equipment/facilities acquisition and human resource development while section 2 sought information on strategies for strengthening the sub-system towards achieving ATA. Respondents responded to a number of possible strategies on three (3) point Likert type rating scale of 'to very great extent (3), to very small extent (2), to no extent (1)'. The decision rule on the mean perception of the respondents was computed as: $3+2+1=6/3=2$. Any variable with mean of 2 and above were regarded as strategies whereas any variable less than 2 were not strategies.

Data from objective 1 were analysed with percentage and presented in bar chart while data for objective 2 was analysed using means and presented in table. Version 16.0 of the Statistical Package for the Social Science (SPSS) software was used for the analysis.

3. Results and Discussion

3.1 Capacities of the technology sub-system

The capacities of the sub-system in terms of training/human resource development, equipment/facilities acquisition and adequate workforce were shown in figure 1. The figure indicates that with respect to training, 60% of the respondents claimed they do not have adequate training that will help them meet up with the demands/needs of the farmers and all other actors along the targeted commodity value chains in the on-going transformation while 40% said they have adequate training. The figure also indicates that 75% of the respondents have no capacity with respect to equipment acquisition while 25% have. Ninety (90) percent of the respondents said that the sub-system do not have adequate workforce while 10% claimed they have. Largely, the findings agreed with Obiora, Madukwe and Matthews-Njoku (2013) where respondents were found to have inadequate equipment/facilities.

3.2 Strategies for strengthening the technology transfer sub-system

Entries in Table 1 show the strategies for strengthening the technology transfer sub-system. The strategies were capacity building for extension personnel (M=4.0), proper funding of extension (M=4.0), proper staffing of extension service (M=4.0), strengthening the Federal Department of Agricultural Extension (FDAE) (M=2.6), favourable agricultural extension policies (M=4.0), Provision of adequate training (M=3.8), provision of modern facilities (M=3.0), improved salary for workers (M=3.6), provision of competent staff (M=2.4), quick access to knowledge and information on new technologies (M=3.0), high government commitment to extension service (M=3.0), removal of unnecessary bureaucracy/organisational bottleneck (M=2.6). From the table, it was obvious that all the variables listed were considered possible strategies. However, the variables with the highest means were capacity building for extension personnel (M=4.0), proper funding of extension (M=4.0), proper staffing of extension service (M=4.0), and favourable agricultural extension policies (M=4.0)

A robust manpower development and training program for the technology transfer sub-system is critical for the success of Agricultural Transformation Agenda. The capacity building program must be demand-driven and comprise of both on-site and off-site extension communication, technical, leadership and managerial courses.

The Extension Transformation Group (TETG), (2011) recommends proper staffing of 1 extension agent (EA) to 350 farm families. Currently, in Nigeria, the staff strength of extension stands at 1: EA to approximately between 2,500 10,000 farm families depending on the State. If the sub-system will be effective in the present ATA, the large farmer extension ratio must be narrowed.

Poor funding to ADP was also stressed by Auta and Dafwang (2010); Koyenikan, (2008); Agbamu, (2005). To ensure adequate funding of the subsystem, tripartite funding of extension by all the three tiers of government should be encouraged. The sharing formula could be in the order in which the Federation Account is allocated. Other options could include the establishment of a dedicated tax fund; say 5 percent derivable from agricultural imports into the country (Obiora and Emodi, 2013).

Favourable agricultural extension policies are needed if the sub-system will be relevant in the current transformation agenda. According to Dimelu and Nwonu (2012) favourable policies are expedient to institute the strategy of comparative advantage in service delivery and subsequently create enabling environment for increase private sector participation.

4. Conclusion

The study reveals that in the on-going Agricultural Transformation Agenda in Nigeria, the technology transfer sub-system which should naturally be the major stakeholder have weak capacities with regards to training, human resource development and workforce. This apparently shows that the sub-system cannot meet up with the demands/needs of the farmers and all other actors along the targeted commodity value chains in the on-going transformation. The study also reveals some strategies for strengthening the subsystem as capacity building for extension personnel (M=4.0), proper funding of extension (M=4.0), proper staffing of extension service (M=4.0) among others. The study therefore strongly recommends increased funding and general strong support to the sub-system to make them relevant and effective in the transformation agenda.

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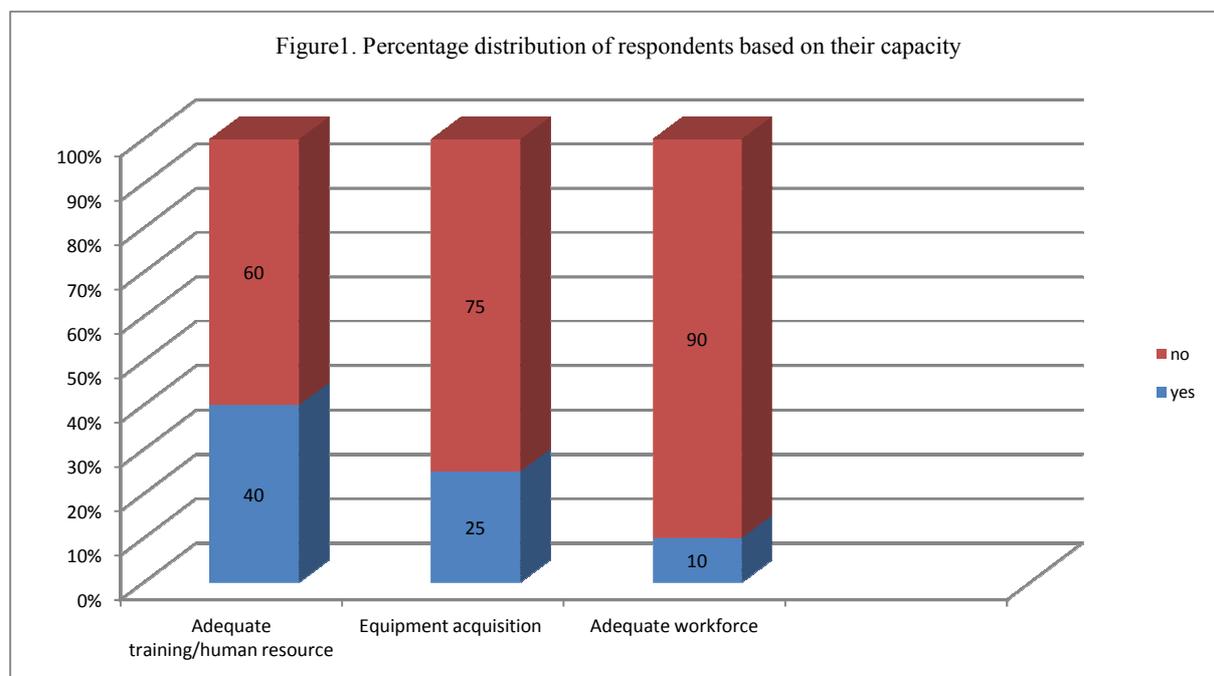
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Source: Field survey, 2012.

Table 1. Mean Distribution on Strategies for Strengthening the Technology Transfer Sub-System

Strategies	Mean (M)
Capacity building for extension personnel	4.0
Adequate funding of extension	4.0
Proper staffing of extension service	4.0
Strengthening the Federal Department of Agricultural Extension (FDAE)	2.6
Favourable agricultural extension policies	4.0
Provision of adequate training	3.8
Provision of modern facilities	3.0
Improved salary for workers	3.6
Provision of competent staff	2.4
Quick access to knowledge and information on new technologies	3.0
High government commitment to extension service	3.0
Removal of unnecessary bureaucracy/organisational bottleneck	2.6

Source: Field survey, 2012.