

Modernizing Small Holder Agriculture to Ensure Food Security and Gender Empowerment: Issues and Policy

Emmanuel Ukeje

Summary

The slow growth of agricultural and food production has resulted in growing food imports and food insecurity. In Nigeria, as in many other developing countries, women play a major role in agriculture and food production but women face major obstacles that prevent them from increasing their productivity and living standards. This study examines the strategies adopted to raise agricultural growth and increase food security as well as empower women engaged in agricultural activities.

In spite of government massive investment in agriculture during the period 1970 – 1985 the performance of the sector was undermined by the two bouts of drought experienced during the period and the disincentives created by the macroeconomic environment. As a result of the decline in agricultural output, domestic food supply had to be augmented with large imports. Food imports accounted for 15.3 per cent of total imports and 1.6 per cent of GDP. The performance of the agricultural sector under SAP was the best during the period under review. The data available indicates that there has been little increase in agricultural productivity from 1976-2002. These trends have serious implications for food security in Nigeria. These outcomes reflect the limited quality and quantity of inputs utilised for agricultural production. The consumption of fertiliser per hectare in Nigeria is still below 20 kg while Senegal, Gambia and South Africa consume about 52 kg/ha, 55 kg/ha and 330 kg/ha, respectively. Nigeria's tractor density is put at 0.03 horse power per hectare compared with FAO recommended tractor density of 1.5 hp/ha.

Despite the role of women as the backbone of food production in Nigeria, women are faced with many factors constraining their effective participation in achieving food security. Notable among these are limited access: to land and capital, credit, agricultural inputs, education and appropriate technology. Urban agriculture has been found to provide employment, increase income tremendously and contributed to food security. In spite of the important role urban agriculture plays it is still faces many problems. The major problems militating against agriculture and food security in Nigeria were identified as inadequate farm inputs, lack of working capital, inadequate capital expenditure on agriculture by the government, low level of education, low rate of technology adoption, post harvest losses and communal/religious crises.

The prospects for increased agricultural production and food security in Nigeria are good because of the following factors: the abundant land resources for the production of crops, livestock and forestry products and large domestic and international markets for agricultural commodities. However, the achievement of increased agricultural production and food security will require a comprehensive strategy to reduce some important constraints, in particular, the inadequate supply of agricultural inputs and machinery.

Increase in capital budget to the sector, address the issue of education, and improve extension services. To empower farmers, the issue of formation of cooperative societies should be pursued to ensure access to credit.

1. Introduction

Nigeria is the largest country in Sub-Sahara Africa with a population of 125 million or about one-fifth of the total population of the region. Nigeria is also an oil exporter and the second largest economy in SSA with a GDP of \$55.5 billion in 2003. With its reserves of human and natural resources, Nigeria has the potential to build a prosperous economy and provide for the basic needs of all of the population but today Nigeria is among the poorest countries in the world. GNP per capita, at about \$320 is below the level at independence forty years ago and below the \$370 gained by 1985. About 70% of the population live on less than \$1 a day and 90% of the population live on less than \$2 a day.

Agriculture is the largest sector in the economy accounting for nearly 40% of GDP and providing employment for the bulk of the labour force. The slow growth of agricultural and food production has resulted in growing food imports and food insecurity. Households spend up to 70% of their income on food and yet nearly 50% of the children under five are malnourished. In Nigeria, as in many other developing countries, women play a major role agricultural and food production but women face major obstacles to increasing their productivity and living standards.

This study examines the strategies adopted to raise agricultural growth and increase food security and to empower women engaged in agricultural activities.

The major objectives of the study are to examine:

- The problems and prospects of modernizing small holder agriculture;
- The main causes of food insecurity in Nigeria
- The role of gender empowerment in enhancing food security.

Section 2 reviews trends and structure of agricultural production since 1970; section 3 describes the role of women in agricultural production and food security; and section 4 reviews urban agriculture in Nigeria. The review of government agricultural strategies is the focus of section 5 while Section 6 highlights the problems and prospects of food security in Nigeria and Section 7 concludes the paper.

2.0 TRENDS AND STRUCTURE OF AGRICULTURE PRODUCTION

2.1 Trends in Agriculture Production (1970 – 2003)

Agriculture is the most important sector of the national economy accounting for about 39.0 per cent of GDP over the past two decades (Table 2.1). Agricultural production comprises crop farming, fishing, livestock and forestry. The agricultural sector was the largest earner of foreign exchange during the first decade of independence, but its role

has since been overtaken by crude oil exports, which presently account for about 95.0 per cent of export earnings.

Between 1970 and 1985, agricultural production declined at an average annual rate of 0.9 per cent. Crop and fish production fell by 1.6 and 2.0 per cent per annum, respectively. Livestock and forestry output increased by 2.4 and 1.6 per cent, respectively (Table 2.2). During this period, Gross Domestic Product (GDP) registered an average growth of 3.4 per cent, and the share of agriculture in total GDP averaged 36.0 per cent. Government capital investment in the agricultural sector rose from ₦5.6 million in 1970 to ₦198.8 million in 1985, representing an average annual increase of 43.4 per cent (Table 2.3) and 2.4 per cent of total capital expenditure. This period witnessed two bouts of drought which affected agricultural output. The first was in 1973 while the second was in 1983.

The performance of the agricultural sector during this period was also undermined by disincentives created by the macroeconomic environment.

Notable among these were:

- The overvaluation of the naira exchange rate and the sharp increase in foreign exchange earnings from oil revenues aided large food imports and also put agricultural exports at a disadvantage.
- The changing tastes arising from imports resulted in low demand for traditional crops,
- The increased wages in the public sector drained labour from the rural areas, thereby depriving the agricultural sector of the much needed manpower for its labour intensive activities.
- The protection of domestic industry through tariff concessions made it more lucrative to invest in industry, thus, shifting the terms of trade in favour of industry.

As a result of the decline in agricultural output, domestic food supply had to be augmented with large imports. The food import bill rose from ₦57.7 million in 1970 to a peak of ₦1, 819.6 million in 1981 before declining to ₦940.6 million in 1985, representing an average of ₦846.0 million per annum during the period and an average annual growth rate of 26.1 per cent. Food imports accounted for 15.3 per cent of total imports and 1.6 per cent of GDP.

The country opted for a home grown structural adjustment programme in an effort to reverse the low trend in agricultural production; make food available at reasonable prices; increase farm incomes and provide agricultural raw materials to industries, the Federal Government launched the SAP in mid-1986 after public debates resulted in an overwhelming rejection of the balance of payments financing loan from the IMF. The Structural Adjustment Programme (SAP) was on during the period 1986 - 1993.

Some of the major objectives of the SAP were to restructure and diversify the productive base of the economy in order to reduce dependence on the oil sector and imports; lessen the dominance of unproductive investments in the public sector, and improve the sector's efficiency; and intensify the growth potential of the private sector.

The performance of the agricultural sector under SAP was a marked improvement over the preceding period. Agricultural production grew at an average annual rate of 8.6 per cent. All the sub-sectors --crops, livestock, fishery, other crops and forestry-- contributed to this improvement. The GDP grew at an annual average of 4.8 per cent and the share of agricultural output in GDP rose to 40.0 per cent. The volume of food import increased on the average by 9.3 per cent while the value of rose on the average by 61.9 per cent (or 1.9 per cent of GDP), reflecting largely the depreciation of the naira exchange rate. The value of imports rose from ^801.9 million in 1986 to ^13,952.4 million in 1993 averaging 4,998.6 million for the period. The volume of food import on the hand rose from 1,896.4 million tonnes in 1986 to 2081.1 million tonnes in 1993 representing an average of 1,908.2 million tonnes per annum (Table 2.4). This shows that the growth in food imports has been slow but the cost of the importation has been high, implying that the urban consumers that have to buy food would pay more thus increasing food insecurity. The growth in agricultural output was attributed mainly to the reforms, which resulted in the abolition of commodity boards that paid farmers prices lower than international market prices, these encouraged farmers to bring into use farmlands that have been abandoned for years. Farmers were able to produce and export directly through cooperative societies, reaping the benefits of getting market price for their commodities. The River Basin Development Authorities were ordered to sell off all non water assets and concentrate on the provision of water for irrigation. During this period farmers were allowed to import and distribute inputs instead of relying on government agencies for this function which hitherto had been done inefficiently.

The period 1994-1998 saw a shift in policy from structural adjustment to one of guided deregulation. The growth in agricultural products during this period was 2.3% per annum in line with GDP growth of 2.8 per cent. All the sub-sectors recorded lower growth rates except fishery which grew by 12.6 per cent. The volume of food imports grew at a lower rate of 6.2 per cent, but the value rose astronomically during the period by 111.2 per cent and represented 11.8 per cent of total import and 3.7 per cent of GDP, reflecting the further depreciation in the naira exchange rate. The per capita income of Nigerians during this period grew on the average by 33.7 per cent. This implied that the increase in the cost of food imported into more than outweighed the growth in per capita income thus bringing to the fore the issue of affordability, thus resulting in increased food insecurity.

The period 1999-2003 coincided with the coming to power of the present civilian administration in Nigeria. This period witnessed massive government investment in agricultural infrastructure, especially water resources. For instance, capital expenditure rose consistently from ^6,912.6 million in 1999 to ^57,879.0 million in 2001 before declining to ^32,364.4 million and ^8,510.9 million in 2002 and 2003, respectively. This period witnessed the highest budgetary allocation in the last three decades. The allocation represented shares of 13.2 and 10.1 per cent of total budget for 2001 and 2002, respectively and averaged 6.4 per cent for the period 1999 – 2003. However, the output of the agricultural sector did not reflect the inflow of investment as the sector only grew at an average rate of 3.53 per cent during this period. All the major staple crops recorded increases in output. Livestock, fishery and forestry sub-sector all recorded significant

growth. This brings to the fore the question of the quality of investment as the capital investment though low compared with the contribution of the sector to the GDP had not resulted in commensurate increase in agricultural output.

2.2 Structure of Agricultural Production

The principal constraint to the growth of the agricultural sector is the fact that the structure and methods of production have remained the same since independence more than four decades ago. The farming population comprises predominantly small scale, subsistence peasants, farming on average, about two hectares of land and usually on scattered holdings. Farming activities are also carried out mainly with traditional, rudimentary technology consisting mainly of hoe and cutlass.

2.2.1 Crops

Agricultural production is mainly rain fed and Nigerian farming systems depends largely on the broad ecological zones resulting from the disparity in the intensity of rainfall. In response to these constraints, different farming systems have been identified in Nigeria based on vegetation types and land uses practices, and different cropping patterns have also been identified within these farming systems. However, owing to the limited availability of irrigation, farming systems and cropping patterns have remained basically unchanged except for those farms that are located near irrigation facilities. Crop production accounts for 98% of agricultural output, and the output of staples has increased from 69.4 % in 1970-85 to 85.4 per cent in 1999-2003.

2.2.2 Livestock

Animal husbandry in Nigeria is largely characterised by extensive grazing practice, using mainly free range land and crop residue. Intensive ranching which depends on collected fodder is still largely undeveloped, however, there have been some modernisation lately following the establishment of cattle ranches and farms for intensive stock breeding, fattening and milking. The extensive nomadic and semi-nomadic cattle breeding where cattle and subsidiary livestock are moved about in search of natural pasture and as a strategy to avoid the menace of tsetse fly, however, remains the dominant livestock farming system. The products from these sub-sector accounts for 3.4, 1.9 and 1.7 per cent, respectively during the three periods. Poultry rearing has, however, changed tremendously from the traditional free range system to the modern intensive commercial poultry practice. The recent ban on the importation of poultry products has added great impetus to this sub-sector.

2.2.3 Fishery

The major mode of fish production has been the peasant artisanal fish-mongering in creeks and costal waters. Modern fish trawling and fish farming which in the past have remained relatively undeveloped is gradually gaining prominence. However, the capital intensive nature of this mode of fishing has reduced the number of participants in this venture. The contribution of this sub-sector has remained the least over time. It accounts for 1.5, 0.4 and 0.4 per cent, respectively during the period 1982-1985, 1986-1998 and 1999-2003.

2.2.4 Trend in input utilisation and agricultural productivity

The data available indicates that there has been little increase in agricultural productivity from 1976-2002. Maize yields averaged 12,300 kg/ha from 1976-1985; and rose marginally to 12,774 kg/ha and 12,871 kg/ha in 1986-1999 and 1994-1998, respectively. The yields of rice fell from 18,868 kg/ha in 1976-1985 to 13,162 in 1999-2002. By contrast, the yields of cotton, rose steadily from 1,978 kg/ha in 1976-1985 to 4,856 kg/ha and 6,624 kg/ha in 1986-1993 and 1994-1998, respectively. Cotton yields rose further to 7,210.3 kg/ha in 1999-2002.

These trends have serious implications for food security in Nigeria. These outcomes reflect the limited quality and quantity of inputs utilised for agricultural production. The consumption of fertilisers has been dwindling. The use of fertiliser which increased up to 1993 fell sharply until 1997 before rising again. The consumption of fertiliser per hectare in Nigeria is still below 20 kg while Senegal, Gambia and South Africa consume about 52 kg/ha, 55 kg/ha and 330 kg/ha, respectively.

Low productivity is also due to the limited use of agricultural machinery in Nigeria. It is estimated that there are about 10,000 tractors in Nigeria, out of which about half (50.5 per cent) are broken down. Nigeria's tractor density is put at 0.03 horse power per hectare compared with FAO recommended tractor density of 1.5 hp/ha.

3.0 THE ROLE OF GENDER IN FOOD SECURITY

Nigeria faces enormous challenges to improve food security, provide employment and ensure that women are mainstreamed into economic activities. Despite the lack of data, there is increasing realisation of the critical role of women in agriculture and food production and of the fact that the empowerment of women is necessary for bringing about sustainable development at a faster pace.

Various studies have shown that women produce between 60 and 80 per cent of the food in most developing countries and are responsible for half of the world's food production. FAO studies confirmed that while women are the mainstay of small scale agriculture, the farm labour force and day-to-day family subsistence, they have more difficulties than men in gaining access to resources such as land, credit and productivity enhancing inputs and services.

In Nigeria, women play a major role in the production of food crops and they also undertake some activities such as trade to earn cash income. For the purposes of this paper, a survey of the contribution of women in staple crops production among the Ibos of Isuikwuato of Isuikwuato Local Government Area of Abia State in Nigeria was undertaken. The survey data showed that the proportion of labour committed to each of the six major crops produced in the area and task performed by women and men are indicated in Table 4.1.

Table 3.1

**FEMALE AND MALE LABOUR CONTRIBUTION TO STAPLE CROPS
PRODUCTION AMONG THE IBOS OF ISUIKWUATO LOCAL
GOVERNMENT AREA IN NIGERIA (IN %)**

Crop	Field Preparation	Planting	Weeding	Harvesting	Storage
Yams	F 10 M 90	F 10 M 90	F 90 F 10	F 10 M 90	F 5 M 95
Maize	F 20 M 80	F 90 M 10	F 95 M 5	F 90 M 10	F 100
Cassava	F 30 M 70	F 80 M 20	F 90 M 10	F 80 M 20	F 100
Cowpeas	F 25 M 75	F 100	F 100	F 100	F 100
Melon	F 30 M 70	F 100	F 100	F 100	F 100
Rice	F 5 M 95	F 25 M 75	F 80 M 20	F 50 M 50	F 100

Source: Field survey, 2004

Women contribute most of the labour in planting maize, cassava, cowpea, melon and rice, while men plant mainly yam which is considered a male crop and used to measure the success of men in farming. The women are completely in charge of the planting and harvesting of cowpeas and melon. The uncommon distinction between “men’s crop and women’s crops” appears clearly in this table for all crops, it is also clear that women provide the bulk of the labour requirement for the weeding. The same is applicable to harvesting with the exception of yam. Rural women are the backbone of cassava production and processing in Nigeria and this is corroborated from this survey from an area that is a predominantly cassava producing zone.

3.2 Factors Constraining the Effective Participation of Women

Despite the role of women as the backbone of food production in Nigeria, women are faced with many factors constraining their effective participation in achieving food security. The major constraint to the effective recognition of women’s actual roles and responsibilities in agriculture is the scarcity of gender disaggregated data for purposes of planning and policy making. Other problems are:

3.2.1 Limited Access to Land and Capital

In Nigeria where both men and women farmers do not have access to adequate resources, the access of women is even more limited due to cultural, traditional and sociological factors. In most parts of Nigeria, women have restricted access to land and this is a major

constraint. The control of land confers on the owner access credit, and access inputs such as agricultural extension service, seeds, modern irrigation systems, fertilisers, pesticides and membership of cooperative societies. Without land, the women have no security and have to depend on land owners for employment.

In the Eastern part of the country where the population density is high, the break-up of communal land holdings has led to the transfer of exclusive land rights to males as heads of households. This ignores both the existence of female-headed households and the rights of married women to a joint share. Women are dependent on the goodwill of their husbands and the availability of land to grow food or to lease farmland for those that could afford the amount. In most part of the country land is passed on as inheritance to male children and women are excluded from this vital production resource.

3.2.2 Limited Access to Credit

Women need credit for the purchase of tools, equipment and other agricultural inputs. But because access to credit is often based on ownership of land and since the customary law do not allow them to share land property rights along with their husbands they cannot provide the collateral required by lending institutions. The lack of education and training also limits the ability of women in Nigeria to gain access credit from the formal financial institutions.

3.2.3 Limited Access to Agricultural Inputs

Women's access to improved seeds, fertilisers and pesticides is limited. Women farmers are frequently not reached by extension services and are rarely members of cooperatives, which often distribute government subsidised inputs to small farmers. In addition, women lack the cash income needed to purchase inputs even when they are subsidised.

3.2.4 Limited Access to Education, Training and Extension Service

The cultural/religious beliefs act as constraints to the education of women, and very often farm extension services and training have been targeted at men. The education of the girl child is not given adequate attention by many rural families. This is based on the believe that training the girl child amounts to waste of resources as she may not be allowed to work and she is also going to be part of another family entirely. According to FAO (1998) report, two thirds of the 1,000 million illiterates in the world are women and girls and only 5 per cent of extension services have been addressed to rural women, while no more than 15 per cent of the world's extension agents are women. In Nigeria, most of the extension services are focused on cash crops rather than food and subsistence crops.

3.2.5 Access to Research and Appropriate Technology

Women have little access to the benefits of research and innovation, especially in the domain of food crops, which have a low priority in crop improvement research. In addition, women farmers' roles and needs are often ignored when devising technology. Even when the technology is appropriate for their use, the lack of financial resources hinders the purchase and use of such technology by women.

4.0 URBAN AGRICULTURE IN NIGERIA

About 44% of the population of Nigeria live in towns and cities and urban agriculture contributes in no small measure to their food security. Urban agriculture has gained importance in Nigeria as a viable intervention strategy for the urban poor. Urban agriculture provides employment and income generation for the unemployed. The ability to earn cash income is a significant determinant of urban food security. The majority of urban dwellers are under-employed. They work in sectors where wages are low, working conditions precarious and job tenure insecure or none existent for a vast majority. In urban areas in Nigeria, employment in sectors that pay regular wages accounts for less than 15 per cent of total employment. The high rate of urbanisation, weakened purchasing power, high incidence of poverty, retrenchments in public and private sector and high unemployment rate have curtailed the capacity of both the urban poor and middle class to purchase all the food they need. Most households in Nigeria spend an average of 50 – 80 per cent of their income on food (FOS, 1996).

Urban farmers require inputs and human resources for activities like fencing, crop management, storage transportation and processing. The income earned is used to buy processed food, appliances, clothing, and services and can be invested into other smaller businesses in order to generally improve standard of living.

A survey of agriculture practices within the urban and peri-urban area of the Federal Capital Territory was conducted to assist in the assessment of the impact of urban agriculture on food security. Most of the urban farms are planted with crops such as maize, millet, groundnuts and vegetables. Poultry and small animal rearing are carried out at the backyards and in small scale while the large scale animal rearing are done at the peri-urban areas though there are occasional incursions into the city centre.

All the farmers surveyed indicated that they were involved in urban agriculture to generate income to supplement their earnings while others depend solely on their incomes from the farm. About 75.0 per cent of the farmers are full time farmers and 25.0 per cent are part time farmers who are in low income jobs. A sample size of 100 was chosen from three area councils of the Federal Capital Territory, that is, Garki, Kuje and Kubwa. Seventy were male while 30 were female. Most of the respondents were aged between 18-30 years. The majority (65.0%) were tenants and had to pay for the areas cultivated while 35.0 per cent were indigenes whose land have been acquired under the land use act but resettled in various parts of the satellite towns. The average area cultivated varies from less than a hectare to about 2 hectares.

The income generated from the farming activities is shown in Table 4.1. In most instances the income earned quadrupled after embarking on urban farming. For instance, the earnings from crop farming rose from an average of ₦60, 000 per annum prior to the practice of urban agriculture to ₦200, 000 per annum in 2004. Incomes from vegetable farming rose by 316.7 per cent to ₦400, 000 per annum. This increase in income was engendered by more intensive farming all year round, as most of these farms are located very close to sources of water, while others sunk bore holes/wells to guarantee steady

supply of water for all year round farming. The small and commercial livestock farmers recorded growth of 300.0 and 380.0 per cent, respectively in their incomes.

Urban agriculture also generated employment and incomes for farm labourers that were employed to weed, harvest and market the crops. There was intensive use of local manure traditional hoes and cutlasses. Increase in crop output through increase in the area under cultivation is limited as the land area cannot be increased easily. Raising productivity is important for both rural and urban farmers. Analysis of survey results shows that:

- The farming systems fell into four broad categories: crop production, vegetable farming small ruminant/poultry and commercial livestock farming. Out of 100 respondents, 39 were engaged in crop production, 40 grew vegetables, 12 were poultry farmers and only 9 were involved in livestock production.
- The mean income earned ranged from the highest mean annual income of ₦1.2 million earned by livestock farmers to ₦ 200,000 earned by crop farmers.
- The highest mean annual income prior to involvement in urban agriculture was ₦ 65,000 which was earned by crop farmers. The lowest mean annual income of ₦ 60,000 was earned by small ruminant farmers who were mainly women and school teachers, and they were able to earn more than double of this income through urban farming.
- Staple crops like maize, millet, yam and cassava are the most common crops, but vegetable production ranked higher with species like green, garden eggs (white variety) pumpkin leaves, pepper, lettuce and cabbage being the most widely grown.
- Poultry is the most commonly kept livestock. Over 70 per cent of those keeping livestock kept chickens, goats and sheep. In all cases, the animals were kept for commercial purposes.
- Other activities in which farmers engage in include skilled and unskilled labour, petty trading and teaching.
- Few patterns of income generating activities emerged from the analysis. Men combining a daytime activity like farming with a night time job such as watchman were one of the few that did emerge. Women most often combined agriculture with petty trading or teaching in primary schools.
- The vegetable growers were mostly men. Most of them were young school leavers who could not find jobs and they cut across all the ethnic groups in Nigeria. For most of them, farming is their main source of income.

Generally, the farming systems were diverse and most of the farming was on household property, but informal access to land was rampant. Urban farmer's farm mainly along streams and valleys in the FCT, and each farmer has only a small plot of land and practice intensive crop rotation to maximise the use of land and maintain soil fertility. They prefer the use of cow dung and poultry droppings as fertilisers because they are cheaper and readily available. Hired labour and household members are used for and harvesting. The livestock kept provides a regular source of income and a source of supplementary food for the households. In majority of cases, small livestock represents a kind of asset strategy. The animals can be readily sold for cash.

The factors constraining the growth of urban agriculture include limited access to land; lack of capital for start up costs; lack of access to markets such as groceries, restaurants, and institutions because of wholesale distributors' monopolies. Urban farmers also lack the knowledge and skills in production, processing and marketing that is needed to raise yields. Urban producers complain about theft of crops grown far from the farmers' households, and of harassment from local government officials for alleged violation of environmental regulation.

Table 4.1
CHARACTERISTICS OF FARMERS PRACTISING URBAN
AGRICULTURE IN FCT ABUJA, NIGERIA

Farming System	Sex Male	Female	Mean annual income prior to the practice of urban farming ₦	Mean annual income from farming ₦	Proportion of harvest consumed %	
Crops farming	31	8	65,000	200,000	32.5	223.3
Vegetable farming	30	10	96,000	400,000	23.5	316.7
Small Ruminant/poultry	-	12	60,000	240,000	35.2	300.0
Commercial livestock	9	-	250,000	1,200,000	3.5	380.0
Total	70	30				

Source: Field Survey, 2004

5.0 REVIEW OF AGRICULTURAL STRATEGIES

The strategies adopted for agricultural development in Nigeria over the past 30 years have varied with the change of governments and trends in government revenues. During the period 1975 -1985, when there was a large increase in revenues from the oil exports,

the federal government embarked on massive intervention in agricultural production. Many agricultural development institutions, special programmes and projects were launched. This was partly in response to the deterioration in the agricultural sector after thirty months of civil war. The two major programmes were the Green Revolution (1976 – 1979) and Operation Feed the Nation (OFN) from 1979 – 1983.

During this period, the Nigerian Agricultural Cooperative Bank was established and a special agricultural credit scheme was launched to ensure the flow of credit to the agricultural sector. The National Accelerated Food Production Programme, the Integrated Agricultural Development Projects, the National Seed Services and the re-organisation of the commodity boards were all implemented. Also, the Federal Government took over the procurement and distribution of fertilizers, launched ambitious input subsidy schemes and guaranteed minimum price schemes for grains. Some of the programmes resulted in government involvement in direct large scale agricultural production. However, the output of the agricultural sector during this period did not respond to the massive inflow of investment into the sector.

Balance of payments difficulties during the mid 1980s due to the decline in oil prices led to sharp declines in government revenues. A structural adjustment programme was introduced in 1986. The SAP had as part of its objectives the reversal of the low trend in agricultural production, increasing the availability of food to the populace at reasonable price and increasing farm incomes and agricultural materials to industries. The main strategy of SAP included the adoption of a realistic exchange rate policy coupled with the liberalisation of external trade and payment system, as well as, greater reliance on market forces and reduction in administrative controls.

Among the very important institutional reforms undertaken during this period were the abolition of commodity boards and the privatisation of many agricultural enterprises. The performance of the agricultural sector during this period improved markedly. The profitability of some agricultural enterprises increased considerably resulting in expansion of their scale of operations. Others with high foreign components in their inputs became less profitable, owing to high cost of these inputs.

The period 1993 – 1997 witnessed a lot of policy reversals in the agricultural sector. The importation of fertilizers was banned and then un-banned. There was also different tariff regimes applied to the commodity. The period also witnessed the removal of subsidy on fertilizers and the re-introduction of fertilizer subsidy later. The importation of day old chicks and parent stock were banned and later un-banned. Increased funding was provided for research institutes and universities of agriculture.

The new civilian administration launched a special programme for food security in 2001. The programme includes the modernization of agricultural production, processing, storage and distribution through the infusion of improved technologies and management so that agriculture can be more responsive to the demands of other sectors of the Nigerian economy. The government continued to give full support to the production of improved high yielding and disease resistant varieties of seeds. The policy supports the promotion

of the animal traction and hand tool technology. This is against the backdrop of prohibitive high cost of tractors and other agricultural machineries, which are needed by farmers for land clearing and preparation. In order to address the problem of poor handling, usage and operation the farm machinery and equipment which often lead to their breakdown, priority has been given to the two (2) Agricultural Mechanics and Machinery Operators Training Centres (AMMOTRAC) in Akure, Ondo State and Misau in Bauchi State.

To further ensure food security, the government has embarked on Presidential initiatives on rice, cassava and vegetable oil production, processing and export. The initiatives are aimed at producing about 15 million tonnes of paddy or 9.0 million metric tonnes of milled rice by 2007. Cassava production is designed to realize an income of five billion US dollars per annum through domestic and export market in cassava based foods, industrial starch, livestock feeds and ethanol products. The vegetable oil programme is designed to attain self-sufficiency on vegetable oil production, processing and marketing in the country over a five-year period. The production targets are: Oil palm (1 million hectare – about 5 million tonnes FFB), Groundnut (5 million tonnes), Soybean (678,000 tonnes) and Seed cotton (1 million tonnes or about 640,000 tonnes of cotton seed).

Utilisation of Technical Inputs/Machineries

Government policy to modernize the sector was focused on the expanded use of mechanical power and improved seeds. To this end, the government increased the imports of tractors and operated Tractor Hiring Service Schemes where farmers/communities could hire tractors. This was followed by the establishment of an institution (Steyr Motors) to assemble tractors in Nigeria. The National Seed Services was established to produce improved seeds for distribution to farmers.

Despite the concerted effort to introduce mechanization and improved seeds, the desired goal of realising sufficiency in the production of food, cash crops and agro-industrial raw materials has not been fully achieved. The operation of imported machinery has been bedevilled by the problems of spare parts, repair facilities, capital, skill manpower (operators and mechanics) and the fact that most machinery applications are incompatible with farmers' cropping techniques. Available information showed that 1000 tractors imported in 2003 were without the required implements, thus rendering them unusable. Also, about 50.5 per cent of the estimated 10,000 tractors in the country are in a state of disrepair. The very low tractor density of 0.03 horse power per hectare makes the realisation of food security through mechanization more difficult.

6.0 PROBLEMS AND PROSPECTS OF FOOD SECURITY IN NIGERIA

6.1 Problem of Food security

Although appreciable real output growth rates have been achieved in the agricultural sector in the last five years, a significant break-through in productivity to effectively guarantee domestic self-sufficiency is still constrained by a number of problems. These problems are the inadequacies in the supply and delivery of farm inputs; shortages of working capital; low rate of technology adoption; diseases and pests infestations; poor

post-harvest , processing, and storage technology; environmental hazards; constraints; and land constraint.

Inadequate supply of Farm Inputs

The unavailability of major farm inputs critical for agricultural production (fertilisers, seeds, agro-chemicals, machineries, etc) at the appropriate time and at the right prices has remained a source of worry and frustration. Government efforts to develop efficient and effective input procurement and distribution systems that will ensure timely delivery of adequate quantity and quality of farm inputs to farmers have not been successful. Despite the large sums of money that had been spent on procurement and subsidisation of farm inputs, the problems of availability, accessibility, stability and sustainability still remain. The adoption of many promising improved packages of technology has been compromised by the unavailability of the complimentary farm inputs.

The persistence of the problem has been attributed largely to the issue of subsidy and its administration, as evidenced in the procurement and distribution of fertiliser by the Government. This is an activity the private sector is believed to be better equipped technically to handle. The price regulating mechanism of a commodity whose supply could not match the demand at the stipulated prices create rent seeking and there are more unintended beneficiaries, who are the fertiliser contractors, haulers, etc. The result of all these actions is that many farmers do not have access to adequate supply of fertilisers with the consequence that Nigerian farmers have not been able to use fertilisers at the desired level to optimise their benefits to increase food production. Farm input play very critical role in the modernisation of small holder agriculture and this issue need to be properly addressed.

Inadequate working capital

Small scale farmers do not have adequate capital to expand their scale of operations and/or take advantage of profitable packages of technology to boost productivity. The bulk of capital injection by this category of farmers comes from owner's equity and informal credit sources. The price and exchange rate reforms that accompanied the Structural Adjustment Programme of 1986 have increased the costs of production and significantly increased the working capital needs of agricultural activities. The long and cumbersome bureaucratic processes have prevented the flow of official credit through the government established credit schemes to the farmers. This problem is more pronounced for the female headed household who have nothing to offer as collateral. If the objective of food security is to be attained, the issues of women empowerment should be taken seriously. There is also the need for effective support for the formation and growth of farmers' cooperatives to assist in accessing credit, using the group for the mobilisation and guarantee.

Inadequate Capital Expenditure

The volume of capital allocation to agriculture and the quality spending over the years have been low and poor. The share of agriculture in total capital expenditure which averaged about 2.5 per cent need to be increased. The adequacy of capital and effective

implementation of projects will ensure the effective provision of infrastructure and encourage research into crop production.

Low Rate of Technology Adoption

The reduction and outright elimination of subsidies on all agricultural machinery like tractors, harvesters, harrowers and planters following deregulation has reduced the use of machines in agricultural activities. The post-harvest technology available in Nigeria is poor and grossly inadequate to cope with vibrant, market-oriented food production efforts of Nigeria's small holders. Apart from the damage which the crops are exposed to in the field as a result of pests and disease attacks, a considerable proportion of the harvest is lost due to poor processing and storage technique. Crop losses have been estimated to be as high as 20 per cent of harvest in some cases.

Poor Extension Services

The twin problem of inadequate extension services and the low morale of the available extension staff need to be addressed. More emphasis should be placed on having well trained extensionists and consideration should be given to female extension workers to address the problem of gender access to new innovations. Effort should be made as a matter of priority to ensure that the salaries and allowances of this important group of workers are paid regularly

Environmental Hazards

The problems of drought/desertification, as well as, soil erosion have remained very serious for Nigerian agriculture. These problems often manifest in the forms of soil degradation and deforestation. While some of these changes are caused by natural forces, they could also be caused by the direct result of over-grazing, over-cultivation, bush burning and deforestation associated with increased population and poor conservation practices. Attempts to solve the problems have been through nation-wide tree planting campaigns in the past and encouraging people to switch to the use of fuel efficient facilities, like stove and gas cookers. Unfortunately, the prices of stoves and gas cookers have risen sharply, thereby making them out of the reach of most rural dwellers. The increase in petroleum products prices has also resulted in farmers resorting to the bush for their fuel. Furthermore, the afforestation programme has been slowed down due to inadequate funding by government, increase in cost of planting materials, inadequate water and manpower to implement the afforestation programme. Also, proper conservation practices have not been learned by the rural dwellers.

Post Harvest Losses

The problem of inadequate storage facilities has compounded the problem of food security. It is estimated that about 15 – 20 per cent of the crops produced are lost before they can be consumed. This situation is made worse by the dearth of agro-processing industries in the country. It also has a discouraging effect on the farmers as the struggle to sell most of their crops immediately after harvest results in cut throat competition and lower prices.

Low Level of Education

The low level of education of small scale farmers, especially women who form the bulk of the agricultural labour force has remained a major constraint to the adoption of modern farming techniques and the ability to access other inputs necessary for increased productivity in the sector.

Communal / Religious Crisis

The frequent communal / religious crisis in some region of the country is a major constraint to food security in Nigeria. The crises occur either during planting, weeding or harvesting period and with the flight of farmers from the areas irrespective of the stage of farming, food security is threatened as most, if not all the crops are lost.

6.2 Prospects of Food Security in Nigeria

The prospects for increased agricultural production and food security in Nigeria are good because of the following factors:

- Abundant land resources for the production of crops, livestock and forestry products,
- A large domestic and international market for agricultural commodities,
- The liberalization of trade will help farmers to get better prices for their exports. However, private sector marketing agencies are needed to help ensure the quality of export commodities.
- The ban on imports of livestock products, maize, wheat and vegetable oils should help domestic producers.
- The current government policy to reserve 30.0 per cent of the elective post for women will go a long way in enhancing gender empowerment for the rural women.

However, the achievement of increased agricultural production and food security will require a comprehensive strategy to reduce some important constraints, in particular

- The inadequate supply of agricultural inputs and machinery.
- The lack of empowerment of women evident in their lack of access to land, capital, credit etc.
- The inadequate collection and analysis of gender disaggregated data to understand the role differences in food and cash crop production as well as men's and women's differential managerial and financial control over production, storage and marketing of agricultural products. This will also give information on the type of design of farm input for women.
- The scarcity of land and the inadequacy of land use arrangements in both rural and urban areas.
- The lack of education, training and extension services
- The lack of adequate storage facilities.

7.0 Conclusion

The study showed that government massive investment in agricultural production and supply of agricultural inputs and machinery has not succeeded in increasing food production and productivity to the level commensurate to the investment. This could be

attributed to the haphazard manner in which the policies were implemented. Appropriate machineries were not imported and where this was done the implements to facilitate the usage were not imported. The available machineries were not gender sensitive and could not be used by the majority of the women involved in agriculture. The lack of appropriate skills and education resulted in the non-realisation of the optimum benefit associated with the use of improved technology. This is partly responsible for more than 50.5 per cent of the tractors remaining in the state of disrepair. Also, the non release of funds at the appropriate time for the maintenance of the machineries and the inability of the tractor hiring units to make enough profit from their operations brings to the fore the futility of government involvement in the business.

The main source of food insecurity in Nigeria is the massive post harvest loss which has been estimated to be as high as high as 20 per cent. The level of on – farm storage is still very poor and the state of agro allied industries in the country has not helped matters. The frequent communal clashes that displace farmers from their locations at very critical period of production are also a major problem that should be addressed urgently.

All previous efforts to empower women through various poverty alleviation programmes have not yielded the desired results since they have not been supported by appropriate technologies. Women have the potential of increasing agricultural production given the population involved in farming and the roles they play in the production process. However, to achieve this, the women need to be empowered through education and the provision of appropriate technology that is gender sensitive. The issue of communal/religious crises should be addressed urgently.

**TABLE 2.1
AGRIC SHARE OF GDP**

GROSS DOMESTIC PRODUCT (=N='MILLION)				
YEAR	GDP	AGRICULTURE	AGRIC SHARE OF GDP	G/RATE OF AGRIC
1981	70,395.9	24,460.7	34.7	-
1985	68,916.3	27,794.3	40.3	#REF!
1990	90,342.1	35,277.2	39.0	#REF!
1991	94,614.1	36,522.6	38.6	3.5
1992	97,431.1	37,272.9	38.3	2.1
1993	100,015.1	37,780.8	37.8	1.4
1994	101,040.1	38,692.4	38.3	2.4
1995	103,502.9	40,100.0	38.7	3.6
1996	107,020.0	41,750.0	39.0	4.1
1997	110,400.0	43,500.0	39.4	4.2
1998	112,950.0	45,250.0	40.1	4.0
1999	116,140.0	47,600.0	41.0	5.2
2000	120,640.0	48,980.0	40.6	2.9
2001	125,720.0	50,850.0	40.4	3.8
2002	129,820.0	53,520.0	41.2	5.3
2003	136,410.0	55,000.0	40.3	2.8

Source: Central Bank of Nigeria Annual Report.

TABLE 2.2

Index of Agricultural Production in Nigeria (1984=100)							
Year	Aggregate	Crop	Staples	Other crops	Livestock	Fishery	Forestry
1970	126	144.5	171.6	82.5	75.1	101.6	81.5
1975	104.3	111.7	122.4	87	74.7	127	94.1
1980	92.5	92.0	85.9	106.2	75.1	153.4	106.5
1985	104.6	103.5	103.3	103.8	104.3	62.3	102.9
1990	167.5	180.0	189.4	144.9	157.1	77.4	117.1
1991	191.7	212.5	228.7	151.6	160.7	84.3	119.5
1992	206.4	233.3	264.4	154.6	159.3	84.3	122.2
1993	211.4	241.1	266.3	146.1	161.6	62.9	124.7
1994	209.7	249.4	276.8	146.0	164.1	67.0	128.0
1995	216.8	255.5	285.2	149.8	171.0	77.6	128.0
1996	224.8	270.0	298.1	158.0	176.0	89.4	131.4
1997	234.1	277.7	307.3	171.5	180.4	99.5	132.7
1998	242.4	288.0	316.1	182.4	181.3	105.7	133.5
1999	249.1	294.5	322.4	189.6	190.4	108.8	136.3
2000	258.2	308.0	337.3	194.2	190.7	112.9	138.4
2001	267.7	318.8	349.0	200.8	195.8	117.4	140.9
2002	278.5	329.2	692.8	205.3	204.0	124.8	142.0
Period	Average Growth Rate						
	Aggregate	Crop	Staples	Other crops	Livestock	Fishery	Forestry
1970-1985	-0.9	-1.6	-2.4	2.0	2.4	-2.0	1.6
1986-1993	8.6	11.3	12.8	4.5	7.1	3.4	2.6
1994-1998	3.1	3.0	3.7	4.6	2.3	3.6	1.5
1999-2002	3.5	3.4	3.6	3.0	3.0	2.7	1.5

Source: Statistical Bulletin, Central Bank of Nigeria

TABLE 2.3
FED. GOVT. CAPITAL EXP (=N='Million)

Year	Total Capital Expenditure	Total Agric Capital Exp.	Agric Share in Total Cap. Exp.
1970	220.9	5.6	2.5
1975	3,518.2	211.2	6.0
1980	8,395.6	413.3	4.9
1985	8,153.8	198.80	2.4
1990	24,048.6	1,598.20	6.6
1991	28,340.9	1,219.00	4.3
1992	39,763.3	941.30	2.4
1993	41,132.4	1,824.40	4.4
1994	70,918.3	2,178.80	3.1
1995	121,138.3	2,414.20	2.0
1996	158,678.3	3,894.80	2.5
1997	209,841.3	6,247.40	3.0
1998	309,015.6	6,064.60	2.0
1999	498,027.6	6,912.60	1.4
2000	239,450.9	8,803.20	3.7
2001	438,696.5	57,879.00	13.2
2002	321,398.1	32,364.40	10.1
2003	241,688.6	8,510.90	3.5

Source: Central Bank of Nigeria Annual Reports.

**TABLE 2.4
FOOD AND LIVE ANIMAL IMPORT**

YEAR	QUANTITY MILL. MT	VALUE ^' MILL
1970	6.7	57.7
1975	770.7	298.8
1980	1478.7	1437.5
1985	1784.7	1199
1990	1682.8	3474.5
1991	1434.3	3045.7
1992	2445.6	12840.2
1993	2081.1	13952.4
1994	2776.9	13837
1995	2699.1	88349.9
1996	2558	75392
1997	2546	100728.3
1998	2699.1	102165.1
1999	2558	103489.8
2000	2546	113630.5
2001	2880.1	159002.1

AVERAGE GROWTH RATE

1970 - 1985	92.9	26.1
1986 - 1993	9.3	61.9
1994 - 1998	6.2	111.2
1999 - 2001	2.5	13.3

Source; Federal Office of
Statistics

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