

**ICTs IN THE TRANSFORMATION OF AGRICULTURAL EXTENSION:  
THE CASE OF NIGERIA  
BY  
DR. TUNJI AROKOYO**

**INTRODUCTION:**

“Watching at close quarters, I do not believe that small-scale farmers have failed, rather they have been disappointed and neglected. If we understand them and give them what they need, I believe they will rise up to the occasion.”

Olusegun Obasanjo, 1985  
(As Military Head of State).

“While the seeming lack of progress in some aspects of our lives is bearable, lack of progress and actual retrogression in agricultural production and food security is particularly threatening, worrisome, disturbing, disconcerting and discomforting - - - - - “

Olusegun Obasanjo, 1999  
(As President – Elect).

The neglect of agriculture and the Nigerian farmer as the most important producer and stakeholder as expressed by General Olusegun Obasanjo as Military Head of State in 1985, unfortunately had not significantly improved even about two decades later, when he became the President-elect of the Federal Republic of Nigeria under a democratic dispensation.

It is indeed not only an irony but an embarrassment that Nigeria, a vast agricultural country, “endowed with substantial natural resources which include: 68 million hectares of arable land, fresh water resources covering about 12.6 million hectares, 960 kilometres 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 unenviable group of low-income, food-deficit nations in Africa (FAO, 1997).

**2. THE NIGERIAN AGRICULTURAL SITUATION:**

As with most sub-Saharan African countries, agriculture remains the main stay of the Nigerian economy, employing about 70 – 80 percent of the population. It's GDP contribution between 1980 – 85, averaged ~~N~~34,950.00 million and improved during the 1986 – 1996, moving from ~~N~~40,500.00 million in 1986 to 59,389.00 million in 1996. However “aggregate agricultural production declined up to early 1980, (oil boom era), leading to a

sharp decline in per capita real GDP in agriculture. By 1985, the index per capita real GDP of agriculture was 35 percent points lower than 1970 (FOS, 1999). Most worrisome as expressed by the then President – elect, Chief Olusegun Obasanjo, in his quotation above, is the fact that the agricultural growth rate was lower than the population growth and although output performance improved from 1986 the index of per capita real agricultural output showed 20 percentage points LOWER than the 1970 level (FOS, 1999, See Table 1). Although food output grew from 35.9 million metric tons grain equivalent in 1990 to 52.7 million metric tons grain equivalent in 1997 (Table 2), nevertheless, there has been a corresponding sharp increase in the country's food import bill, from 8.2% in 1989 to 20.5% in 1997 (Table 3), (Akin, B. S. 2000). According to the President, Gen. Olusegun Obasanjo, (Guardian, Newspapers, July 5, 2002), "the current huge bill being incurred on food importation, is a potent threat to the economic and political stability of the country." For example, it is estimated that Nigeria imports about US \$300.00 million of assorted fruit juice annually when it has a potential to export about US \$4,500.00 million, if local production is stimulated and encouraged (Guardian Newspaper, AGROCARE, July 7<sup>th</sup>, 2002).

Unfortunately however, rightly or wrongly, it is the Nigeria's Agricultural Research and Extension System and the farmers that are often held responsible for the poor performance of Nigeria's agriculture. Of course, the situation is much more complex than just the Research, Extension and the farmer.

There's no doubt that a nation's agricultural research and extension system (NARES) is the most important single determinant of the level of its agricultural development and hence the yard stick of the quality of life of its people. In development studies, no country has been known to achieve any meaningful progress in agricultural development without substantial investments in agricultural research and extension. There certainly has been substantial investment in Nigeria's agriculture especially through the World Bank loans in the past three and a half decades (in the ADPs and the Research Institutes). Unfortunately however, the performance of the NARES has not been commensurate with the size, scope and level of the investments in the system as evidenced by the farmers' poor productivity, and the

scandalously high food import bills as pointed out by the President himself. Criticisms of the NARES at various “talk shops” within and especially without the system have been both persistent and pungent.

As would be expected, the Research System component of NARES has risen stoutly to its own defence and in the process castigating both the extension service and the clientele for agriculture’s poor performance, arguing that if technological innovations made available by it in the last 20 years were adopted, poverty and food insecurity as we have today would not have been the case. According to Abalu (1993) “while there may not be general consensus, it can nonetheless, be concluded that technology stocks capable of attaining growth rates in excess of 8.0-10.0 percent do in fact exist or can be made available for several agricultural commodities in the various ecological zones.”

Rather than apportion blames and to move agriculture forward in Nigeria, NARES must make concerted efforts to “understand” the small-scale farmers who still remain the major producers, and “give them what they need” as advised by the President, Chief Olusegun Obasanjo.

This paper is an attempt to review the various extension approaches to date, identify the major actors and their roles and responsibilities and why the country has not been able to achieve the desired results. It will then focus on the current use, problems and prospects of ICTs in extension delivery in Nigeria. It will conclude with recommendations on how these can be effectively used to transform agricultural extension.

### **3. THE EVOLUTIONARY DEVELOPMENT OF AGRIC. EXTENSION NIGERIA:**

The Nigerian national agricultural extension system has evolved over four decades from a rudimentary, export crop-focussed service to what can now be described as a professional service even if its effectiveness and efficiency remain just average at best. The evolutionary development of the Nigeria’s extension service can be conveniently divided into three major eras viz: -

- i) the colonial and immediate post independence era: 1893 – 1968;
- ii) the “oil boom” era: 1970 – 1979;

- iii) the state-wide Agricultural Development Project (ADP) era: 1980 – present.

The main features of the extension strategies/approaches that characterized the three phases are described briefly below.

### 3.1 **The Colonial and Immediate Post-Independence Era: 1893 – 1968:**

The extension strategies and approaches, which characterized this period, included: -

- a) **The Colonial Commodity Extension Approach:** The early part of this era – 1893 – 1921 marked the beginning of scientific agriculture in Nigeria and the beginning of direct government involvement in agricultural development. The agricultural policy of the colonial government was primarily focused on encouraging only export crops like cocoa, rubber, palm oil, cotton and groundnut to support the agro-industries in Europe. The extension strategy was clearly a commodity approach with some enforcement component. Extension delivery even at this embryonic stage had the dual but conflicting roles of education and law enforcement;
- b) **The Ministry of Agriculture approach:** This started with the establishment of the agricultural research stations in Samaru (1921), Umudike (1923), and Moor Plantation (1924) along with the Regional Ministries of Agriculture in the North, East and West. The extension approach was diffused, non-focussed, combining advocacy and advisory roles with input and credit distribution, and regulatory functions. A major feature of this approach was the compartmentalisation of the service into the various sectors – agriculture, forestry, fisheries, livestock etc, with parallel extension services.
- c) **The Revitalized Commodity Extension Strategy** (Post independence). Again, the emphasis was on selected export crops – cocoa in the old West Region, oil palm in the East, and groundnut in the North. There was an obvious neglect of the food crops to the detriment of the nation;

- d) **The farm settlement/Farm Institute Leavers' Extension Strategy (1959 – 1965):** This was a community development concept to entice young school leavers to farming as a career and to serve as models for concentrated extension service. Unfortunately, the scheme failed to achieve objectives because of exogenous assumptions in design and mismanagement.

The strategies adopted during the era failed largely because:

- planning was top-down with no involvement of the clientele.
- little or no linkage with research in all the approaches resulting in the development of inappropriate technologies.
- conflicting roles of extension – education and law enforcement.
- a flawed extension philosophy which saw the farmers as “traditional, fatalistic, ignorant and resistant” to change.

### **3.2 “Oil Boom” Era: 1970 – 1979:**

The near absence of a dynamic research and an effective extension strategy for food crop production in the earlier era was worsened by the oil boom, which turned out to be an “oil doom” for agriculture. The major extension approaches of the era included:

- a) **The National Accelerated Food Production Program:**  
The (NAFPP) was a well conceptualised strategy which incorporated research, extension and input supply (through a network of agro-service centres) and farmers only minimally involved in participatory technology development.
- b) **Operation Feed the Nation (OFN):**  
This program was introduced in 1976 as a strategy to substantially increase food production. Unfortunately however, there was nothing in the program that can be identified, as an articulated extension strategy and thus, it died a natural death.
- c) **The River Basin Development Authority (RBDA) Strategies:**  
Although the RBDAs were established in 1977 for the exploitation of water resources for irrigation. Extension responsibilities were not assigned to them until about 1984/85, to provide extension services to farmers in their catchments areas. They used the diffused Ministry of Agriculture approach

but because of their poor performance, their extension responsibilities were removed;

d) **The Green Revolution:** This approach was premised on the Asia success story, and was launched in 1979 to replace the OFN with the primary objective to achieve food self-sufficiency for Nigeria in five years. Similar to the Ministry extension strategy, it also placed emphasis on input supply, improvement of infrastructure and provision of price incentives. The strategy/approach failed due to lack of focus and diversification of efforts that could not be sustained;

e) **The Pilot (Enclave) Agricultural Development Projects (ADPs):**

The ADP extension system was based on the premise that a combination of essential factors comprising of the right technology, effective extension, access to physical production-enhancing inputs, adequate market and other infrastructure facilities are essential to get agriculture moving (FACU, 1986). They started out as pilot projects in Funtua, Gombe and Gusau in 1975. Success led to the establishment of the enclave ADPs in six more States. All initially employed Training and Visit (T&V) extension delivery approach. This strategy closed the oil boom era.

The myriad of approaches, which followed one another in quick successions, left the rural populace probably more confused even though there was some noticeable marginal increases in food production in the operational areas of the ADPs.

### 3.3 **The State-wide ADP Era: 1984 – Present:**

This phase of the extension service was characterized by the rapid growth of the ADP concept and reached national coverage by 1989 and had full responsibility for extension delivery at the grassroots. Common to all, were an autonomous project management unit, an adaptive research component input delivery system, rural infrastructure component for rural feeder roads and water supply and a systematic extension delivery using basically the Training and Visit Extension approach as propounded by Benor

and Baxter and promoted by the World Bank in Nigeria and other developing countries. Apart from the “one-size fits all concept” of the strategy, it has proved to be very regimented, and expensive hence the serious management problems after the withdrawal of the World Bank support to the projects. It has nevertheless helped to professionalise extension delivery in the country.

Although the strategy was crop-biased on introduction, this major defect was corrected in 1989 with the introduction of the Unified Agricultural Extension Service (UAES) which made provision for the inclusion of the other sectors, viz; livestock, fisheries, forestry, natural resource management etc. Thus, one village extension agent (VEA) is expected to deliver extension messages in all agricultural disciplines (sub-sectors) to the farmers. This was informed by the need to remove the problems of conflicting messages to the clientele by multiple agents. It was also expected to make the system move cost-effective by eliminating duplication of efforts.

This extension strategy remains basically top-down in approach and the farmer also still basically remains a passive receptor of information, which may not necessary meet his needs. His involvement and participation in technology development remains low.

#### **4. CURRENT EXTENSION DELIVERY AND MANAGENT AND MAJOR ACTORS IN NIGERIA:**

The Agricultural Development Programs (ADPS) nationwide remain in the main, the agencies responsible for public extension service delivery at the grassroots. A recent trend especially since the new democratic dispensation is the involvement of the local governments in extension delivery, in collaboration with the ADPs. The quality of staff and the resources of the Local Governments are such that they have only been able to make minimal impact.

While the various modified forms of the Training and Visit (T &V) extension system remain the basic strategy for public extension delivery, the Research Extension – Farmer – Input – Linkage System (REFILS) is the management mechanism that has been used to identify and bring together the stakeholders in agriculture development as equal partners in development (see Fig.1). It provides the structures and mechanisms for collaboration in technology generation, adaptation, dissemination and utilisation with clear

roles and responsibilities for all partners. Although the REFILS has strengthened the traditionally weak research-extension linkage, private sector participation still remains low just as the farmers' involvement, especially in the research agenda and planning for technology development. The major actors and partners include the States' ADPs (in collaboration with the LGAs in some States) who are responsible to grassroots extension delivery nationwide; the National Agricultural Research System, responsible primarily for technology development and the private sector made up of both the commercial organisation (responsible for the provision of essential inputs and services including credit and marketing) and the Non-Governmental organisations, the latest entrants to agricultural extension service delivery. The REFILS also include the government for policy direction even though the policies over the past several decades have neither been friendly nor consistent to sufficiently encourage significant private-sector involvement in meaningful sustainable agricultural development. Of special mention are two partners in REFILS – the National Agricultural Extension and Research Liaison Services (NAERLS) of Ahmadu Bello University and the Projects Co-ordination Unit (PCU) of the Federal Ministry of Agriculture and Rural Development. While the NAERLS is responsible for the provision of extension specialist support services to the ADPs, the PCU is responsible for the co-ordination, monitoring and evaluation of their extension delivery activities. The PCU, it must be mentioned is an amalgam of the former Federal Agricultural Co-ordinating Unit (FACU) and the Agricultural Project Monitoring and Evaluation Unit (APMEU), both of the Federal Department of Agriculture. Of course, the farmer remains the most important stakeholder and centrepiece of REFILS. A major feature of the Nigerian agricultural Extension Service in the recent past is the entrance of Non-governmental Organisations in extension delivery in Nigeria. These NGOs fall into two major groups, viz:

The non-profit, charity or faith-based NGOs or community/commodity - based NGOs and the private commercial organizations, which have, profit motive associated with their activities.

These NGOs in the agricultural and rural development sector, provide a wide range of extension education and technical support services including

micro-credit financing and supply of essential inputs in several communities in the country. A nation-wide study by NEST (1992) revealed that a majority of the NGOs in Nigeria are engaged in agricultural production.

It is interesting to note that the sectoral disparity in terms of focus and emphasis in the public extension service (crops Vs the others) is also reflected in the private NGO extension service (56% NGOs in crops, 14% in livestock and 10% in fisheries).

Examples of the private commercial organisations providing extension services include: the Shell Petroleum Company (Shell Petroleum Extension Project), the British American Tobacco (BAT), and AFCOT Nigeria Plc. While the Shell and other Petroleum Companies, particularly in the Niger Delta Oil exploratory areas are community–development oriented, public relations outfits, those of BAT and AFCOT are principally, commodity-targeted out-growers schemes to ensure adequate raw materials for their companies.

The importance of credit either in kind or cash or both and the timely provision of essential production enhancing inputs have been amply demonstrated as part of an effective and efficient extension service by these commercial organizations.

Examples of the non-profit NGOs include: the Development Education Centre (DEC) which provides extension support to women to organize themselves into grassroots level self-help associations in South-Eastern Nigeria; the Women's Advancement Network (WOFAN) in the North-West, promoting income generation activities among rural woman; the Farmers Development Union (FADU) and the faith-based Diocesan Agricultural Development Project (DADP) in South-Western, Nigeria which aims at poverty alleviation among small-scale farmers (Arokoyo, et al, 2002). Unique in this group is the international NGO, Sasakawa-Global 2000 which not only works in very close collaboration with the ADPs, but actually uses the already established structures of the ADPs including selected staff who are seconded to the organisation.

Although approaches used by most of the NGOs are generally more participatory, their linkage with both NARS and the public extension service, (except in the case of SG-2002), remain weak (Arokoyo,et al, 2002).

## 5. **ICTs IN THE EXTENSION SERVICE TO DATE:**

Several studies including the CTA-sponsored one on rural women's access to public and private extension services (Arokoyo, et al, 2002) have revealed that the village level extension agent is the most effective source of information for farmers but certainly not the most efficient in terms of cost and coverage. At the inception of the state-wide ADPs in 1980 the extension agent: Farmer (EA: Farmer), ratio ranged "between" 1:2000 to 1:3000. This was expected to come down to "between" 1:800 to 1:1000 by the project completion date and the withdrawal of World Bank support. This target was never achieved. A recent field survey by NAERLS and PCU (2002) showed that the EA: Farmer ratio was "between" 1:848, in Ogun State in the South-West Ecological Zone to 1:1650 in Katsina State in the North-West Ecological Zone. This is similar to the finding by Arokoyo et al (2002), of ratio of "between" 1:1000 and 1:2000 in the public extension service, and worse for the women-in-agriculture program, which was found to have several extension blocks expected to be filled by female extension agents, vacant. It is clear therefore, that no matter however effective, extension delivery through the village extension agent can neither be efficient nor cost-effective for a developing country like Nigeria, with a population of about 150.00 million, majority of who are involved in agriculture (70 – 80 percent) and illiterate. The Extension Service therefore must be appropriately supported with the use of ICTs.

Right from the inception of the ADP strategy, starting with the pilot/enclave ADPs and using the T & V extension delivery, the development support communication component of the strategy has made very significant contribution to the country's agricultural development. It started with the mobile cinema vans going from village to village and supported with minimum extension publications in local languages, Then radio and mobile video vans and television were added with the world bank assistance. The radio and the TV programs grew with the growth of the ADPs and the creation of States in the country, from the original 3 regions to now, 36 States and the Federal Capital Territory (FCT).

By the commencement of the National Agricultural Technology Support Project (NATSP) which was the second developmental phase (1991 – 1996) of the World Bank loan facility support for the ADPs, virtually all the Projects had well developed and equipped Development Support Communication (DSC) units, with video, radio and television production and viewing facilities. All the ADP radio and TV programs were initially aired free on the States' and some of the National broadcasting networks. With the commercialisation of both the States' and National networks, the frequency of both the ADP radio and TV programs dropped appreciably due to financial constraints.

It was the NATSP that radio listening clubs were formed and clubs given “powerless” (hand-wound) radio sets for use by the clubs.

A survey by NAERLS and PCU in 2002, showed that 26 (70.3 percent) of the States' ADPs in Nigeria “produce at least one or more radio programs” and most of these (75.6 percent) are in local Nigerian languages. The same survey revealed that only 48.6 percent of the ADPs now produce and air TV programs and of these, 57.7 percent are in local languages. Those of NAERLS and PCU effectively compliment the States' ADP farm broadcasts.

To date, it is the radio and TV that have been the major ICTs used in agricultural extension delivery in Nigeria. NGOs are hardly involved in direct farm broadcasts except to sponsor those of the ADPs for advertisement placement of their business concerns.

Despite the importance of these channels, it must be stated that the channels are still principally owned and controlled by either the State or Federal governments. Unlike the case in several Franco-phone West African countries, rural and/or community-based radio is virtually unknown in Nigeria. Also, the information content of these channels is more provider-driven than user-driven and this has implications for extension delivery.

Telephone use in extension delivery, even with the recent launch and explosion of the global system of mobile (GSM) as a dividend of democracy in Nigeria is non-existent to very insignificant. The serious limitation of access to reliable telephone lines makes even ordinary intra-and inter-organisational networking for information exchange a harrowing and frustrating experience

Although most of the NARES members now have computers for information and data management, most of the computers have neither

telephone nor Internet access. Even ordinary email access becomes a big deal for a whole national Research Institute. The low computer literacy level of the managers and staff makes the ICT-readiness of the system very low.

It can be concluded that the current ICTs use in extension delivery is extremely low especially as it affects the information/technology users, the farmers.

Nevertheless, it will be uncharitable to State that radio and TV have not made tremendous contributions in extension delivery for sustainable development

#### **6. GENDER AND EXTENSION:**

In a recent study of rural women's access to public and private extension services, no evidence was found that any of the services had policies which limit Women's access to their services. Instead, the public and some of the NGOs were found to have outreach programs for women (Arokoyo, etal, 2002).

However, socio-cultural factors, which restrict contacts between the genders in some communities, are important. With the very limited number of female extension agents in the public service, coupled with the restrictions between male agents and female farmers, access to extension for these farmers could be severely limited. Appropriate use of ICTs in extension delivery could significantly reduce or eliminate the barriers. Efforts must be made however that these disadvantaged women have the capacity to access the full range of services through ICTs.

#### **7. MAJOR CONSTRAINTS TO ICT USE IN EXTENSION DELIVERY IN NIGERIA:**

- Despite the worldwide ICT explosion, most of the research and extension organisations seem not to be fully "ICT-ready" (low rating).
- Poor and erratic funding to the NARES.
- Poor ICT infrastructural development as clearly seen in the very few and poor telephone lines, compounded by erratic, limited and unstable power supply and very low level capacities of gateways to international networks/satellite systems. A Nigerian communication

satellite is planned for launch in Russia in September 2003. This is expected to significantly boost the country's ICT-readiness rating.

- High cost of power either through the national grid or by stand-by generators.
- Very high cost of telephone services either by landlines or GSM. It has been estimated that Nigeria has the highest rate for GSM calls in the world and the only country charging by the "minute" rather than by the "second"
- Limited access to computer and an even less access to the Internet, making even basic inter- and intra-organisational networking for information exchange almost impossible.
- Policy inconsistencies by government in both the telecommunication and agricultural sectors resulting in low-level private sector participation investment for development.
- High-level rural poverty.
- High-level illiteracy of farmers and computer illiteracy among scientists and extensionists.
- Limited access to worldwide databases on CD-ROMs due to financial/foreign exchange constraints.
- The limited coverage of States and National AM/FM broadcasts is compounded by the near absence of rural radio.
- Commercialisation of government radio and television stations has resulted in exorbitant cost for farm broadcasting

#### 8. **POTENTIALS FOR ICT REVOLUTION IN EXTENSION:**

Developments in the ICT world and in Nigeria since the present democratic dispensation have clearly shown the enormous potential of ICTs to transform agricultural extension in Nigeria. Principal among these include:

- Government's liberalisation and privatisation policies to encourage private sector participation and attraction of foreign investment. Consequently, prices of computers and other ICT equipment have drastically come down, thus making them more accessible. A recent federal government circular has made it mandatory for all

government agencies to purchase “Zinox”, made in Nigeria computers as a first choice (SGF, 2002).

- The launching of the global system of mobile (GSM) communication has made phone lines more accessible nation-wide.
- The establishment of Internet cyber cafes in all the major urban areas in the country, even if the rates are still high and services epileptic.
- Government’s requirement of computer literacy for promotion in the senior cadre of the civil service.

Unique among these recent developments that are expected to revolutionize ICT use in agricultural extension are: the establishment of CTA – supported Question and Answer service in Nigeria, hosted by the National Agricultural Extension and Research Liaison Service (NAERLS) and know as the “Nigerian Question and Answer Service”, “NAQAS” and with 9 collaborating Institutions scattered in all the Ecological Zones of the country. The main objective of NAQAS is to provide information on demand by users through bibliographic references, full text documents, factual information, referral and advisory services. It has a website: [www.naqas.org](http://www.naqas.org) and an email contact: [naqas@hotmail.com](mailto:naqas@hotmail.com)

Table 4 – 6 give a profile of the NAQAS clients and activities in 2002. As can be seen in table 4, students and researchers dominate the user categories (total of 65.63%), as compared to farmers and the extension of officers who form a total of 15.63% of users. There is need therefore to build up the demand capacity of last group.

**Table 4: Categories of NAQAS clients between January 1 and December 31, 2002:**

Category of user	Quantity	Percentage
Students	194	35.27
Farmers	68	12.36
Researchers	167	30.36
Lecturers	102	18.55
Extension Officers	18	3.27
Others	1	0.18
Total	550	100

**Table 5: Reasons given by NAQAS clients for requesting information between January 1 and December 31, 2002:**

Reason	Quantity	Percentage
Research	443	80.55
Lecture/Address	26	4.73
Identifying Peers	1	0.18
Processing primary goods	8	1.46
Primary Production	11	2.00
Self-Improvement	54	9.71
Community Education	7	1.23
Total	550	100

**Table 6: Types of requests received by NAQAS between January 1 and December 31, 2002:**

Request Type	Quantity	Percentage
Journal Articles	435	79.09
Bibliography	38	6.91
Addresses	1	0.18
Bulletins	17	3.09
Statistics	1	0.18
Other	58	10.55
Total	550	100

Source: NAQAS, Personal Communication August 2003.

The other event is the launch of the INFORMATION AND COMMUNICATION Support for Agricultural Growth in Nigeria (ICS – Nigeria) in 2002. ([www.ics.nigeria.org](http://www.ics.nigeria.org)).

The objective of ICS – Nigeria is “to strengthen capacity of Farmer assistance organisations to package and disseminate information to farmers thus enhancing information flow.” (Ogunyinka, 2002) the project which is being funded by the United States Agency for International Development (USAID) has the following project partners USAID, NAERLS, IITA, CFC (Communication, for Change, an NGO) and the Federal Ministry of Agriculture and Rural Development (FMA&RD). The project is currently on a Pilot phase in 8 States (KATSINA and KANO in the North-West Zone, ADAMAWA in the North-East Zone, NIGER in the Middle Belt, ABIA in the South-East and OYO in the South-West). Project networking encompasses farmers and Farmer

Associations, the Extension (ADPs & NGOs), the Private Sector, Info-makers (NAERLS, CFC, IITA etc), Research (NARS & IARC) and Resource Partners (USAID).

Of special interest among the activities of ICS – Nigeria is the establishment of a Farmer Resource Centre in each of the participating States. A Farmer Resource Centre is expected to have the following: -

- Telephone and Fax.
- Multimedia Computer with Internet Access.
- Radio, and Television.
- Video recorder/player and Camera.
- Scanner, Printer and Photocopier.
- Cassette recorder/player.
- Laminator and Spiral binding machine.
- Stand by Generator.

As conceptualised, the ICS – Nigeria, making maximum use of ICTs, is set to transform agricultural extension in Nigeria. Under both NAQAS and ICS-Nigeria, emphasis has shifted in the nature of information, from previously being provider-driven to now being user-driver and thus meeting the real needs of the farmers for sustainable development. The capacity of the info-users, the farmers and their associations needs to be strengthened in this new partnership. The main worry though apart from inability of the major info-user to access and fully utilize the facilities is its sustainability when the external (CTA & USAID) support terminates.

## 8. **SUMMARY, CONCLUSION AND RECOMMENDATION:**

This paper has attempted to review the Nigerian Agricultural situation vis-à-vis. The historical development of the Public and Private agricultural extension service in the country and the contributions it has been able to make. Despite the low level use of ICTs in extension delivering, it was clear

that both radio and TV have made substantial contributions to agricultural development with its overload of provider-driven information. The low level ICT – readiness of the country and the major stakeholders in the agricultural sector, was found to be a limiting factor for effective ICT use. The recent democratisation in the country and the liberalisation in the telecommunication sector, has led to improved access to phone lines, the Internet and ICT equipment.

At full establishment, both the ICS – Nigeria project, and the NAQAS are set to become important intermediaries that can transform agricultural extension delivery in Nigeria for sustainable development. They will make only relevant and useful information available, accessible, timely and cheaply.

For this occur, concerted efforts must be made in capacity building for both information makers (NARES) and information users (farmers and processors and their associations) to be able to take full advantage of the advances in ICT. Government must have the political will to implement the policy of making computer literacy a requirement for promotion at the management level in the civil service.

Government must continue with its liberalization policies in the agricultural and telecommunication sectors to attract more private sector investment in the ICT development and utilization as it has done for the makers of “Zinox” computers. This will make ICT more accessible and cheaply. The policies must also be consistent, stable, and investment-friendly. The moribund rural telephony project must be resuscitated and doggedly implemented to bring the ICT revolution and its potentials to rural areas where the majority of Nigerians live and work to ensure the country's survival. Access to information is part of empowerment of the rural masses.

Adequate funding must be provided to both the research and extension organizations to radically improve their ICT infrastructures, including the purchase and subscription to CD-ROM databases.

Finally efforts must be made by government and other stakeholders to ensure the sustainability of both the NAQAS and the ICS–Nigeria projects after the external support to them terminates.

## **REFERENCES:**

1. Abalu, G. (1993). "Improving the Effectiveness of Agricultural Research Management in Nigeria" in: Shaib, B. et al. (1993) Towards Strengthening the Nigerian Agricultural Research System. Proceedings of the National Agricultural Research Project Seminar on National Agricultural Research Strategy Plan for Nigeria, Zaria, October 11 – 16, 1993.
2. Akuh, B. S. (2000) "Implications of Economic De-regulation on Agriculture and Food Security in Nigeria", Paper presented at the National Seminar on Sustainable Food Security by year 2010, Abuja, November 7 – 9, 2000.
3. Ango Abdullahi, (2000). Keynote Address presented at the Seminar on Sustainable Food Security for Nigeria, Abuja, 7 – 9, 2000.
4. Arokoyo, Tunji, (1998) Agricultural Technology Development and Dissemination. A case study of Ghana and Nigeria Experiences. Published by CTA (ACP-EU), Wageningen, The Netherlands, 1998.
5. Arokoyo, T., Chikwendu, D. and Ogunbameru, K. (2002). A study of the Access of Rural Women to Public and Private Extension Service in Nigeria. Report of a study commissioned and funded by CTA.
6. FAO (1997), Tele-Food Fact Sheets: FAO Activities and Projects "Special Programme for Food Security."
7. NAERLS and PCU (2002) Field situation Assessment of the Wet Season Agricultural Production in Nigeria.
8. NEST (1992), Report of the Survey on NGOs in Nigeria. NEST/Ford Foundation National Conference on NGOs, Enugu, Nigeria.

9. Ogunyinka Olayinka (2002) "Information and Communication Support for Agricultural Growth in Nigeria." Project Paper presented at the CTA – ABU National Workshop on the Methodology for the Determination of Priority Information themes in Agriculture, Zaria, Nigeria, November 11 – 15, 2002.
10. Olusegun Obasanjo (1985) Keynote Address to the Agricultural Society of Nigeria, Annual Conference, IAR&T, Moor Plantation, Ibadan.
11. Olusegun Obasanjo (1999) "The Need for Improved Technologies to address the Challenges of Food Insecurity in Sub-Saharan Africa," in IITA (1999) Development of Sustainable Agriculture in Sub-Saharan Africa. Proceedings of a Seminar held at IITA, Ibadan, April 28, 1999.
12. Secretary to the Government of the Federal (SGF) 2002. "Circular: Patronizing Made in Nigeria goods: Procurement and Use of Zinox Computers by all Federal Establishment," Abuja, 7<sup>th</sup> March 2002.
13. Shaib, B., Aliyu, A. and Bakshi, J. (Eds) (1997) Nigeria: National Agricultural Research Strategy Plan 1996 – 2010. Federal Department of Agric. Sciences, Federal Ministry of Agriculture and Natural Resources, Abuja, Nigeria.

**Table 1: Aggregate Agricultural Output (at factor cost, 1987 Naira)**

Year	Agric. GDP (N-million)	Per Capital Real Agric. GDP	Index Per Capital Agric. GDP 1986 - 100
1970	31,190	613	130
1980	39,060	550	117
1981	32,630	447	95
1982	33,660	429	91
1983	33,360	428	91
1984	31,750	392	83
1985	37,080	447	95
1986	40,500	471	100
1987	39,200	445	94
1988	43,050	473	100
1989	45,090	480	102
1990	46,920	489	104
1991	48,800	493	105
1992	50,750	498	106
1993	52,780	505	107
1994	54,891	512	109
1995	57,086	520	110
1996	59,368	568	120

**Source: Federal Office of Statistic (1999)**

**Table 2: Food Demand – Supply Gap (000MT Grain Equivalent Value):**

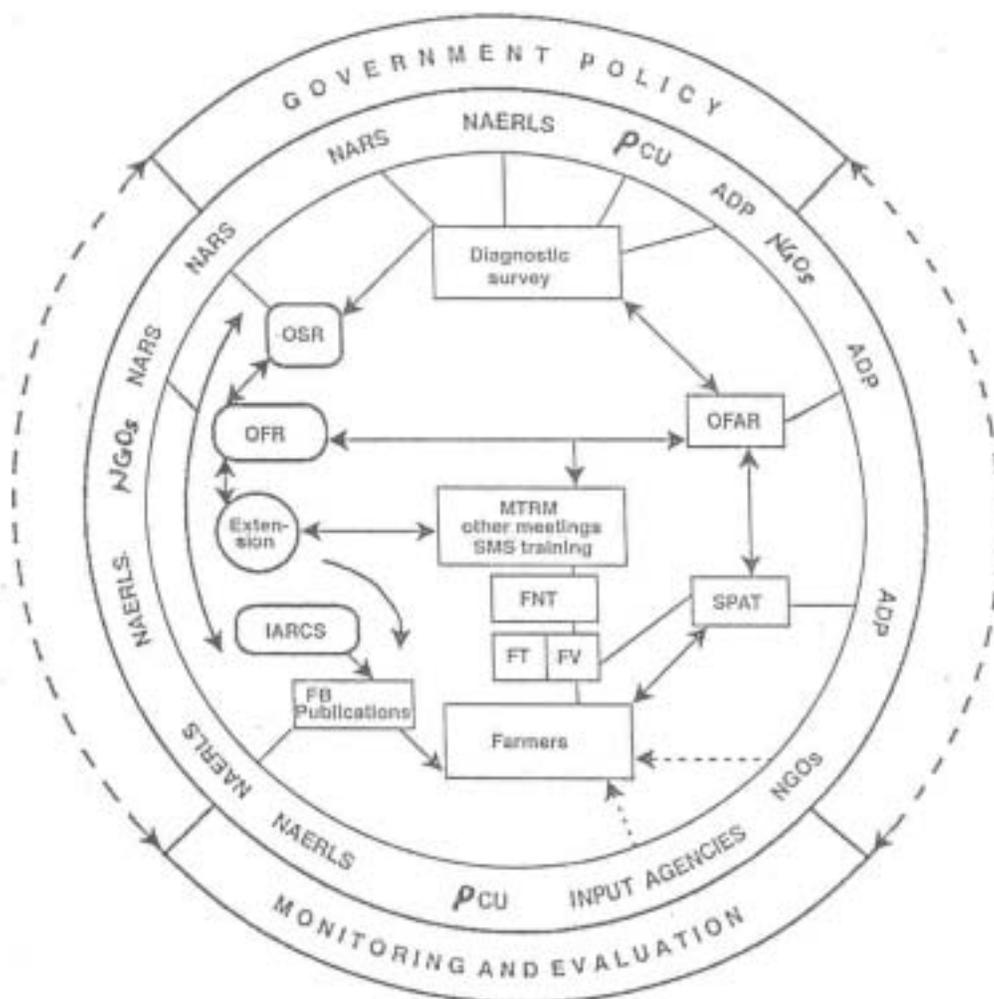
Year	Total Food Utilization	Food Output	Demand-Supply Gap
1989	37493	35974	-1519
1990	40531	35311	-5220
1991	71497	36745	-34752
1992	75571	38855	-36716
1993	90504	45143	-45361
1994	93581	45808	-47773
1995	96284	48490	-47794
1996	101569	51276	-50293
1997	104487	52725	-51762

**Table 3: Food Import in Total Import for Nigeria, 1989-1997**

Year	Total Import (N Million)	Food Import (N Million)	Food Import as Percentage of Total Import
1989	26600.1	2200.9	8.27
1990	28234.5	1694.2	6.00
1991	28945.3	3005.9	10.38
1992	30100.9	3763.5	12.50
1993	32170.0	5785.5	17.98
1994	30800.9	6312.6	20.49
1995	28940.5	6802.9	23.51
1996	38231.1	7306.4	19.11
1997	40401.5	8322.0	20.51

Source: Akuh, B.S. (2000)

Fig.1 REFILS: THE NIGERIAN MODEL



**Key:**

ADP - Agric Development Project  
 FB - Farm Broadcast  
 FT - Farm Training  
 FV - Farm Visit  
 IARCS - International Agric Research Centres  
 NAERLS - Nat. Agric Ext. & Res. Liaison Services  
 PCU - Projects Coordinating Unit.

NARS - Nat. Agric Res. Systems  
 NGOs - On Farm Adaptive Res.  
 OFAR - On Farm Research  
 OSR - On Station Research  
 PUB - Publication  
 SMS - Subject matter Specialist  
 SPAT - Small Plot Adoption Technique

**Adapted from Arokoyo, 1998**