

FINAL REPORT OF:

THE AGRICULTURAL EXTENSION TRANSFORMATION AGENDA.

EXECUTIVE SUMMARY:

Although “agriculture remains a key component of Nigeria’s economy, and currently contributes about 40.0% of the GDP and employing about 70.0% of the active population, the sector, the sector has however, **significantly underperformed** its potential” (FGN,2008). This has been clearly manifested in the very high food prices nationwide, food insecurity both at the household and national level and malnutrition especially in children. It is unfortunate that Nigeria’s awesome National Agricultural Research and Extension System (NARES), the largest in Sub-Saharan Africa, has not been able to engineer a sustainable agricultural development that would have ensure both National and household food security, improved rural livelihoods and indeed, make Nigeria’s agriculture competitive in the world agricultural market today.

The current situation of food insecurity, rural poverty, and un-competitiveness of Nigeria in the world global food market is not acceptable to the present administration. It is the determination of government therefore to initiate an agricultural transformation agenda that will to create jobs, especially for the masses of unemployed youths, create wealth by making Nigeria a global competitor in the world food market, and ensure food security.

The major challenges of Nigeria’s agricultural extension and advisory services have been identified to include: lack of a legislated agricultural extension policy, compounded by policy somersaults in the sector; grossly inadequate and untimely funding; poor leadership and coordination, low private sector participator, a very weak Research-Extension-Farmer-Inputs Linkages system and driven by ineffective top-down, supply-driven, extension approaches.

To effectively drive the Agricultural Transformation Agenda, an Agricultural Extension Transformation Agenda has been articulated with the following objectives:

- i) To establish a Federal Department of Agricultural Extension (FDAE) which will oversee, monitor and provide the leadership needed for an efficient and effective agricultural extension and advisory service delivery in Nigeria.

- ii) To review the agricultural extension policies within the subsisting agricultural policies and recommend appropriate policies that will ensure the effective participation of all stakeholders in a stable policy environment and adequate funding for the delivery efficient and effective agricultural extension and advisory services.
- iii) To recommend appropriate Institutional Structures and arrangements for the delivery of effective and efficient multi-plural agricultural extension and advisory services in Nigeria, using the value chain approach.
- iv) To recommend demand-responsive extension systems/approaches and tools that will ensure the delivery of efficient and effective agricultural extension and advisory services for all the multi-actors in the targeted commodity value chains of interest to government.

The Report of the Agricultural Extension Transformation Agenda has provided a clear road map to address the critical challenges of agricultural extension and advisory services to transform it into a participatory, demand-response, market-oriented and ICT-driven service that will provide for all the extension needs of all actors along the targeted commodity value chains of interest to the present administration, starting with the review and articulation of a functional, all-encompassing and friendly agricultural extension policy with inputs from all the key stakeholders in the agricultural and rural development sector.

Among other important issues, the policy will address the critical issues of the roles and responsibilities of all the stakeholders (the various tiers of government, the private sector, including the Farmers' Associations, NGOs and CBOs), funding, institutional arrangements, and gender mainstreaming etc.

The establishment of the new Federal Department of Agricultural Extension will provide the needed impetus for the leadership, coordination, monitoring & evaluation and the quality control and quality assurance to drive the extension transformation agenda using the appropriate extension systems/approaches under a pluralistic delivery system, methods and tools (both electronic and print; traditional and modern).

A market-oriented and knowledge and skills-based extension service delivery, must of necessity be ICT-driven. A farmers' "ICT Center/ Farmers' Helpline" has been proposed, to be complemented with other appropriate ICT tools suitable for rural communities.

The ADPs remain the best option for extension and advisory services provision at the grassroots and the States will be expected to key into the extension transformation agenda through the revitalization and strengthening of their ADPS with adequate staffing (to attain a minimum ratio of 1no. Extension Agent to 800 – 1000nos Farm families), improved infrastructures and facilities, facilitated by the FMARD. Further, the States will be expected to promote the targeted value chains in which they have comparative advantage.

The Research-Extension-Farmer-Inputs Linkage System (REFILS) is the platform that brings all the actors (both public and private sectors) together in the technology development, adaptation, dissemination and utilization, clearing defining the roles and responsibilities of all the actors. It has however remained weak, uncoordinated poorly funded and with low participation by the private sector. It will be properly funded, with all activities carried out as at when due to ensure the development of useful, relevant and appropriate technologies, effectively disseminated to meet the needs/opportunities and challenges of all the actors on the targeted value chains.

Using the value chain approach requires a more knowledge and skills-based, demand-responsive extension and advisory services which make capacity building an absolutely important requirement which will be addressed using a public-private-partnership approach (PPP) with appropriate incentives. Capacity building will cover the following groups: unemployed youths and graduates, extension field staff at all levels; farmers, producers and processors, and all other actors on the targeted value chains and service providers.

Finally, the Extension Transformation blueprint has addressed and provided for the cross-cutting issues comprising of: Women, Youths, Vulnerable groups; growth enhancement support (GES) items (fertilizers, agrochemical and improved seeds and

credit); strengthening of farmers'/producers' associations and more conducive service conditions for extension agents including mobility for better performance.

1. INTRODUCTION:

About 70% of Nigeria's estimated population of 140.0 million lives in the rural areas. Although Nigeria is Africa's second largest economy (after South Africa) with a GDP of about US \$40.0 billion, yet, about two-thirds of the population live below the national poverty line (FGN 2006). It is an irony indeed that Nigeria, a vast agricultural country "endowed with substantial natural resources" which include: 68 million hectares of arable land; fresh water resources covering about 12 million hectares, 960 kilometers of coastline and an ecological diversity which enables the country to produce a wide variety of crops and livestock, forestry and fisheries products (Shaib, et. al., 1997) should find itself in the group of low-income food-deficit countries (LIFDCS) in Africa. It is clear therefore that the country has not been able to harness its vast natural resources for sustainable agricultural development. This has been aptly captured in the National Food Security Program document, which is the most recent and authoritative policy statement by the Federal Government on the state of the nation's agriculture. According to the Government (FGN,2008), although "agriculture remains a key component of the country's economy, currently contributing about 40.0% of the GDP and employing about 70.0% of the active population, the sector has **significantly underperformed** its potential". This has been clearly manifested in the very high food prices nationwide, food insecurity both at the household and national level and malnutrition especially in children. Thus the agricultural production and food situation in the country today is anything but impressive.

2. BACKGROUND TO THE PROBLEM:

The Research and Extension System in Nigeria:

In addition to its vast natural and human resources, Nigeria has perhaps, the largest National Agricultural Research and Extension System (NARES) in Sub-Saharan Africa today, made up of: 17 Commodity-based Research Institutes, a specialized National Agricultural Extension Institute, 18 Faculties of Agriculture in regular Federal Universities; 3 specialized Universities of Agriculture and one International Agricultural Research Centre (IARC = IITA) (Arokoyo, 1998), and yet Nigeria is still categorized among the food-deficit or food insecure nations in Africa. A most pertinent question today therefore is: why has Nigeria's awesome National Agricultural Research and Extension System (NARES) not been able to engineer a sustainable agricultural development that would have ensured: national and household food security, improved rural livelihoods and indeed, make Nigeria's agriculture competitive in the world agricultural market today.

Among the major reasons that have been adduced for this rather serious situation include:

- i) Unfriendly policy environment, compounded by policy somersaults and poor to no incentives provided for the private sector thus, triggering reduced investors' confidence. This has consequently resulted in reduced capital

availability for local investments in agricultural development (Arokoyo, 2009).

- ii) A dominant, ineffective, and inefficient public agricultural extension service that is characterized by a top-down, supply-driven extension system compounded by serious structural, organizational and management challenges.
- iii) Grossly inadequate, irregular and untimely release of funds to the agricultural and rural development sector and worse for agricultural extension and advisory services.
- iv) Finally, the National Agricultural and Research Extension System (NARES), has been plagued by a weak, dysfunctional and uncoordinated Research-Extension-Farmer-Inputs Linkage System (REFILS). The REFILS as designed is expected to bring all the key stakeholders in the agricultural sector together in participatory technology development, adaptation, dissemination and utilization for sustainable agricultural development.

3. GOAL OF THE EXTENSION TRANSFORMATION AGENDA:

To put in place a legislated, multi-plural, responsive, and market-oriented extension system with: an assured and regular sources of funding, a well-trained and motivated staff, effectively catering for a variety of actors along targeted value chains of interest to the government.

3.1. Specific Objectives:

- v) Make a case for the establishment of the Federal Department of Agricultural Extension (FDAE) to oversee, monitor and provide the leadership needed for an efficient and effective agricultural extension and advisory service delivery in Nigeria.
- vi) To review the agricultural extension policies within the subsisting agricultural policies and recommend appropriate policies that will ensure the effective participation of all stakeholders in a stable policy environment and adequate funding for the delivery efficient and effective agricultural extension and advisory services.
- vii) To recommend appropriate Institutional structures and arrangements for the delivery of effective and efficient multi-plural agricultural extension and advisory services in Nigeria.
- viii) To recommend demand-responsive extension systems/approaches and tools that will ensure the delivery of efficient and effective agricultural extension and advisory services for all the multi-actors in the targeted commodity value chains of interest to government.

4. THE NATIONAL POLICY ENVIRONMENT FOR EXTENSION AND ADVISORY SERVICES:

Without doubt, the starting point to address the challenges posed by an inefficient and ineffective agricultural extension and advisory services is putting in place, dynamic and functional policies that will unambiguously guide all the operators in the agricultural sector, but also friendly enough to attract the private sector which has major roles to play in the agricultural transformation agenda and the pursuit of the public-private-partnership (PPP) concept in line with best-global practices. A brief review of the subsisting agricultural extension policies will help guide the articulation of a new agricultural extension and advisory services in Nigeria.

The historical development of the agricultural extension and advisory services in Nigeria has closely followed that of agriculture and rural development. Thus, variability and inconsistencies have been the major hallmarks since the colonial era to the present and has been principally influenced by the interests and focus of the government in power and/or by the primary funding agencies especially with respect to the externally funded agricultural project interventions.

The ineffective and inefficient parallel extension system, of the pre and immediate post-independence era, remained operational until the establishment of the Agricultural Development Projects (ADPs) supported by the World Bank (1975-1995) using the classical Training and Visit (T & V) Extension system. Midway into the implementation of the ADPS (1991), a policy of a unified agricultural extension service (UAES) which mandated extension delivery through a single extension agent to the farmers for the complete farming system was enacted for the ADPs, to improve effectiveness and efficiency of the extension service. However, because of the historical development of the extension system, the crop sector remained and still remains dominant even till the present. But notably however, the policy failed to effectively address institutional arrangements, coordination, collaboration, leadership and funding for Nigeria's public agricultural extension service which still remains the dominant service for the majority of Nigeria's small-scale farmers. Neither, did system clearly address the roles and responsibilities of the various stakeholders in agricultural extension until the enactment of the 2001 National Agricultural Policy by the Obasanjo administration.

4.1. The 2001 Agricultural (Extension) Policy:

The first documented but not legislated National Policy on Agriculture was adopted in 1988 at the height of the Statewide ADP Era and was "expected to remain valid for about fifteen years, that is, up to year 2000" (FMARD, 2001). It essentially provided in the main, for "adequate food; supply of agricultural raw materials; creating employment; foreign

exchange earnings through exports and market for industrial goods" (FMARD, 2002) but hardly addressed the challenges of agricultural extension.

The 2001 Agricultural policy was perhaps the first to address the issues of public agricultural extension service in Nigeria with particular reference to, the roles and responsibilities of the various tiers of government and the private. The new policy thrust was premised on the fact that "self-sufficiency in food production (as propounded by the 1988 Policy) was too limited in scope. Policy objective must transcend self-sufficiency to cover food security" (FMARD, 2002). In order to achieve the objective of food security, the 2001 Agricultural policy assigned roles and responsibilities to the different tiers of government and the private sector as follows:

The Federal Government

- "Reorganizing the Institutional framework for government intervention in the sector to facilitate smooth and integrated development of agricultural potentials.
- Increasing agricultural production through increased budgetary allocation and promotion of necessary developmental, supportive and service oriented activities to enhance production and productivity and marketing opportunities.
- Collaboration with State and Local Governments for effective agricultural extension delivery".

State Governments:

- "Promotion of primary production of all items of agricultural produce *through the provision of a virile and effective extension service.*
- Training and Manpower development.
- Ensuring a variable agricultural extension delivery service. (Interpretation= *allowing for multiple advisory service providers?*).
- Promotion of appropriate institutions for administering credits to small-holder".

Local Government:

"The Local Government Authorities will be expected to take over progressively the responsibilities of the state government with respect to:"

- *Provision of an effective extension service.*
- Mobilization of farmers for accelerated agricultural and rural development through cooperative organizations, local institutions and communities (basically an essential extension duty).

Finally the document stated clearly that Federal, State and **"Local Government should jointly adequately finance agricultural extension and rural infrastructure development"**.

Even though this particular policy document addressed quite adequately, the roles of the private sector on agricultural development, including: **"support for research in all aspects of**

agriculture” it did not assign it any extension role/responsibility unless it is to be assumed that by implication, support for research would cover extension service since the private sector would naturally be interested in the dissemination and utilization of the products of the research it has supported. None the less, the participation of the private sector in agricultural research and extension has remained low and the most sited excuse has been “the inconsistencies and somersaults” in government policies.

Although agricultural extension is on the concurrent list of the constitution, the Federal Government to-date, has always taken the responsibility for a major portion of the funding, policy formulation and direction, while the States’ Agricultural Development Projects (ADPs), are the primary agencies responsible for public extension delivery at the grassroots nationwide. The quality of and staff and the resources of the Local Government Authorities (LGAs) are such that their participation in agricultural extension delivery has only been very minimal, unlike the provisions.

Even with this policy in place, none of the three tiers of government has had the commitment and the will power to date, to implement the tenets of the document with respect to the financing and provision of an effective and efficient agricultural extension service in Nigeria. Worse still, most of the Local Governments chairmen are neither aware of the document nor its provisions. (Arokoyo, Field Survey, 2009).

4.2. The 2008 Agricultural Extension Policy:

Perhaps, the most recent and most authoritative agricultural extension policy pronouncement by government was enunciated in the 2008 by way of the National Food Security Program document which provided for the establishment of **“One-stop”** Agricultural Extension Services, See Fig. 1 (FMAWR, 2008). Accordingly, **“the agricultural extension service will be professionalized by the State governments establishing farm support centers as “One-Stop” facilities in each local government in partnership with the private sector to train and teach new farming techniques” Further, the program will train 10,000 highly competent extension workers per year with the objective of “achieving a ratio of at most of 1:350 Extension Agent/Farm family ratio”** (FMAWR, 2008). This pronouncement is a typical government’s top-down planning process with no consultation with the States and Local Governments and the private sector. Field surveys make the proposed ratio of 1:350 totally unrealistic in the immediate future in Nigeria considering the current situation on the ground (1: EA to approximately between 2,500-10,000 Farm families depending on the State. A major worry of the policy was that modalities of implementation have neither been clearly spelt out nor subjected to wide consultations among the potential key stakeholders. The policy has now died a natural death with the termination of the last administration that initiated it.

Major Challenges with respect to the Policy environment for Agricultural Extension and Advisory Services:

- “Practice without policy” (Madukwe, 2008).
- Leadership and Coordination.
- Non-involvement of the key actors and development partners in policy articulation (Ref. the establishment of the “One Stop” Extension Service Centers).
- Poor budgetary provisions for proposed projects and other pronouncements of government, for example: the presidential initiatives of the Obasanjo regime.

4.3. The Need for a Legislated Agricultural Extension Policy in Nigeria:

Since Agriculture is on the concurrent list of the constitution, and given its importance, it is imperative that there should be a National Agricultural Extension policy to harmonize the critical elements that are required to power a sustainable and a market-oriented agricultural development through the ADP system and using the commodity value chain approach. The most successful agricultural development stories in both the developed and developing countries have been found in countries that have legislated agricultural extension policies.

There are many agencies involved in agricultural extension service in Nigeria each with its own objectives and approach. Some of the approaches fall short of the basic principles and philosophy of extension and may have negative effect on the long run. The need for an agricultural extension policy is predicated on the fact that such uncoordinated efforts cannot lead to sustainable agricultural extension practice. Nigeria after many decades of agricultural extension practice has no legal framework for her extension activities.

The United States of America for instance, has enabling legislations that strengthen her extension practice and policies.

- The Morrill Act of 1862 made provision for the establishment of at least one college in each state to teach such branches related to agriculture and the mechanic arts without excluding other scientific or classical studies. The Land Grant University system is the largest educational delivery system in the world.

- The Hatch Act of 1887 made provision for the establishment of an Agricultural Experiment Stations in one Land Grant College in each state. This act established agricultural research as a recognized function of the Land Grant Universities.
- The 4H club (1911) emphasized youth training in agricultural occupations such as gardening, landscaping and livestock production
- The Smith-Lever Act of 1914 made provision for colleges to provide extension work in mutual cooperation with the U.S. Department of Agriculture and land grant colleges in conducting agricultural extension work
- During the Farm Depression of the 1920's emphasis changed from production to quality of rural life, specifically economic concerns and farm efficiency.
- During the Great Depression and post-depression era extension played different roles such as state and national public affairs; soil conservation service, and rural electrification program. Today extension is the single U.S Federal agency having a direct educational link with rural people in that country.

The above extension practice is based on the following:

- Principle and legislation that provided the base and guideline for extension activities;
- Agricultural extension service, training and research are located in one place (the university);
- Recognition of the special groups notably youth, women and other vulnerable and marginalized groups; and
- It is the people served who are important. As their needs continue to change, cooperative extension's role kept changing to meet them.

Many countries of the world have legislation for agricultural extension. A few include: Japan, (1948); Thailand, (1956); Korea, (1962); Zimbabwe, (1981); Germany, (revised 1990); Vietnam, (1993); Bangladesh, (1996); Australia, (revised 1998); Kenya, (2001)

Recommended Action Plan: Articulation of an Agricultural Extension Policy:

Set up a small committee and give it a deadline to: review both the 2001 and 2008 Extension policies and the Nigeria Rural Development Sector Strategy (Vol. 1: Main Report

and Vol. 2: Annexes) and to articulate an agricultural extension policy that will address the following issues:

- i) Structures and Organization of Agricultural Extension Service: The formal establishment of the Federal Department of Agricultural Extension (FDAE) within the Federal Ministry of Agriculture and Rural Development, to oversee, lead, coordinate, and provide quality control and assurance of all agricultural extension and advisory services in Nigeria (See Fig 1).
- ii) The identification of all key stakeholders in agricultural extension development and service delivery and a clear definition of their roles and responsibilities for effective and efficient service delivery. The Relationships between: Federal, State and Local Government in agricultural extension service delivery must be clearly defined.
- iii) Clear guidelines on the funding arrangements for the development and delivery of agricultural extension and advisory services at all levels, the levels of contributions by the various tiers of government, the level of support and modalities for contribution to research and extension by the private sector.
- iv) The Agricultural Development Projects (ADP) should **continue** to be responsible for agricultural extension services delivery; while an agricultural research institute in the South-South should be formally identified to cater for the farming systems research and extension activities (including REFILS) of the Zone.
- v) The policy should provide that public extension staff salaries should be paid from a consolidated account to fund agricultural extension services, which the Federal, State and Local governments must contribute.
- vi) The Research-Extension-Farmer–Inputs Linkage System (REFILS):
The REFILS is the platform that brings all the key actors in the technology development, adaptation, dissemination and utilization together and serving as an effective and efficient tool for Research and Extension management. It is important therefore, to formalize the System and appropriately identify the coordinating agency, the Federal Department of Agricultural Extension.
- vii) The Practice of Agricultural Extension in Nigeria:
The policy should provide for a **Multi-plural System** which allows for both public and private extension service providers and both subjected to the same quality

control and assurance. However, private advisory service providers including NGOS, must register with the appropriate government agency (Federal Department of Agricultural Extension Services?) to enjoy Government patronage.

- viii) Central and negotiated time for Agricultural/Farm Broadcast:
Most Radio and TV Farm Broadcast by the NAERLS, the ADPS and other public Agricultural Agencies are virtually off the air now because of the exorbitant charges by the broadcasting houses for airtime. Agricultural Extension and Advisory Services by these public agencies must be considered as “Public Good” and so must be granted the opportunity of centrally negotiated subsidy for airtime by both the public and private media houses as part of their corporate responsibilities in support of the Agricultural Transformation by these Broadcasting Organizations.
- ix) Donor support for Extension Intervention should be mainstreamed into existing structures and ongoing efforts for proper coordination and synergy for maximum impact.
- x) Adoption of a cost-sharing strategy for extension and advisory services in the public sector, and a cost-recovery strategy for Inputs supply.
- xi) Professionalism should be encouraged at the National, Regional and International levels. There should be provision for membership registration, accreditation/certification, welfare and advocacy to be carried out for a fee, by the appropriate professional bodies. An example is the USA Crop Advisory System in which re-certification is required every two years. Patterns can be drawn from existing professional organizations and Institutes in Nigeria.

5. INSTITUTIONS STRUCTURES AND ARRANGEMENTS:

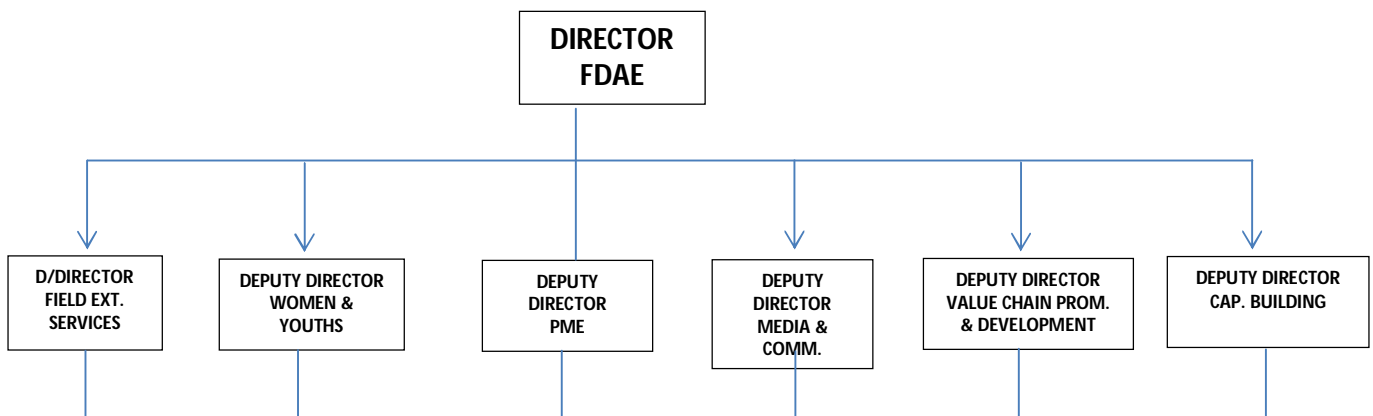
5.1. The Federal Department of Agricultural Extension (FDAE):

It has been argued that a “Federal Department of Agricultural Extension is a sine quanon” (Ekpere, 2011). The proposed Federal Department of Agricultural Extension, within the Federal Ministry of Agriculture and Rural Development, is expected to provide the critically needed leadership, coordination, quality control and assurance and the overall effective and efficient delivery of all agricultural extension and advisory services in Nigeria (See Fig 1 for Structural Organization and details of the Unit components).

The Department will be headed by a Director and have 6nos units, each headed by a Deputy Director. The units comprise of:

- i) Field Extension Services
- ii) Women, Vulnerable Groups and Youths
- iii) Planning, Monitoring and Evaluation (PME)
- iv) Media and Communications.
- v) Value Chain Promotion and Development
- vi) Capacity Building

Fig 1: FEDERAL DEPARTMENT OF AGRICULTURAL EXTENSION



1. Field Extension Services

- REFILS
- Ext. Methods & Approaches.
- Quality Control & Assurance

2. Women & Youth

- Women and Vulnerable Groups
- Youth Programs
- Food & Nutrition

3. PME

Planning, Monitoring & Evaluation

4. Value Chain Promotion and Development

- Input Sourcing
- Production

- Processing Packaging
- Markets and Marketing
- Utilization

5. Capacity Building

- Extension Staff Training
- Farmer Training
- Private Advisory Services
- Tertiary Institutions Liaison Services.

6. Media and Communications

- Media (Print & Electronics)
- Public Relations
- ICT Center Hub

A critical question to be answered by this group is: Where do we place the donor-supported interventions all which have major extension components, in order to have maximum impact and synergy with the activities of the new Federal Department of Agricultural Extension? It is proposed that they be put in the FDAE and headed by Deputy Director. The support for the interventions must be mainstreamed into the activities of the Department and part of the support **MUST** be channeled into strengthening the organizational, infrastructural and human resource capacities of the Department so as to be able to effectively drive the Agricultural Transformation Agenda for the Ministry.

Recommended Actions:

- i) Establish the Federal Department of the Agricultural Extension
- ii) FMARD to do a staff audit and determine gaps.
- iii) Deploy existing suitable staff and fill gaps.

6.1. The State ADP Structure and Extension Delivery:

For the present, ***the ADPs in the States remain our best option for effective extension delivery*** provided they are appropriately resuscitated and less politicized. The minimum requirements acceptable to the Federal government for States to be able to benefit from the agricultural transformation incentives should be:

- i) A professional Agriculturist to head the organization as the Program Manager

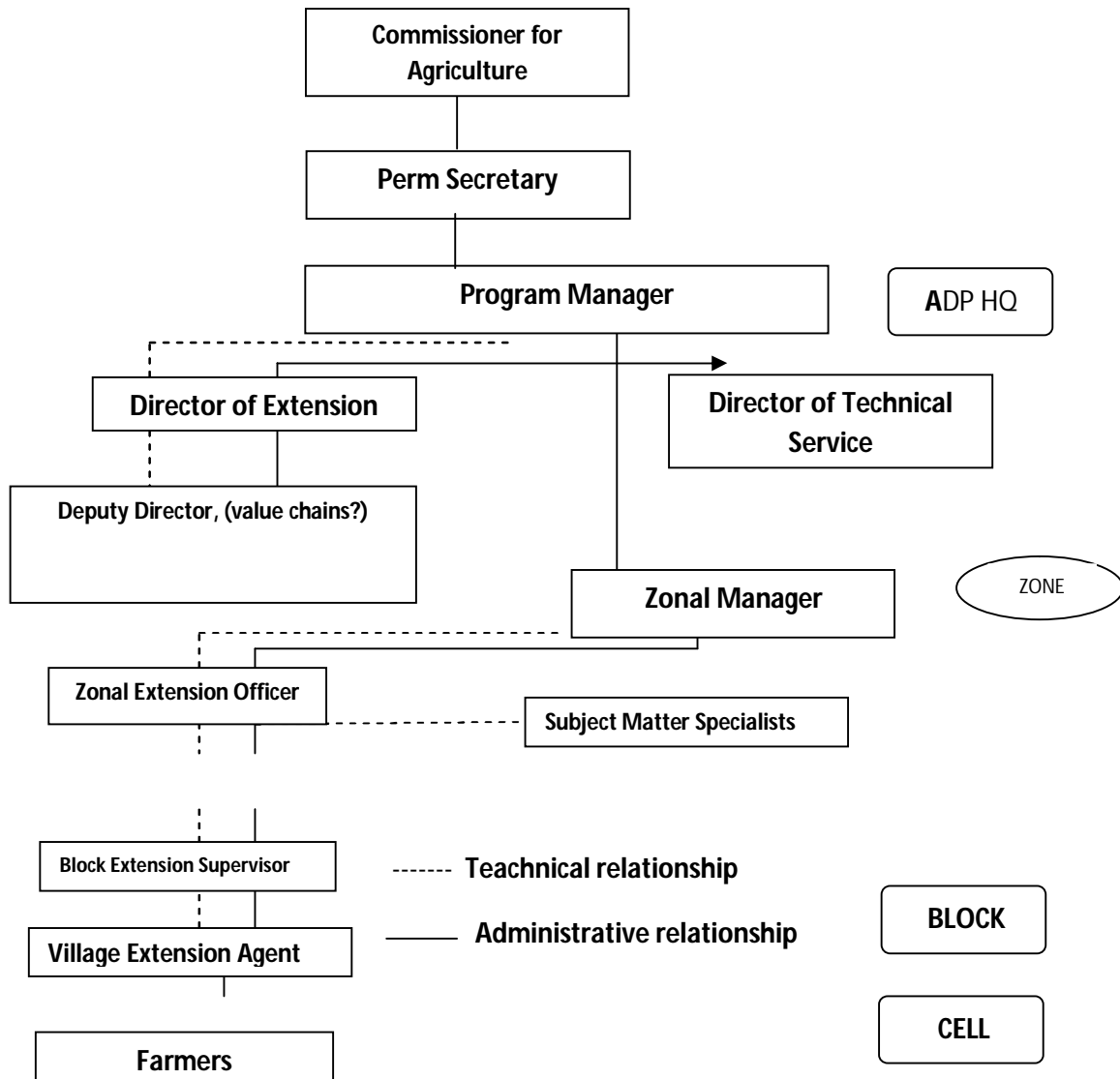
- ii) An Extension Component in the ADP that is not tucked under the Technical Services Component of the ADP), and headed by a qualified Director of Extension, to interact with the Director of the Federal Department of Agricultural Extension and/or his appointed officials
- iii) A full complement of staff at the critical VEA/Farmer interface to give a maximum Extension Agent: Farm Family Extension (EA: FF) ratio of no more than 1no. EA to 800-1000.
- iv) Facilitate an accurate census of the staff of the ADPs
- v) Assured and sustainable funding of the ADPs.
- vi) A clear and definitive career path for staff of the ADPs.

While the Organizational Structure of the ADP remains the prerogative of the States, it must be such that will facilitate smooth and unhindered interaction with the FMARD and in particular, the Federal Department of Agricultural Extension. The proposed structure is as soon is as shown in Fig 2 below.

Recommended Actions:

- i) FMARD to carry out an **accurate** Census of the **quantity and quality** of the staff of the ADPs nation-wide.
- ii) FMARD to conduct a Training Needs Assessment of the ADP Staff nation-wide.

FIG 2: ORGANOGRAM OF A TYPICAL AGRICULTURAL DEVELOPMENT PROJECT (ADP).



Adapted From: FACU, 1991.

7. INSTITUTIONALIZATION OF THE RESEARCH-EXTENSION-FARMER-INPUTS LINKAGE SYSTEM (REFILS):

The Research-Extension-Farmer-Inputs Linkage System (REFILS) is the platform that brings all the actors in the technology development, adaptation, dissemination and utilization together, thus providing an effective tool for the effective management of agricultural research and development. It evolved through the various extension communication models from the Top-Down, Linear Extension model (with only little client participation via feedback), through the Triangular Farming Systems Research and Extension model which

was in response to the need to for more involvement of farmers in technology development. Finally, features of the T & V extension system which the ADPS had fully adopted by 1985 were blended into the FRS & E model to arrive at the REFILS model (See Fig 1) by 1990. It was again, a response to the need to make the system more effective, efficient and participatory while at the same time to provide the opportunity to formally bring all the actors in the agricultural and rural development sector on board. The "I" in the acronym represents the private sector. Thus, the major stakeholders in REFILS include:

- i) Research Institutes & Universities leading the Technology development and adaptation group;
- ii) the FDAE and NAERLS leading the technology adoption and dissemination group;
- iii) the ADPs and NGOs, leading the technology utilization group
- iv) the private sector, leading the inputs and services provision group,
- v) the Government, through the FDAE, leading the policy setting, quality control and assurance, monitoring and evaluation.

It should be noted that these issues cannot be compartmentalized as they are collaborative activities. Thus the REFILS clearly identifies those that have both primary and secondary responsibilities for the key actors in the system. (See Table 2 for the roles and responsibilities of the key REFILS actors).

The implementation of REFILS reached its peak, as a management and coordination platform during the World Bank "National Agricultural Research Project (NARP)" Support to the Agricultural Research Institutes. Apart from the support provided under NARP for Research and infrastructural development of the Research Institutes, it also provided adequate funds for the implementation of REFILS activities as at when due till the termination of support by the World Bank in 1996.

Since then, the REFILS has remained almost comatose in virtually all the agro-ecological zones, characterized by weak linkages and poor coordination. Even at the height of its implementation, the private sector participation was very low and still remains same today. It is strongly recommended therefore, that the REFILS be formally institutionalized through legislation and NAERLS, in line with its national mandated, be appointed to coordinate it.

FIG 3: THE REFILS MODEL.

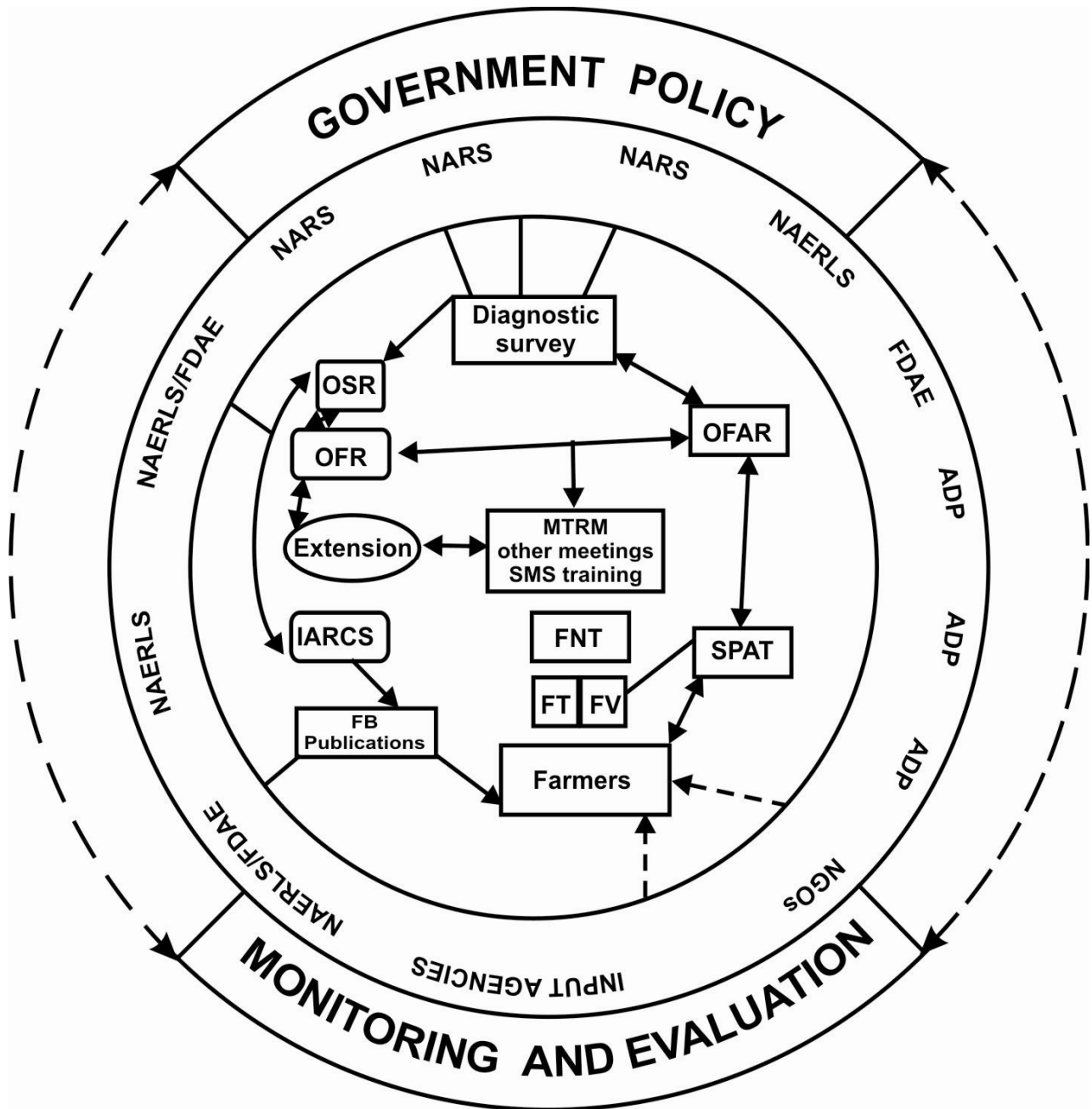


TABLE 1: INSTITUTIONS TO CARRY OUT REFILS ACTIVITIES

REFILS Activities	Primary Responsibility (Main Implementer)	Secondary Assignment (Collaborators)
1. Diagnostic Survey <ul style="list-style-type: none"> Implementation Quality enhancement 	NARIs FDAE	ADPs NAERLS
1. OFAR <ul style="list-style-type: none"> Implementation Quality enhancement 	ADPs FDAE	Coordinating NARIs NAERLS
1. MTRM <ul style="list-style-type: none"> Implementation Quality enhancement 	Coordinating NARIs FDAE	ADPs Com. RIs & Universities NAERLS
1. Workshops and Training a) Subject Matter-Zonal <ul style="list-style-type: none"> Implementation Quality enhancement 	NARI/Universities FDAE/ Zonal NAERLS	ADP NAERLS Private Advisory Service Providers
a) Subject Matter-National <ul style="list-style-type: none"> Implementation Quality enhancement 	NAERLS FDAE	ADP NARI/Univ.
a) Extension-Communication <ul style="list-style-type: none"> Implementation Quality enhancement 	NAERLS ADPs	FDAE ADPs
b) Annual Zonal OFAR-Extension Workshop <ul style="list-style-type: none"> Implementation Quality enhancement 	Coordinating NARI FDAE	ADPs NAERLS
1. Extension Publication (Bulletin, pamphlets etc.) a) Zonal-Technical Literature <ul style="list-style-type: none"> Implementation Quality enhancement 	NAERLS FDAE	NARIs & Universities. ADPs
a) (Zonal Extension Literature) <ul style="list-style-type: none"> Implementation Quality enhancement 	ADP (for each state) NAERLS	NARIs & Universities. FDAE
a) National Extension Literature <ul style="list-style-type: none"> Implementation Quality enhancement 	NAERLS FDAE	NARI ADPs
1. Farm Broadcast a) National <ul style="list-style-type: none"> Implementation Quality enhancement 	NAERLS FDAE ADPs	NARI ADPs
b) Farm Broadcast State <ul style="list-style-type: none"> Implementation Quality enhancement 	ADPs FDAE	ADPs FDAE Farmers/Private Sector
1. Monitoring and Evaluation	FDAE/PME	FDAE

a) Monitoring extension inputs <ul style="list-style-type: none"> • Implementation • Quality enhancement 	FDAE Private Service Providers	NARIs & Universities
c) Monitoring extension effectiveness <ul style="list-style-type: none"> • Implementation • Quality enhancement 	NAERLS FDAE	NARI & Universities ADPs
a) Monitoring extension output <ul style="list-style-type: none"> • Implementation • Quality enhancement 	NAERLS FDAE	ADP/Univ. FDAE
1. Adoption Rate Studies (Zonal) <ul style="list-style-type: none"> • Implementation • Quality enhancement 	NARI, NAERLS FDAE/ADP	ADPs
1. Agricultural Season Evaluation Wet & Dry <ul style="list-style-type: none"> • Implementation • Quality enhancement 	NAERLS, NARIs FDAE & Collaborating Agencies	ADPs Private Sector Farmers
1. National REFILS Planning and Review Meeting <ul style="list-style-type: none"> • Implementation • Quality enhancement 	NAERLS FDAE	Coordinating NARIs ADPs Private Sector

Source: Arokoyo, 2011 (Adapted from: Report of the Research and Extension Linkage Sub-Committee of the World Bank NARP Mid-Term Review team, 1995).

NARIs =National Agricultural Research Institutes; FDAE =Federal Department of Agricultural Extension; ADPs =Agricultural Development Projects; NAERLS =National Agricultural Extension and Research Liaison Services; Univ. =Universities.

Recommended Actions:

- i) Organize a REFILS Stakeholders' Forum
- ii) Conduct a REFILS Orientation Training in all the Geo-political Zones.

8. WHAT EXTENSION SYSTEMS/APPROACHES AND TOOLS:

An agricultural extension system is a service with the following characteristics:

- A legal or legislated framework for operation
- Continuous direct link to a source of critical mass of new agricultural technology
- Continuous direct link with training institution
- Dedicated sources of critical funding
- Capacity for procuring, processing and adapting new/improved agricultural technologies
- Capability for disseminating agricultural technologies directly to farmers

- Identifiable organizational structure
- Clientele Feedback.
- Separate field extension staff directly in contact with various publics/users

Right from the colonial era up till the present, the public agricultural extension service has remained dominant as a public service good, and has employed a variety of systems/approaches. While the early colonial period through to the immediate post-independence era (1893 -1968) strictly featured an export commodity extension approach, the post-independence era through the oil boom era (1969 – 1975 when the issue of food production was becoming a major concern) was characterized by the “diffused/general Ministry of Agriculture” extension system/approach. The policy of the Colonial Government, for agricultural extension service, was focused primarily educational and regulatory. Thus, there was little attention paid to food crops and livestock development during the colonial and the immediate post-independence era.

The post-World Bank-assisted ADP era was characterized by the initiation of several donor-supported interventions, using various degrees of participatory extension approaches within the ADP structure but the ADPs in the main, using all variants/modified versions of the T&V in “non-project areas of the State to the level which their meager resources and limited staff would allow. The initiation of these donor projects marked the true beginning of the paradigm shift in agricultural extension service delivery from a top-down supply driven, and a technology-centered extension system to bottom-up, demand-driven and client-centered participatory extension system. The era has also been characterized by the introduction of pluralistic extensions systems (providing for multiple service advisory service providers both in the public and the private sectors) and multilateral funding with contributions by all partners in the development intervention.

These reforms have given rise to a move from a monopolistic, supply-driven and a virtually non-accountable public extension service to a competitive pluralistic, accounting and demand-driven extension service system in Nigeria today. These projects therefore as a matter of policy, provide for both pluralistic extension service delivery and multi-plural funding by the all the development partners.

Three important projects are worthy of mention with respect to agricultural research and extension service delivery: the National Program for food Security (NPFS) and the Fadama Project (II & III).

There is ample evidence globally and locally to suggest the need for a pluralistic extension system, which includes potential provision of extension services from the public sector, the private non-profit sector and the private for profit sector. "The key issue of creating a pluralistic service is a need to find an appropriate 'mix' of public and private funding and delivery mechanisms for extension, which will achieve differing agricultural goals and serve diverse target populations (Anandajayasekaram et al, in: Zhou, Y. 2008).

Because of the varied actors in the value chains, it is expected that the agricultural extension will provide for multiple extension delivery systems/approaches (an appropriate mix of both supply- and demand-driven participatory approaches) to respond to the varied needs of all the actors.

In terms of agricultural extension and advisory service providers, farmer-to-farmer extension has become an important mechanism for most of Africa's smallholder farmers, especially in the face of dwindling funding to extension service for recruitment and capacity building. It is therefore important to institutionalize, strengthen, and take the farmer field school (FFS) approach that has already been initiated in Nigeria, to the next level in order to meet the current serious challenges of inadequate staffing and funding of the extension services in Nigeria.

The NPFS/FAO commenced the implementation of the Farmer Field School (FFS) Extension approach in 2007 and we have noticed significant changes in extension delivery and impact in the participating States. Unfortunately however, the successes could not be sustained and scaled up for lack of funds. The effectiveness and efficiency of the approach for farmer empowerment and productivity improvement were clearly proven.

The Farmer Field School (FFS) extension system is a unique participatory extension approach that offers an alternative to traditional extension approaches. While the traditional approaches and the World Bank-promoted Training & Visit (T&V) system view the farmers as passive recipients of information and provide supply-driven extension services, the FFS on the other hand, is a "learning process where farmers are gradually presented with new

technologies, new ideas, new situations, and new ways of responding to problems. The knowledge acquired during the learning process builds on existing knowledge, enabling farmers to adapt existing technologies to become more productive, more profitable, and more responsive to changing conditions, or to adopt new technologies” (Hughes and Venema, 2005). The FFS has evolved over several decades from a strategy for the implementation of Integrated Pest Management (IPM) for the control of rice pests in South East Asia, to a unique participatory extension approach for human development that has spread to over 60 countries in Asia, Latin America, and Africa. It can be used for any human endeavour including human reproductive health in the control and spread of HIV/AIDS. Thus it has the potential to respond to “usefully to farmers’ needs – technically, socially, environmentally and economically” (Hughes and Venema, 2005).

Recommended Actions:

- a) It is strongly recommended to formally adopt the Farmer Field School (FFS) extension approach, for farmer empowerment, group development and for faster transition from subsistence farming to agribusiness for the large majority of the present small-scale subsistence farmers who will still remain important for food security while they transit to the medium scale agri-business group, to be serviced by both the public and private advisory service providers.
- b) The large scale commercial farmers and processors in the value chains will be serviced initially by both the public and the private services providers but gradually taken over by the private service providers for a fee, and using a mix of both supply and demand-driven, market-oriented extension approaches, driven by ICTs.

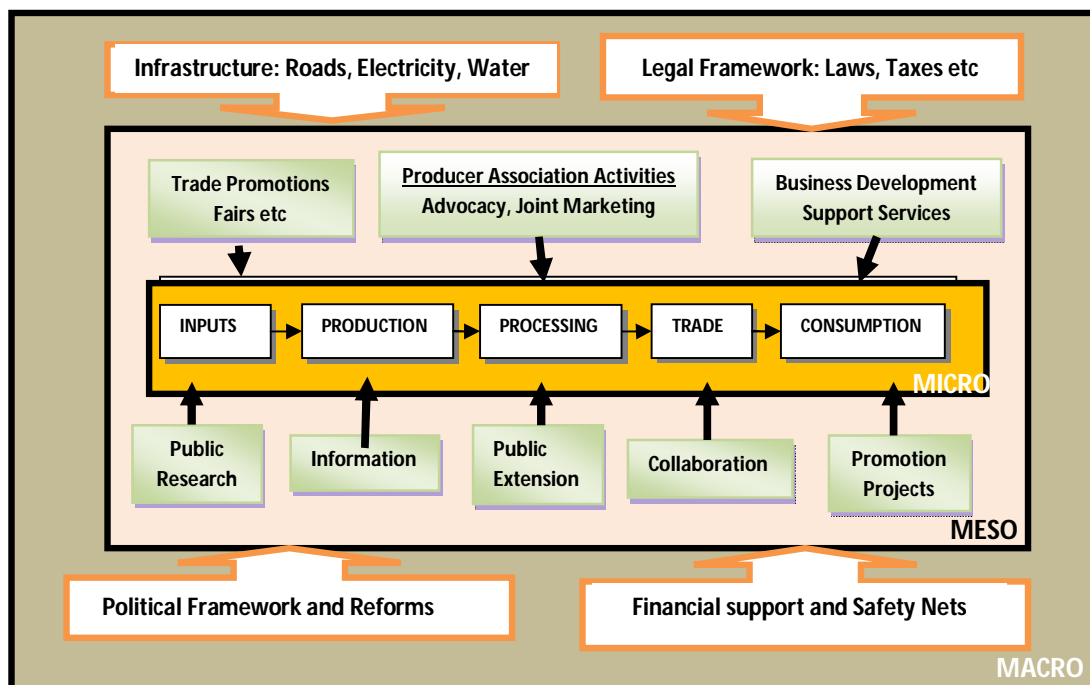
8.1. THE VALUE CHAIN APPROACH AND EXTENSION DELIVERY:

It is important to understand the value chain approach in order to provide the most effective extension delivery services for the selected value chains.

Adopting the value chain approach to economic development and poverty reduction in Nigeria’s agricultural transformation agenda is a step in the right direction at the most opportune time. Previous strategies employed, which mainly focused on improved production yielded unsatisfactory result. The value chain approach involves not only

addressing major constraints and opportunities faced by farmers or producers, but also those of processors, traders and other businesses at multiple levels and points along a given value chain. The process also include facilitating a wide range of activities such as: access to inputs, strengthening the delivery of business and financial services, enabling the flow of information, facilitating improved linkages between actors and to higher-value markets. All these activities are potential sources of income generation and employment creation for both skilled and unskilled labor (Figure 2). That is what makes the value chain approach different from other approaches and enhances its attractive to development practitioners.

FIG. 2: VALUE CHAIN ACTORS, SUPPORTERS AND PROMOTERS



However it is important to note that the value chain approach is a “demand driven” approach popularly referred to as “market driven” approaches. It is different from the traditional “supply push” approach whose emphasis is production oriented. Under the traditional approach producers are encouraged and supported to improve productivity through the use of improved seeds and husbandry practices. The Nigerian agricultural sector evolved over the years to perform this function. This implies that the institutional settings and basic trainings and knowledge of majority of the work force are strategically structured to perform traditional function. There is therefore the need for massive re-orientation and

capacity building of major actors, facilitators, supporters and promoters to have a better understanding of the approach as the campaign progresses.

The “value chain” metaphor is the starting point.

- The chain a relatively flexible structure that will change its form frequently without changing the basic structure.
- There is also one physical feature of a chain: It is impossible to move it by pushing it. The only way to move a chain is by pulling.

Translating this metaphor takes us to the main difference between VC Approach and traditional approaches. The latter often had a tendency to strengthen the supply capacity of producers and small companies without having a confirmed order, i.e. they assumed that a market would be available, which sometimes was the case and often not. But the VC approach starts from an understanding of the final demand and works its way back through distribution channels to the different stages of production and manufacturing. This is the major challenge. In a situation where most of the supporting institutions and actors only know how to “push” rather than “pull” then the ended result can easily be predicted, the “chain” will remain stocked in one place.

It is equally important to note that the value chain promotion process is knowledge based and demanding, its success depends on the quantum and rate of generation and dissemination of appropriate information and knowledge on challenges, problems and opportunities facing major actors and service providers in the selected value chain.

8.2. EXTENSION TOOLS/METHODS:

As there is no “best” extension tool/method nor a “One size fits all” a mix of both traditional (print: assorted Extension Publications & electronic: Radio, TV & traditional ICTs) and modern tools/methods (Mobile phone & Internet) will be employed to meet the various needs of the different actors in the value chains of interest being promoted by government. Recommended tools/methods are presented below from the **NAERLS** Submission (Also See the Table 1 for the REFILS actors that have the Primary and Secondary responsibilities of these activities)

8.2.1. PUBLICATIONS:

i) Assorted Extension Publications on Cassava:

A. GUIDES: (In 4nos Languages = English, Pidgin, Yoruba, Igbo)

- i) Guide on Cassava Production in 4nos Languages
- ii) Guide on Cassava Processing in 4nos Languages
- iii)** Guide on Cassava Marketing in 4nos Languages
- iv) Cassava Consumption in 4nos in Languages

B. BULLETIN: (In 3nos Languages = English, Yoruba and Igbo)

- i) Cassava Production in 3nos in Languages
- ii) Cassava Processing in 3nos Languages
- iii) Cassava Marketing in 3nos Languages

C. POSTERS A2 (4nos Languages)

D. LEAFLETS A3 (4nos Languages)

E. HANDBILLS A4 (4nos Languages)

F. MANUAL (3nos Languages)

ii) Assorted Extension Publications on Rice:

A. GUIDES:

- a. Guide on Rice Production in 4nos Languages
- b. Guide on Rice Processing in 4nos Languages
- c. Guide on Rice Marketing in 4nos Languages
- d. Guide on Rice Consumption in 4nos Languages

B. BULLETIN:

- a. Rice Production in 3nos Languages
- b. Rice Processing in 3nos Languages
- c. Rice Marketing in 3nos Languages
- d. Rice Consumption in 3nos Languages

C. POSTERS A2 (4nos Languages)

D. LEAFLETS A3 (4nos Languages)

E. HANDBILLS A4 (4nos Languages)

F. MANUAL (4nos Languages)

iii) Assorted Extension Publications on Cotton :

- A. GUIDE:**
 - a. Cotton Production in (4nos Languages)
 - b. Cotton Processing in (4nos Languages)
 - c. Cotton Marketing in 4nos Languages
- B. BULLETIN:**
 - a. Cotton Production in 3nos Languages
 - b. Cotton Marketing in 3nos Languages
- C. POSTERS A2** (4nos Languages)
- D. LEAFLETS A3** (4nos Languages)
- E. HANDBILLS A4** (4nos Languages)
- F. MANUAL** (3nos Languages)

iv) Assorted Extension Publications on Cocoa :

- A. GUIDE:**
 - a. Guide on Cocoa Production in 4nos Languages
 - b. Guide on Cocoa Processing in 4nos Languages
 - c. Guide on Cocoa Marketing in 4nos Languages
 - d. Guide on Cocoa Consumption in 4nos Languages
- B. BULLETIN:**
 - a. Cocoa Production in 3nos Languages
 - b. Cocoa Marketing in 3nos Languages
 - c. Cocoa and Cocoa Products Utilization in 3nos Languages
- C. POSTERS A2** (4nos Languages)
- D. LEAFLETS A3** (4nos Languages)
- E. HANDBILLS A4** (4nos Languages)
- F. MANUAL** (4nos Languages)

v) Assorted Extension Publications on Sorghum :

- A. GUIDE:**
 - a. Guide on Sorghum Production in 4nos Languages

- b. Guide on Sorghum Processing in 4nos Languages
- c. Guide on Sorghum Products Utilization in 4nos Languages
- d. Guide on Sorghum Marketing in 4nos Languages
- e. Guide on Sorghum Consumption in 4nos Languages

B. BULLETIN:

- a. Guide on Sorghum Production in 3nos Languages
- b. Guide on Sorghum Processing in 3nos Languages
- c. Guide on Sorghum Marketing in 3nos Languages
- d. Guide on Sorghum Consumption in 3nos Languages

C. POSTERS A2 (4nos Languages)

D. LEAFLETS A3 (4nos Languages)

E. HANDBILLS A4 (4nos Languages)

F. MANUAL (4nos Languages)

vi) Assorted Extension Publications in Fisheries

A. GUIDE:

- a. Guide on Fisheries Production in 7nos Languages
- b. Guide on Fish Processing in 7nos Languages
- c. Guide on Fish Marketing in 7nos Languages
- d. Guide on Fish Consumption in 7nos Languages

B. BULLETIN:

- a. Fish Production in 4nos Languages
- b. Fish Processing in 4nos Languages
- c. Fish Marketing in 4nos Languages
- d. Consumption in 4nos Languages

C. POSTERS A2 (6nos Languages)

D. LEAFLETS A3 (6nos Languages)

E. HANDBILLS A4 (6nos Languages)

F. MANUAL (6nos Languages)

vii) Assorted Extension Publications on Livestock Production (DAIRY)

A. GUIDE:

- a. Guide on Livestock Production in 7nos Languages
- b. Guide on Livestock Processing in 7nos Languages
- c. Guide on Livestock Products Utilization in 7nos Languages
- d. Guide on Livestock Marketing in 7nos Languages

B. BULLETIN:

- a. Livestock Production in 3nos Languages
- b. Livestock Processing in 3nos Languages
- c. Livestock Products Utilization in 3nos Languages
- d. Guide on Livestock Marketing in 3nos Languages
- e. Artificial Insemination in 3nos Languages

C. POSTERS A2 (4nos Languages)

D. LEAFLETS A3 (4nos Languages)

E. HANDBILLS A4 (4nos Languages)

F. MANUAL (4nos Languages)

8.2.2. RADIO AND TELEVISION:

The introduction of the State-wide, World Bank-funded Agricultural Development Projects (1986 – 1990), marked a watershed in the use of ICTs in extension delivery in Nigeria. With the external support, all the ADPs nation-wide, were able to establish well-equipped, Development Support Communication Units (DSC) which had printing, video, TV and Radio recording facilities etc. Most of the States established Video/TV viewing centers as well as provide free airtime for the radio and TV farm broadcasts for the ADPs. The ADPs also took advantage of the free air waves of the Federal Radio and TV stations in their states. The DSC outfits of the ADPs reached their highest development under the National Agricultural Technology Support Project (NATSP), which was the second/last phase (1991-1996) of the World Bank assistance to the ADPs. Virtually all of them produced and aired radio and TV agricultural programs. With the commercialization of both the States' and the National broadcasting networks, compounded with the withdrawal of the World Bank support, the frequency of both the ADP radio and TV programs dropped appreciably. A survey by NAERLS & PCU (2002) showed that only 26 (70.3%) of the 36 States' ADPs produced and aired radio

programs 75.6% of which were in local languages. The same survey revealed that only 48.6% produced and aired TV programs of which 57.7% were in local languages. These figures are even lower today because of the exorbitant charges for airtime and very limited corporate support by way of advertisements by the private sector paucity of funds. Despite the financial constraints, the NAERLS, with its ***standard production and post-production facilities***, still provides the leadership in Agricultural Radio and Television broadcasting in Nigeria through both Federal and selected State Radio and TV Stations in all the six geopolitical Zones, broadcasting in at least 6 local Nigerian languages and in both English and "pigin English" It also provides radio and TV farm broadcast support services to the Research Institutes and States' ADPs.

Meanwhile, the Radio and TV farm broadcast packages by NAERLS to support the Agricultural Transformation Agenda include:

i) **Sensitization and Mobilization Jingles:**

Both Radio and TV jingles in 7 languages (English, Pidgin, Yoruba, Hausa, Igbo, Fufulde, and Efik) will be produced and aired on both National and selected State Radio and TV Stations and distributed to the ADPs for local broadcasts in their States.

ii) **Radio and TV Support for the Agricultural Transformation Agenda:**

Production will cover:

- The Federal Ministry of Agriculture: Interviews with HMA & HMSA and other approved officials and Agencies of the Ministry, on The Transformation Agenda and the Guiding Policies, Implementation Plans and Progress
- The National Agricultural Research Institutes on: Activities of the Research Institutes, including new innovations, outreach to clients and feedback from the field.
- The Value chain Actors: Documentaries and Interviews covering activities, success stories, feedback to government and research institutes and challenges.
- "Consumers' Speaks": Interviews on Consumer reactions: Feedback to the other actors on the Value Chains (Producers, Processors, and Marketers), Government and Research Institutes etc).

Broadcasting: (In English, Pidgin, Yoruba, Hausa, Igbo, Ffulde, and Efik).

The airing/broadcasting of the agricultural Radio and TV programs in support of the Agricultural Transformation Agenda will be through FRSCN and NTA, Abuja as Special Programs with a 15-minutes slot and one repeat weekly and through selected States & private Radio and TV stations in the six geo-political Zones depending on available funds. The major value chain actors and other private sector organizations in Agriculture will be requested to support/sponsor the airing of the programs which constitutes a major challenge, as part of their corporate social responsibility.

8.2.3. Information and Communication Technologies (ICTS):

The main thrust of the FMARD transformation agenda is that agriculture will now be treated as a business rather than a development project with government focusing mainly on promoting opportunities for investors. This philosophy permeates all aspects of the sector, including extension and other support services. The starting point is charting a direction for all stakeholders – from the public, private, development partners, and non-State actors etc., to consider and take investment positions. One area that is potentially viable but still hazy in Nigeria is the use of modern Information and Communication Technologies (ICT), in agricultural extension and advisory services. ICT usage is spreading rapidly and changing the way of doing business across all sectors of the economy including agriculture the world over. It is actually the new form of literacy – and very soon, any person who is not able to use computers and mobile ICT terminals will be considered an illiterate. Stakeholders must therefore get set for the mainstreaming of ICT in agriculture because there is really no choice. If well planned and implemented, the use of ICT in agriculture like in all spheres of life will lead to higher operational efficiencies because it will enhance faster, cheaper and sustainable communication – the hallmark of a good extension system; a critical success factor for the much desired agricultural transformation because of its ever increasing importance. Agricultural extension is changing from the narrow concept of farming technology transfer to the broader concept of knowledge transfer or whole enterprise advisory services - covering not only technology but entrepreneurship, climate & environment, health e.g. HIV / AIDS & malaria, governance, gender, youth and other socio-

economic issues; not only to farmers but to all actors along the agricultural value chain. As the scope is expanding and becoming more cross cutting, the messages, messengers and methodologies of extension have gone beyond agricultural technicalities to facilitating the knowledge needs of stakeholders to combat poverty and improve rural livelihoods. ICT may well be the stimulant needed to revitalize and modernize agricultural extension in Nigeria against this challenging background.

ICTs Use in Agricultural Extension in Nigeria:

Agricultural extension has a long history in Nigeria and has passed different phases of evolution. ICT has been adopted at varying levels – through vans spreading audio / video messages, radio & television broadcasts, and more recently web and mobile telephone based platforms. Traditionally, extension has largely been seen as a social service in Nigeria - initiated and funded by governments, development partners or community service units of large businesses basically for technology transfer to farmers. Although there are pockets of commercially motivated efforts through some forms of farmer advisory services to support specific manufacturing supply chains or sale of inputs; stand-alone commercial extension services are almost nonexistent. The use of ICT in agriculture has generally followed this not-for-profit pattern, and attempts to commercialize ICT in agriculture have not been encouraged or at best treated with nonchalance. Some public sector and development partner advocates of the not-for-profit approach have argued that commercial extension and ICT services exploits “poor farmers” while advocates of such commercial services argue that the public sector / development partner managers of not-for-profit extension and ICT projects are subvention and grant seekers – mainly for their own survival, always hiding under the so called “project administration” covers to get comfortable packages at the expense of the same farmers. What cannot be denied is that not-for-profit extension and ICT projects are not successful because they all fail when subventions and grants are stopped. The key challenge therefore is how to put in place a sustainable ICT platform that will operate as a going concern based on fair cost sharing arrangements without recourse to charity funding continually.

The Value Chain Concept and Market-oriented Agricultural Advisory Services:

A Value Chain agricultural development approach, powered by a market-oriented agricultural extension and advisory services, must be driven by ICTs especially the new

generation ICTs, now commonly referred to as Web 2.0 for Development (Web 2.0. 4Dev), in order to be both successful and competitive. To appreciate the importance of a sustainable ICT platform, we need to understand the knowledge of the value chain concept. Let us consider knowledge as tested and certified information that can be used for scientific or evidence based decision making. Information becomes knowledge only after it has passed through a validation mill consisting of a number of steps, namely:

- a) Generation – information is constantly generated by all actors in agriculture either empirically or as narratives in the course of their regular activities. The validity of raw information is however questionable and therefore not very reliable / valuable for decision making.
- b) Processing – to improve the reliability / value of information, it has to be collated and processed (or analyzed) by experts – the popular word for these activities is research.
- c) Storage – processed information i.e. knowledge or evidence has to be carefully kept in trust for stakeholders in such a way that its integrity is not in doubt. This we call data banking or archiving.
- d) Distribution – the most useful form of knowledge is one that is available for stakeholders to apply to their activities. This is where extension / advisory services come in. Extension does not only ensure that knowledge gets to the end-users, it also help in gathering the impact (which is actually raw information) to feed the processing mill to start another round of the chain. Thus, extension is the heart or pump of the chain.

The movement and handling of information / knowledge in the steps described above requires efficient communication modes just like the movement of physical goods requires transportation modes. Similarly, the storage of information / knowledge requires warehousing just like physical goods. The only way to do these effectively and efficiently is by mainstreaming modern ICTs into all the steps. Traditional communication and information storage modes such as interpersonal and group meetings (in village squares / farms), human broadcasts by village announcers, oral story telling by elders etc. are not

capable of supporting knowledge value chains. The introduction of technologies for printing, audio & video recording, information vans, radio & television broadcasts etc. mechanized the processes for communication and information storage, and made it possible to conceive the initial knowledge value chains and extension services. However, the advent of computers and the Internet revolutionized these concepts and have truly made the world a global village. In the last quarter of the 20th century, developments in ICTs and their applications in electronic transport infrastructures (popularly known as information systems) revolved around computers and the Internet – the so called online or dot com world. ICTs have moved on in the 21st century and are now converging around mobile telecommunication – the so called on-mobile or dot mob world! Global agriculture is being radically changed by mobile telecommunication and Nigeria cannot be left out.

Information Systems in the Nigerian agricultural sector

Until recently, information systems are elitist because there were based solely on personal computers, Internet services and complicated web based programs – hardware and software that were not available, affordable and accessible to the common man, like the farmers and majority of the other stakeholders in the agricultural sector in the developing world. The advent of mobile telephony dramatically changed this situation. All over the world, various information systems have been deployed to very remote parts because the mobile phone is available, affordable and accessible to almost all humans alive today. It is now a matter of sophistication and depth. Within the Nigerian economy, the mobile phone has created several informal information systems among diverse groups – families, farmers, traders, mechanics, bankers, doctors etc. are frequently communicating with each other by voice, SMS and even mobile Internet; calling for meetings and sharing information on products, prices etc. By introducing some level of management and value added services, these platforms can become vibrant information systems that will enhance efficiency in communication sector and reduce cost of doing business generally just like online and mobile services have transformed banking and financial service delivery. Agricultural experts have longed for increased application of ICTs in the sector. What has mainly stopped its evolution is the prohibitive costs and near impossibility of deploying and maintaining personal computers and satellite Internet services across the country. But 10 years after the

introduction of private mobile telephony in Nigeria, the technology challenge has been substantially overcome and cannot be an excuse any more. In the last decade, non-commercial attempts have been made to create agricultural information systems largely through public sector, Non-State Actors (NSA) and development partner efforts. These have not been sustainable because they all depended on government, donor agency or some other forms of “charity financing”. The few private sector efforts have only had limited success and impact because the public sector has been largely nonchalant if not hostile to the initiatives. The following are recommended to overcome these immediate challenges and as part of government’s efforts to promote PPP and not “choke out” the private sector

- i) The agricultural sector requires a unified ICT driven knowledge management platform to avoid duplication of efforts and the proliferation of conflicting messages. If this is well planned and implemented, it will give extension a boost.
- ii) The platform should provide knowledge products that are reliable, relevant and timely in formats and languages that will be useful and accessible to stakeholders, including rural dwellers. The system should also be bidirectional / interactive to enhance good feedback.
- iii) The pragmatic way to developing a unified ICT platform is to blend various communication modes, both fixed and mobile solutions into an integrated information system based on standardized applications that can be accessible by a wide range of terminals, irrespective of the service providers to guide against creating a monopoly.
- iv) All stakeholders and actors in the knowledge value chain should be considered in project planning and implementation.
- v) Nigeria should avoid importing grandiose models that are not compatible with the infrastructural and social realities on ground. Simpler technologies will provide better results; for instance mobile technologies will have more impact than fixed terminals based computers & VSATs etc.
- vi) ICT projects fail because they are conceived and implemented as social services funded by government subventions and development partners. They usually fold up when charity funding stops. The issue of making projects sustainable is crucial to the

success of ICT driven knowledge management. Nigeria really has no choice but to allow the private sector to introduce commercial and cost sharing innovations into such projects.

vii) In place of direct subventions, governments and development partners should create incentives for the private sector to offer discounted ICT services to the agricultural sector. Past pilot schemes have demonstrated that Private Telecom Operators (PTOs) are willing to offer low tariffs to support agriculture but are frustrated by the nonchalance or even hostility of the public sector. For example, the pilot CUG offered by the AMIS – Airtel partnership brought down the average monthly cost per user on the Farmers' Network to N262.50 against the industrial average monthly cost per user of N1,200 as at 2009. This meant that about 78% discount was offered by the PTO, and was considered the best group tariff plan ever offered in Nigeria. Surprisingly, none of the national programs dealing with large numbers of farmers was interested in the offer and the CUG was kept on partial toss as it could not be scaled up.

viii) Government should also pursue the universal access program more vigorously to ensure more penetration of basic telecom services to rural areas.

From the foregoing, here are some recommendations for FMARD's consideration:

i) There is need to take a serious look at some commercial ICT in agriculture initiatives with a view to forming PPPs that really work based on fair cost sharing arrangements. The engagements should be genuine and based on clearly defined work plans and timelines not to frustrate and crowd out the private sector from the ICT projects to allow the subvention and grant groove train continue (to use the words of the Honorable Minister of Agriculture)! For instance, a PPP discussion with NAMIS that started in 2008 led to the incorporation of AMIS Limited and the development of some pilot ICT solutions but has not been concluded to date. Ironically, these solutions initially meant for the agricultural sector are being used in other sectors today and NAMIS has continued to depend on subventions and grants. FMARD should reopen discussions with AMIS Limited and other interested private

organizations like Admiral Environmental Care Limited, Zinox, Nokia etc. to create the foundation for true partnership for sustainable ICT use in agriculture.

- ii) The implementing of the Nigerian Strategic Agricultural Knowledge Support System (SAKSS) which is aimed at integrating various efforts should be reactivated to effectively create a unified ICT platform for the sector. The SAKSS steering committee was inaugurated in December 2010 with the Honorable Minister of Agriculture as chairman but it seems to have lost steam.
- iii) The cooperation of private telecom operators is crucial to the success of all efforts to apply ICT in agriculture in Nigeria because they carry the electronic traffic. They should be engaged and incentivized to provide discounted services to the agricultural sector and support cost sharing. Again, FMARD should leverage on existing partnership models like the AMIS – Airtel, Admiral Environmental – Globacom, Growing Foundation – Visafone etc. to kick-start the engagement on the private sector side.
- iv) All relevant government agencies, especially those in charge of telecommunication and broadcasting, fiscal and monetary policies e.g. Nigerian Communications Commission (NCC), National Broadcasting Commission (NBC), Federal Ministry of Finance, Federal Inland Revenue Service (FIRS), Central Bank of Nigeria (CBN) etc. should be engaged to pave the way for the appropriate incentives and provide the right policy framework for lowering service charges to the agricultural sector. If necessary, the legislature should also be engage to provide appropriate legal backing for such policies.

It is absolutely important for the HMA to put a Committee of these various interest groups together to conclude all going negotiations and come up with a complete ICT package (an functional and reliable ICT platform that will cover the entire nation) to seriously drive the Agricultural Transformation Agenda.

8.2.4. The Farmers' Helpline" (A Mobile phone/Web-based Support):

It is important to note that the NAERLS/ABU is currently operating the CTA-supported, mobile phone-based, "Nigerian Question and Answer Service" (NAQAS), with 9nos collaborating Research Institutes scattered in all the agro-ecological zones of the country. The main objectives of NAQAS are **to provide useful information on demand** by all users of the service. It has a website: www.naqas.org and an e-mail contact: naqas@naerls.gov

The ICTs infrastructures, both soft and hardware developed for the service is quite rudimentary and thus the services are limited in coverage (geographical and number of clients).

In 2010 alone, NAERLS-operated Nigerian Question and Answered Service (NAQAS), received and processed almost 4000 requests for agricultural information, of which 2,218 requests were received in the fourth quarter of the year alone. The various requests came from farmers, farmer groups, marketers, policy-makers in the agricultural sector, research scientists, and others interested in the events in the nation's agricultural sector. Results of the National Annual Agricultural Performance Survey have shown that the information so sought and disseminated have had tremendous impact on food production and farmers' productivity, processing, storage and marketing nationwide.

This development thus made NAERLS to seek ways of improving its phone-based and web-based gateways to information dissemination to its numerous national and international audiences. Various research findings and training sessions with stakeholders from the field have thus shown that it is about time Nigeria established the Centre for Web and Mobile Phone-based Extension and Advisory Services: Farmers' Helpline. This project is borne out of NAERLS' aspiration to effectively execute its mandate and substantially support the country efforts in the attainment of the MDGs and the Vision 20:20:20.

Earlier in August 2011, NAERLS signed an MOU with Esoko Nigeria to build a sustainable MIS system and farmer-support service database using mobile telephony and SMS technology. Also in 2010, the Institute began negotiation with NOKIA, to produce customised phones in line with the peculiar Nigerian agricultural extension features. With this background and the urgent need to key into and drive the current Agricultural Transformation Agenda, it is strongly recommended that the NAQAS be upgraded into a sustainable "Web/Mobile phone-based Farmers' Helpline" which will be: **a comprehensive web and mobile phone-based agricultural extension and advisory service**

for all the value chain actors, as presented below. As part of the spinoffs, it will also sustainably reduce the noxious challenges associated with fertilizer distribution in Nigeria.

The services and technologies are categorised as follows:

a. Phone-based:

- Phone to Phone SMS (both voiced and text)
- Computer to Phone SMS (both voiced and text)
- Computer to Phone Voice Mail
- Phone to Phone Voice Mail

b. Web-based:

- E-learning
- Online Radio,
- Podcast,
- Social Media (Blog, Facebook, Twitter, and other Google applications),
- Live online text chat
- Electronic newsletter and other publications (PDF, MSWord, etc)

Objectives

- i) To bridge the gap between research findings and actual farming activities, between the researcher or extension agent and the farmer, towards improved national productivity and standard of living for rural farmers.
- ii) To provide an innovative platform for reaching out to the youths (through social media such as facebook and twitter) with regard to farming activities and career opportunities in the agricultural sector.
- iii) To build and maintain a comprehensive database of all Value Chain actors' of the targeted value chains of interest to Government with regard to ICT use for the dissemination of agricultural innovations.
- iv) To support the transformation from subsistence farming into agribusiness.
- v) To provide a smooth platform for transparent distribution of farm inputs to farmers and other stakeholders, in line with government's accountability agenda.**
- vi) To help farmers analyse their present and expected future farming and livelihood needs and situations. This will also help them become aware of problems which can arise from such an analysis.

- vii) To strengthen the link between agricultural development activities and the private sector, so that these organizations can provide a wide range of extension education and technical support services, such as micro-credit financing and supply of essential inputs.
- viii) The database so generated from this platform can be used to solicit foreign aid and partners with regard to agricultural activities.
- ix) To help win the war on corruption; as it will help hold those responsible for farm inputs distribution accountable. This is a key agenda of the present administration. Due to corruption in the society today, so much money meant for agricultural work leak out of the system into private pockets or bank accounts.
- x) To increase knowledge and develop insight into field and policy problems, and help structure existing knowledge on such issues
- xi) To help farmers, produce marketers, government officials and other stakeholders in the sector acquire specific knowledge related to certain problems and solutions and their consequences so they can act on possible alternatives. This will help them make responsible choices.
- xii) To help farmers, produce marketers, government officials and other stakeholders evaluate and improve their opinion-forming and decision-making skills.

“The Farmers’ Helpline”: The Centre for Web and Mobile-phone-based Agricultural Extension and Advisory Services:

Human Resource Requirement (Personnel)

<i>Designation</i>	<i>Number requirement</i>
• Staff at the help desk	30 (15 x 2 shifts)
• IT staff	8
• Supporting staff	10 (including secretariat and assistants)
• Head of unit	1

Infrastructural Requirement

- a. **Call Centre Block (Building):** A Standard world class design call centre block (50ft x 100ft , that would house at least 20 call centre desks and agents with a capacity for future expansion in the number of room space, agents, furniture and equipment. The building would have capacity for alternative sources of energy (solar energy, high-power inverter system, etc) and air conditioning system to regulate the heat generated by equipment and humans. Also within the design will be 4 restrooms, as agents will work round the clock.

b. IT infrastructure

- **Computers and mobile phones:** For a start-up, there is need for 45 computer units; and 50 multimedia-equipped mobile phones for the centre.
- **Platform (Mobile Networks):** The Institute uses the four major networks in Nigeria (MTN, Glo, Airtel and Etisalat) for the mobile phone extension because of their wider coverage. These providers would avail the project certain uniform numbers (or short codes) for text and voice messages, such as 422 or 421.
- **Hardware & Software:** Modern and up-to-date servers (hardware) are required to host all applications (software, including the server OS itself).
- **Bandwidth (ISP):** A strong and dedicated bandwidth (of at least 4 x 4 gigabyte, for uplink and downlink), for sending and receiving information to and from farmers, produce sellers, policy makers and other stakeholders in record time.
- **Fibre Optics Networking:** Adequate and standard connectivity is required for real time communication and connections within all facilities and resource in the institute to enable proper sharing, of all kinds of resources from personnel, to extension guides, bulletins, LAN TEEAL, Agora etc. This will be shared on the network. It will also allow for transmission of voice call over the networks as extension specialist will be able to respond to questions from their desk without having to be in the call centre.
- **Call centre IVR:** The call centre is a two level interaction system which consist of IVR (Interactive Voice Response) and HR (Human Response). The call centre is accessed with a special number (333) and a Toll free number 08050000000 the emergence number must be same across all networks for simplicity and uniformity. Except for the toll free number which will be provided by Glo.
- **Subscription (for SMS gateway):** The Esoko platform is a comprehensive farmer profile based (Short Message Services) web application that works on even the simplest phone. All farmers need to do is subscribe for the service in order to benefit. Esoko Nigeria and NAERLS is currently in a partnership on mobile phone-based extension delivery. Hence the project will be an expansion of this partnership, with regard to mobile-phone used.
- **Web Hosting:** Dedicated hosting service or Colocation web hosting service for housing our robust website and web applications (such as Nehalem Xeon 5520 2.26 GHz).

c. Post-installation requirements

- **Training for technical personnel:** The Information and Computer Technologies are evolving at a very rapid rate, In order to keep up with global trend in this area the staff must be

regularly trained on knowledge and practices regarding installation, management and maintenance skills.

- **Training for Users:** Due to the rapid changes in the evolution and uses of new technologies, users of the phone-based extension service (both extension agents and extension advisory service users) would have to be regularly trained on how, what and when to use the new innovations.
- **Maintenance:** This comprises a systematic periodic maintenance schedule and a random upgrade schedule in line with the global trend (or innovations) in ICTs and mobile telephony.
- **Adverts & Marketing (Online and Offline):** Creating awareness of the services so that the value chain actor can quickly get to take advantage of the Medium. Adverts on Radio & Television Networks (NTA, AIT, Channels, CNN, DSTV), newspapers, web banners and ads (Yahoo, google, facebook, etc), mobile phone networks (MTN, GLO, Airtel, Etisala) etc.

How the Centre will Work:

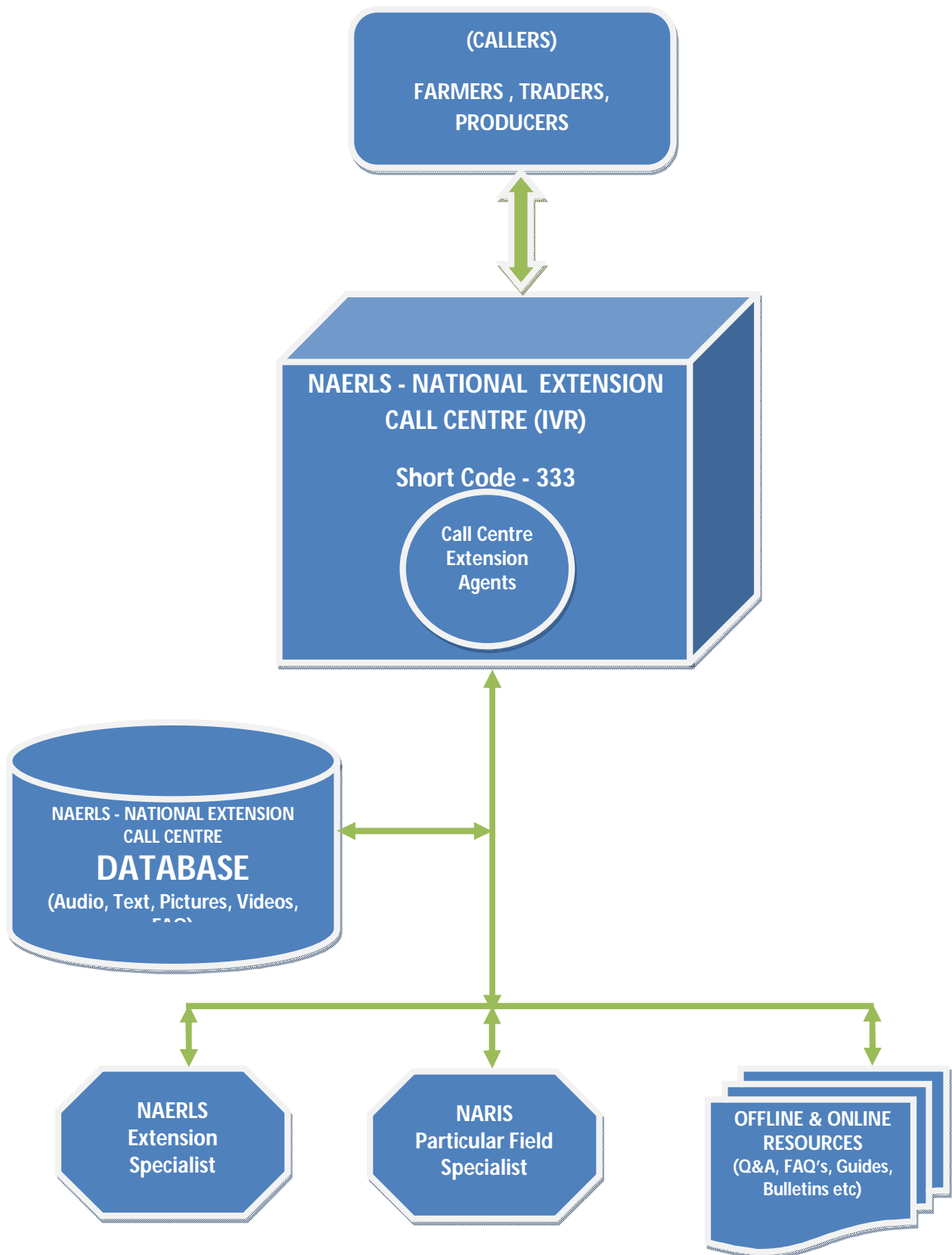
The operations are basically categorised into two levels: automated (IVR or interactive voice response), and live human interaction. The operations of the call centre are such that the first level of interaction with the caller is automated (i.e. IVR-Interactive Voice Response). The system will be programmed in the five commonest languages in Nigeria (English, pidgin, Hausa, Igbo and Yoruba). There will be pre-recorded messages on the specific value chain crops on FAQ (frequently ask questions), Q&A (questions and answers) already on NAQAS database. Where the needs of the caller are met at this level, the communication ends. But where the caller's needs/questions are not met/answered, he/she is transferred to an agent (help desk at the centre), who is a specialist in the area so concerned and proficient in the language of the enquirer. Meanwhile, all calls are recorded so as to enrich the database of the centre. For cases unsolved, the caller is profiled and stored on the system and later contacted or given toll-free access to the contact at the Centre.



Fig. 3: A Model of the Proposed National Web and Mobile Phone-based Extension and Advisory Services



Fig. 4: A Model of an Equipped Extension Agent at the Help Desk



Recommended Actions:

To constitute a committee of private IT Experts to work with NAERLS/ABU, to:

- i) Review the NAERLS' ICT platform (National Extension Call Centre) and develop a functional and sustainable ICT platform center that will effectively power the Agricultural Transformation Agenda, with reference of course to the appropriate government agencies in the sector and the private service providers.
- ii) Determine number and locations of hubs in the geopolitical zones, ownership, operations, costs and sustainability.

8.2.5. Establishment of Multipurpose Community Tele-Centers (MTCs):

The "Multipurpose Community Tele-centers are shared information and communication facilities for people in rural and isolated areas. They usually offer basic communication services such as telephone, fax, typing, photo-copying, printing, and training in the use of computers, email and electronic networking. While these MTCs have been deployed as "strategic interventions by international donors to help bridge Africa's digital divide, on pilot basis in several East and Southern Africa, including Mozambique, South Africa, Tanzania and Uganda, they will be properly packaged as part of efforts to reduce youth unemployment in the Agricultural Transformation Agenda. They will be established in all the Staple Crops Processing Zones (SCPZ), all the NARS and Colleges of Agriculture and Related Disciplines "Adopted/Model Villages" and in major agricultural production communities. Each MTC is expected to provide employment for 10 youths working in two shifts of 5 youths. The MTCs in the SCPZ will be linked into the national agricultural ICT platform.

8.2.6. Technology Demonstrations:

One of the ways to fast-track improved technology/innovation adaptation, adoption and utilization is through participatory "Method and Results" demonstrations complemented by field days, exchange/study visits for experience sharing. Demonstrations of useful, proven and relevant technologies/innovations of the targeted value chains will be established by the appropriate actors in the REFILS systems (NARES, the ADPS and in special cases by the private service providers). It must be emphasized that under this transformation agenda,

demonstrations must definitely move away from the “table-size” small plot adoption technique (SPAT) approach to the Sasakawa SG 2000-promoted Management Training Plot (MTP) approach which is both more convincing and income generating among the other added advantages, including practical capacity building for farmers.

Recommended Actions:

- i) FDAE to liaise with the NARES to: determine the selected Value Chains for their various ecological zones, the number of demonstrations to be established in their “adopted/model villages” and Secondary Schools
- ii) FDAE to meet with the ADPS to: determine the selected Value Chains for their States and the number of demonstrations to be established to push them.

9. STAFFING:

While the World Bank assistance to the ADPs lasted, (mid-1970s through the mid-1990s), the number of extension agents (BEAs and VEAs) at the most critical inter-phase with the farmer was generally adequate. This was achieved through direct recruitment of extension agents and through the secondment of staff from the various States’ Ministry of Agriculture to the ADPs. Thus, for the period that the assistance lasted, and buoyed by a rigorous manpower development program in place, the extension service delivery could be described then as fairly good and effective. The extension agent to farm family ratio as at then, was about 1EA: 1000-1,500 FF. The World Bank support was designed to bring this ratio down to about 1EA: 800-1000FF, by the end of the project life. Unfortunately however, not only was the target not achieved but indeed, the termination of the World Bank support marked the beginning of the attrition of the ADP staff (both directly recruited and seconded), particularly the extension agent cadre, starting with the massive retrenchment of all the directly recruited contract staff of the ADPs nationwide. With retirements, deaths and departures for “greener pastures” fueled especially by the lack of a clear career scheme of service. With no new recruitments, the quantity and quality of the ADP personnel, has continued to deteriorate and correspondingly also, the services they provide (Arokoyo, 2009). The EA to FF ratio today ranges from 1EA: 2,500 FF to as high as 1EA: 10,000 FF. All

States' ADPs must be encouraged to maintain a minimum ratio of 1EA to a maximum of 1no EA to 800 - 1,000 FF.

Recommended Action:

- i) Carry out an **accurate** Census of the **quantity and quality** of the staff of the ADPs nation-wide.

10. CAPACITY BUILDING:

The term capacity building has gone beyond the acquisition of new skills to now encompass management, ICT coverage, availability of fund and technical inputs, infrastructure, heightened public awareness as well as networking among key players. Improved capacity development is needed not only to bolster production and productivity but to enable the various actors in our to access and use information on innovations in order to be able to compete effectively globally, regionally and locally.

There no doubt that both the service providers (both public and private) and the actors in the selected value chains will require copious and comprehensive capacity building to bring out the agricultural transformation agenda that is being visioned, to make Nigeria not only to be food-secured, but to become a global player in the World food market, create wealth and employment for our teeming youths. It is imperative therefore to package a robust capacity package for the following categories of stakeholders:

a) Capacity building for Unemployed Youths and Unemployed Graduates in the Agricultural Transformation Agenda:

Africa has the fastest-growing and most youthful population in the world (more than 20% of Africa's population is between the ages of 15 to 24 and, over 40% is under 15 years). The World Bank's 2008 report "**Youth and Unemployment in Africa: The Potential, The Problem, The Promise**", *identifies youth unemployment and underemployment as a major cause of social instability and recommends job creation for youths as a precondition for poverty eradication and sustainable development in Africa.*

Unemployed Youths: For the unemployed youths with only SSCE/NECO, NCE and ND the focus of capacity building will be by way of entrepreneurship training in all areas of agriculture, lasting from a few weeks to a maximum of one year. NAERLS, the Leventis Foundation (LFN), the NDE, the Oil Companies (Shell, AGIP and the Mobil) and the NLNG have various packages that will interest these youths including:

A. NAERLS/ABU:

The NAERLS/ABU, has a well-designed but only moderately equipped Skill Acquisition and Development Center (SADC) which it has used to provide a variety of entrepreneurship trainings in all areas in agriculture *on demand* by both the private (NNPC, etc) and the public (Federal, States and Local Governments) sectors for both employed and unemployed youths. It had a major assignment from the last administration in its program of training 10,000nos unemployed youth in various agricultural enterprises and also in the training of unemployed graduates as private advisory service providers. Sample entrepreneurship trainings in collaboration with the relevant Institutes are presented below:

Enterprises:

- i. **Horticulture: Fruits** (citrus, mango, pineapple, plantain, banana, Irvingia, guava), **Vegetables and Spices** (pepper, onions, garlic, water melon, mushrooms)
- ii. **Crops: Root and tuber** (cassava, yam, ginger, sweet potato, cocoyam, Irish potato), **Fibre** (Kenaf, cotton), **Cereal** (rice, maize, sorghum, millet, sugar cane)
Legumes (soybean, cowpea, groundnut,),
Tree crops (oil palm, coconut, rubber, date palm, raffia palm, cocoa, coffee, kolanut, gum arabic, shea butter)
- iii. **Livestock:** poultry, sheep and goat, cattle, rabbit, grass cutter, snailery, piggery
- iv. **Fisheries:** Aquaculture, capture fishery
- v. **Agricultural mechanization**
- vi. **Agro processing**
- vii. **Storage and preservation**

NAERLS/ABU has the facilities (A standard conference hall with up-to-date audio-visuals, a skill acquisition and development center, complement with a 50-bedroom conference and training center) and the capacity to train about 2,000 unemployed youths, in batches per annum, focusing on the commodity value chains of interest to the government.

B. NDE:

- i) Rural Employment Promotion (REP); and
- ii) Special Public Works Program (SPW)
- iii) Vocational Skills Development (VSD) program
- iv) Small Scale Enterprises (SSE) program

C. LEVENTIS FOUNDATION (LFN):

LFN is a foremost non-profit and charitable organization in Nigeria that focuses on capacity building and training of farmers and youths in Agriculture for the past 23 years. The Foundation has Six Agricultural Training Schools located in five agro-ecological zones in Nigeria. So far the Foundation has trained over 15,000 young Nigerian farmers across the Country. A unique feature of the LFN Schools is the formidable extension units in the schools that offer technical support and advice to the farmer-graduates of the schools.

D. THE OIL & GAS COMPANIES' OUTREACH PROGRAMS:

These companies also have important agricultural outreach reach programs as part of their social responsibility services to their various communities that focus primarily on unemployed youths and women.

Sustainability Lessons and Youth Agri-Business Development:

The experiences derived from the execution of the above training programs have been varied and quite revealing. The important lessons that have been learned from the various efforts above by both the Not-for-profit and the for-profit NGOs, outreach efforts include:

- A "Disengagement" or "Starter" or "Take-off" package which include but not limited to either a grant or microcredit and working tools must be provided for the entrepreneurship trainings to be both meaningful and sustainable.
- Continuous technical backstopping for the graduates
- Formation or identification with a farmers' group or cooperative association.
- Linkage to markets and financial institutions.

The Roles of the Trained Youths in the Extension Transformation Agenda:

- These trained young prospective farmers could remain as entrepreneur-producers and processors in their communities.
- Contract growers and processors supplying produce and products as industrial materials to larger agro-processing companies
- Act as extension agents in their communities and participating actively in technology demonstrations
- May be employed by the Local governments in their agricultural departments.

Recommended Actions:

- i) Collaborate with all the public and private sector agencies as above, involved in capacity building targeted at youths (males and females) in agriculture, to determine their training programs (curricula), capacities and outputs for planning in agriculture.
- ii) Formalize sharing of experiences, facilities and expertise.

With hindsight experience now, it can be said that the training of the 10,000nos unemployed youths program of the last administration failed not only because of the non-completion of the training program but also for the non-payment of any take-off package for the graduates of the program.

Unemployed Graduates: The capacity building for this group will focus a specialized training program for unemployed graduates in agriculture and related disciplines (Botany, Zoology, Biochemistry, Rural Sociology and Food Science), to prepare them as agricultural extension and advisory service providers to be injected into the public extension services but principally as registered private advisory services providers to service the various targeted value chains.

The graduates must have a MINIMUM of B.SC or HND in Agriculture or a related discipline as specified above. With this background of solid knowledge and skills, the proposed training will be VALUE addition for the trainees in the subject-matters of agricultural extension communications, principles and practice to make them effective and efficient

Advisory Service Providers to complement the public extension service power the value chains and eventually become the major actors.

The NAERLS/ABU was the sole institution saddled with the capacity building for advisory service providers in the last dispensation and still has the capacity to train 400nos unemployed graduates in 8 batches of 50nos unemployed graduates per annum.

Recommended actions:

- i) FMARD to decide on the modalities for the selection of the unemployed graduates to benefit from the scheme nationwide
- ii) FMARD to work out the “total package” for the beneficiaries of unemployed graduates agricultural advisory service providers including: post training Industrial attachment, take-off grant/microcredit, working tools etc.
- iii) For quality control and assurance, all graduates of the advisory service providers must be registered.

b) Capacity Building for Extension Staff of the ADPS:

The public extension service (through the staff of the ADPS), supported in the main by specialized government Institutions (the National Agricultural Research Institutes, the NAERLS, and ARMTI and selected private service providers), has the immediate responsibility to drive the agricultural extension agenda and by implication, the agricultural transformation agenda of the present administration. Consequently, the staff must benefit from a robust capacity building program in order to be able to deliver. Further, the value chain approach adopted for the implementation of the transformation agenda also demands a higher level of skills and knowledge by the drivers (ADP staff). It is pertinent to point out here, that both ARMTI and NAERLS have capacity for training in Value Chain promotion and development.

The ADPs had the best capacity building program during the era of the World Bank support with each ADP then having a Manpower Development and Training Department/Component, they delivered then. However, with the termination of the World Bank assistance the Component crumbled like some many others in the ADP system and has

virtually remained so since. Unfortunately, most of the recent trainings offered to the ADPS have been supply-driven rather than demand-driven and so have made only minimal impact in the field. A robust Manpower Development and Training Program for the ADPs the arrowhead of the public extension service, is critical for the success of not only the extension transformation agenda but for the entire agricultural transformation agenda of the government. The capacity building program must be demand-driven and comprise of both on-site and off-site extension communication, technical, leadership and managerial courses. For the short-term and for the concentration of efforts on the transformation agenda, qualification trainings will NOT be covered.

Recommended Actions:

- i) To complement the recommended census of the ADP staff (quantity and quality), it is also strongly recommended to carry out a Training Needs Assessment of all the ADPS nation-wide.
- ii) ARMTI should collaborate with other relevant Organizations and individual experts to immediately carry out this assignment. This will be part of the resuscitation of the ADPS.
- iii) ARMTI and NAERLS along with any other Manpower Development Institutions that has the expertise to provide capacity building for staff of the ADPs in Commodity Value Chain Promotion and Development.
- iv) ADPS to “bring back” the Manpower Development and Training Units to effectively sustain the prosecution of the agricultural transformation agenda.

c) Capacity Building for Farmers/Producers:

The ultimate beneficiary of the entire capacity building program in the agricultural sector is the farmer/producer, to substantially improve his capacity to demand for agricultural research and extension services and to significantly increase his production and productivity. The Farmers’ capacity building program must cover both technical, management and leadership skill and they must be reached in their groups, by the ADP staff

supported by the Research and Extension specialist support Institutions, manpower development institutions and the private service providers.

It is expected that the FFS extension strategy will provide adequate capacity building to sufficiently empower farmers/producers to move to the next level of effectively conducting farmer-to-farmer extension services.

Recommended Actions:

- i) Capacity building for all value chain actors to focus primarily on their commodities of interest.
- ii) All participating farmers to benefit from the GES program of the agricultural transformation agenda
- iii) Facilitate all States to provide adequate funding for the effective and efficient running of the FFS schools.
- iv) Scale up the FFS strategy for quick impact.
- v) All REFILS Facilitators, FFS Master Trainers, and all States' Component Facilitators to religiously participate in REFILS activities.

It is expected that capacity building for the commercial farmers will be on demand to the appropriate institutions (both public and private). On the whole, agricultural extension and advisory services will be provided to them by both the public and private advisory service providers for starts but gradually taken over by the private service providers.

d) The Private Service Advisory Services Providers:

It is the responsibility of all private agricultural extension and advisory services providers to constantly update themselves through participating in continuing vocational educational programs and the ever-changing world of ICTS. This will enable them not only to remain relevant, but indeed, to be able to effectively meet the needs and demands of the various commodity value chain actors.

Recommended Actions:

- i) Mandate all private agricultural extension service providers to register and be certified with the appropriate government and/or and recertify every three years. This is to ensure quality control and assurance of services provided to farmers/producers and their associations.
- ii) Monitor the charges of services provided by private services providers.
- iii) Must participate actively in the REFILS activities (National and Zonal Workshops) for up-dating, knowledge and experience sharing.

11. FUNDING AND INCENTIVES:

11.1. Funding of Agricultural Extension:

The public agricultural extension service has remained dominant since the colonial era and has always been viewed as a “public good”.

Perhaps the most difficult information to access from the ADPs is the details of their funding. Because of the multiple projects within the ADPS requiring mandatory financial contributions and with fairly high rate of default by some States and Local governments, it is very difficult to trace what really goes to agricultural extension and advisory services when “refunds/allocations” are finally made to the States. Since the States make these counterpart contributions which are “administered” by the Federal government agencies, they end up not making any additional financial allocations to their ADPs other than paying for the salaries of staff (recurrent) only. Consequently the ADP becomes starved of funding and thus unable to effectively perform their statutory function of extension service delivery to farmers/producers. With no legislated agricultural extension policy pronouncement on funding of the extension service in Nigeria, unlike in the USA where the Federal Government contributes 43.0%, the States 39%, and the Counties (the equivalent of LGAs) 18% to the extension service. “Smith-Lever Act did not create extension, but it gave nation-wide recognition as well as firm financial basis to work already valued and widespread” (USDA-FES, 1971). Hindsight experience has clearly shown that the Federal Government cannot

carry the full burden of extension service and the States are clearly not convinced that they should make any special contribution for extension delivery again after the multiple counterpart funds paid on behalf of the ADPS occasioned by multiple and unsolicited donor interventions that cause confusion in extension service delivery. Under the current agricultural transformation agenda with a definite focus, extension too must have a definite focus viz: to transform Nigeria's agriculture and so it must have a definitive plan and a budget. An important lesson learned from the Fadama Projects, is the willingness of extension clients to make a contribution to an extension service they can see is useful for them. Consequent upon the foregoing therefore the following actions are recommended.

Recommended Actions:

- i) FMARD to make a definitive pronouncement on funding of agricultural extension and the need for a definite budget for agricultural extension service delivery in Nigeria.
- ii) FMARD to negotiate with the States and Local Governments on the sharing formula for the funding of public extension service delivery
- iii) Consider seriously a 5% dedicated tax fund on every agricultural commodity imported should be channeled to the extension services.

11.2. Incentives for Farmers/Producers and public service providers:

Organizational incentive system has been shown to be an important in the agricultural extension organizations over the years. However, some incentives are not within the power of an organization to alter as is the case with Nigeria's extension service where salary levels are set by the civil service and recruitment and promotions are centrally managed. There is always a clear difference in the performance of organizations that set their own salary scales and promotion guidelines (e.g. banks) as compared to the Ministry of Agriculture for example. Often, donor interventions often make provisions for funds for remunerating valued personnel. Ability (and resources) to affect salary levels appears to be a strong correlate of effective performance.

Non-monetary incentives also play a very strong role in explaining good performance. Opportunities to study abroad, a sense of organizational mission, promotion for good performance, being singled out for excellent performance--as in employee of the month programs, for example--friendly competitions to achieve performance goals, involvement in teamwork, and a series of other benefits could be adopted as practices in the better performers. In agricultural extension in Morocco, for example, those selected as "best agricultural extension worker" in a region received special prizes and bonuses, as did those who worked in areas where the "best farmer" was named. Government and the private sector organizations should set aside special funds to reward States or corporate bodies that record improved agricultural produce through extension services in a given period.

Recommended Actions:

- i) Government to formalize and institutionalize incentives for "best extension worker at the Local, State (in all the ADPS) and National levels.
- ii) Government to formalize and institutionalize incentives for "best Farmer/Producer" etc at the Local, State and National levels.
- iii) Provide matching Grants for all not-for-profit private sector organizations involved in extension service delivery e.g. SG2000.

12. ACTIONS ON CROSS-CUTTING ISSUES:

12.1. Women, Vulnerable Groups and Youths:

Women, youths and the vulnerable groups (WYVGs) represent the majority of the rural populace in Nigeria who are mainly engaged in agriculture as a means of livelihood. To ensure the full and active participation of Women and Vulnerable Groups and Youths in the agricultural Transformation agenda, a Unit in the proposed Federal Department of Agricultural Extension has been recommended.

Recommended Actions:

- i) Existing agriculture policies need to be assessed for gender sensitivity. In addition the way in which budget is formulated arising from the policies should mainstream

the different socially determined roles, responsibilities and capabilities of women, vulnerable groups and youths as applies to extension system.

- ii) Extension services should increase their access to information, technology, inputs and market.
- iii) Research plan should ensure that time and labor saving devices, are included in the research agenda and design; focus some of the research attention on developing low cost, low labor, and low maintenance technologies that work under adverse growing conditions (taking account of women farmers' constraints in obtaining cash/credit), having easily accessible farms, and time commitments.

12.2. Youths:

The importance of youths in the agricultural transformation agenda cannot be overemphasized. The transformation should be a means to empower the youths through jobs and wealth creation for them. This has been treated under the Agro-Entrepreneurship trainings discussed under capacity building for unemployed youths and also engaging them under ICTS. However for long term results, agriculture must be made attractive for them to come in and this can be done by "catching them young"

Recommended Actions:

- i) Make agricultural science a compulsory subject as English and Mathematics in the Secondary Schools
- ii) Re-introduce the Young Farmers' Clubs into our Secondary Schools again modeled after the American 4-H Clubs and the Kenya 4-K Clubs.
- iii) In addition to working with the NUC to review the Curriculum of the Faculties of Agriculture in our Universities (ref the SG2000 SAFE Curriculum), students in the Faculties to be encouraged to form the Future Farmers of Nigeria (FFN) modeled after the Future Farmers of America (FFA), in order to continue to sustain the interests of the youths in Agriculture.

12.3. Strengthening Farmers' Groups/Associations:

The weak farmers' organizations especially at the grassroots remain a major challenge for sustainable agricultural development in Nigeria unlike what obtains in the Franco-phone countries of West Africa including those surrounding Nigeria. The farmer groups at the grassroots must be mobilized and their capacity built to form strong economic interest associations rather than political associations.

Recommended Actions:

- i) Use the farmer Field Schools' groups and the Fadama User Groups/Community Associations among others to build strong, cohesive, functional and sustainable farmers' associations.
- ii) Provide capacity building for them in: Formation and Management of Groups, Leadership and Governance etc. This will build their demand capacity for good governance, research and extension.

12.4. Production Enhancing Inputs (Improved Seeds, Fertilizers and Credit):

While the World Bank support to the ADPS lasted, inputs sourcing and distribution were regarded as non-essential extension duties even without strong private sector participation to fill in. Under this transformation agenda there are three critical production enhancing inputs that must be adequately captured and provided for under the GES program: Improved seeds of all the commodities of interest and fertilizers, in the right quantities at all the locations at the right time. Regardless of the effectiveness and efficiency of the extension services, the agenda will not succeed without the timely provision of these production-enhancing inputs.

Recommended Action:

- i) Effectively mobilize and facilitate the private sector to provide all the critically required inputs timely and at all locations.

12.5. Mobility & Transport Allowance for Extension Agents:

Even under a market-oriented and ICT-driven extension service, a conducive-working environment is still critical for good performance, particularly for agents at the critical farmer/agent interface. Mobility, working field tools must be provided and salaries and allowances are paid as at when due. Finally all extension field staff must be paid special incentives to make their jobs attractive.

Recommended Actions:

- i) FMARD to facilitate States to improve the conditions of service for field extension staff.
- ii) FMARD to provide “matching mobility grant” to States for their field extension staff to significantly improve job performance.
- iii) Field extension staff to be paid hazard allowance.

13. CONCLUSIONS:

This Report has been the result of a comprehensive review of the major challenges of the agricultural extension and advisory services which have severely limited its performance to engineer a sustainable agricultural development that would have ensured food security, poverty alleviation, and make Nigeria a global competitor in the world food market. The final blueprint is knowledge and skills-based, demand-response, market-oriented, and ICT-driven agricultural extension and advisory service within a pluralistic extension system and using the value chain approach to effectively transform Nigeria's agriculture.

It is proposed to put in place, a legislated agricultural extension policy that will adequately address the critical issues of: institutional and structural organization to establish the Federal Department of Agricultural Extension (to oversee, coordinate, monitor and provide the needed leadership, quality control and assurance etc), adequate funding and staffing.

Using the value chain approach requires a more knowledge and skills-based, demand-responsive extension and advisory services which make capacity building an absolutely important requirement which will be addressed using a public-private-partnership approach

(PPP) with appropriate incentives. Capacity building will cover the following groups: unemployed youths and graduates, extension field staff at all levels; farmers, producers and processors, and all other actors on the targeted value chains and service providers.

Of course, even an effective and efficient extension service without the necessary growth-enhancing inputs of fertilizers, agrochemicals, improved seeds and credits at the points needed and at the right points will not make the desired impact. Other cross-cutting issues addressed include: women, vulnerable groups and youths, and improved conditions of service for the field extension staff.

The agricultural extension transformation agenda has been packed to effectively and efficiently drive the Mr. President's Agricultural Transformation Agenda to ensure: national and home-level food security, create wealth, and jobs and make Nigeria a global competitor in the world food markets.

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