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Gender Dimensions of Agriculture, Poverty, Nutrition and Food Security in Nigeria

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Nigeria Strategy Support Program (NSSP)

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THE NIGERIA STRATEGY SUPPORT PROGRAM (NSSP)

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- Enhanced knowledge, information, data, and tools for the analysis, design, and implementation of pro-poor, gender-sensitive, and environmentally sustainable agricultural and rural development policies and strategies in Nigeria;
- Strengthened capacity for government agencies, research institutions, and other stakeholders to carry out and use applied research that directly informs agricultural and rural policies and strategies; and
- Improved communication linkages and consultations between policymakers, policy analysts, and policy beneficiaries on agricultural and rural development policy issues.

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Acronyms

ADP	Agricultural Development Project
CBO	Community-Based Organizations
DRG	Debt Relief Grant
FADU	Farmers Development Union
FCT	Federal Capital Territory
FEAP	Family Economic Advancement Program
FMWA&SD	Federal Ministry of Women Affairs and Social Development
FOS	Federal Office of Statistics
GDI	Gender Development Index
GDP	Gross Domestic Product
GNP	Gross National Product
HDI	Human Development Index
HIV/AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
HPI	Human Poverty Index
IDA	Iron Deficiency Anemia
IDA	International Development Organization
IDD	Iodine Deficiency Disorders
IITA	International Institute of Tropical Agriculture
ILO	International Labor Organization
MDG	Millennium Development Goal
NARI	National Agricultural Research Institutes
NBS	National Bureau of Statistics
NGO	Non-governmental Organization
NLSS	National Living Standard Survey
NPOC	National Population Commission
PEM	Protein Energy Malnutrition
UNDP	United Nations Development Programme
VAD	Vitamin A Deficiency
WDR	World Development Report
WIA	Women in Agriculture
WOTCLEF	Women Trafficking and Child Labor Eradication Foundation

Introduction

Gender analysis focuses on the different roles and responsibilities of women and men and how these affect society, culture, the economy and politics. For example, important differences exist between women and men in their quality of life; in the amount, kind and recognition of work they do; in health and literacy levels; and in their economic, political and social standing. Women are too often marginalized in their families and their communities, suffering from a lack of access to credit, land, education, decision-making power and rights to work. Explicitly, while gender analysis focuses on the relations between men and women, such analyses including the ones that will later be cited in this paper, disproportionately find that women have less access to, and control of, resources than men which is why this paper emphasizes the role of women, and their well-being in agriculture, nutrition and food security. Not surprisingly, women therefore comprise the majority of the world's poor in both the urban and rural sectors and the majority of those working in the informal sector (Spieldoch 2007).

There are 450 million women and men working as agricultural laborers worldwide who do not own or rent the land on which they do not work nor the tools and equipment they use. These workers comprise over 40 percent of the world's agricultural labor force often living below the poverty line and forming part of the majority of the rural poor in many parts of the world (FAO-ILO-IUF 2005).

The number of waged female agricultural workers, currently at 20-30 percent of the waged workforce is increasing (Spieldoch 2007). According to the United Nations (2006), women are responsible for over half the world's food production. In developing countries, rural women produce between 60-80 percent of the food and are the main producers of the world's staple crops (such as rice, wheat, maize), which provide up to 90 percent of the rural poor's food intake. Women dominate the production of legumes and vegetables in small plots, raise poultry and small animals and provide most of the labor for post-harvest activities such as storage, handling and processing of grains. The Food and Agricultural Organization (FAO) indicates that women produce as much as 80 percent of the basic foodstuffs for household consumption and sale in Sub-Saharan Africa (FAO-ILO-IUF 2005). According to Huston (1993), women share of food production in Africa is estimated at 80 percent while Mijindadi (1993) asserted that in Nigeria women are responsible for about 70 percent of actual farm work and constitute up to 60 percent of the farming population.

A growing number of women work in the informal agricultural sector as well, primarily doing homework at inconsistent rates or working as street vendors in local food markets. The International Labor Organization's (ILO) Committee on the Informal Economy argues that failed macroeconomic policies, the unequal distribution of the benefits of globalization and the feminization of poverty have all contributed to an increase in women working in the informal sector (ILO 2002). For these reasons, women are directly and negatively affected by macroeconomic policy changes. Women must be more involved in policymaking to change this situation.

Background of this Study

This paper provides an overall background on the gender dimensions of agriculture and a specific examination of the intersection of gender and agriculture in Nigeria.

Specifically, the main objectives of this study are the following:

- Provide an insight into the performance of tasks and activities by gender in the area of agriculture

- Disaggregate household activities by task and gender in Nigeria
- Explain the gender dimensions of poverty, nutrition and food security
- Identify available data on gender in agriculture in Nigeria and comment on existing gaps in the literature

The paper is divided into seven sections:

- Section I provides an introduction and background to this study and the main objectives of carrying out this review.
- Section II examines the gender dimensions of agricultural production in Nigeria.
- Section III examines the gender dimensions of poverty in Nigeria.
- Section IV describes the gender dimensions of nutrition in Nigeria.
- Section V examines the gender dimensions of food security in Nigeria.
- Section VI presents the identified literature gaps on gender and agriculture in Nigeria.
- Section VII offers conclusions derived from the examined literature.

Methodology

A desk review was made of literature on the gender dimensions of agriculture in Nigeria and other African countries synthesized from the Internet and various agricultural related institutions in Nigeria, Universities and the National Planning Commission on health and nutritional issues and the National Bureau of Statistics. The sources of gender disaggregated data listed in Appendix B are secondary from the Federal Ministry of Women Affairs and other related institutions mentioned. Specific data and analysis relevant to the objectives of this study are included in Appendix I at the end of the report.

Gender Dimensions of Nigerian Agriculture

With an estimated 140 million inhabitants and a population growth of 2.5 percent annually, Nigeria is the most populated country in Sub-Saharan Africa and the 10th most populated country in the world (NPOC 2006).

Figure 1: Map of Nigeria



Approximately 49 percent of the population engages in agriculture as their major occupation. The agricultural sector is the mainstay of the majority of Nigerian rural poor, with over 70 percent of the active labor force in rural areas employed in agriculture and the sector contributing over 23 percent of the GDP in 2006 (World Bank 2007).

The contribution of women in agriculture is poorly documented in Nigeria. This is largely because women carry out activities that are unpaid (informal, non market activities) such as domestic work, care giving, daycare, preparation of meals, working on husband's farm and family farm apart from own farm, disposal of garbage, marketing and shopping, etc. (FOS 1999; NLSS 2004). These informal and non-market activities that women perform is not officially accounted for in the Systems of National Accounts (SNA) thereby undervaluing their contributions and overlooking the impact of these activities on the overall development of the economy. The reasons for this poor documentation may be due to the social constructs and cultural inclinations of the society in which they belong as well as those functions imposed on them by virtue of the fact that they are female.

Gender Inequality in Decision Making and Access to Capital Assets

The significant contribution of women to food production and processing has been empirically reported in various micro level studies in Nigeria (Afolami et al. 1996; Ajani 2001; Amaza et al. 1999; Ani 2003). The studies reveal that men make more decisions about farming and control productive resources.

Given the necessary resources and the same enabling environment as their male counterpart in farming activities, women farmers are equally efficient in the utilization of these resources to achieve higher productivity proxied by profitability given their potential in price (allocative) and economic efficiencies (Ajani 2001; Adesina and Djato 1997). Therefore full participation of women is required to increase agricultural productivity. This can only be achieved when women are perceived as subjects of development. Towards this end, a study was conducted in Kaduna State of Nigeria with a random sample of 230 women to examine the status of women's involvement in the agricultural sector. The study utilized data collected through structured questionnaires administered to women. The results showed that women had a low rate of involvement in farm decisions (41.53 percent) and could not adequately access productive resources (11.25t). The satisfaction derived from agriculture by the women was low and significantly related to the size of the household farm and the share of the farm income that they obtained (Rahman 2008).

Another study of 400 rural women farmers in southern Ebonyi State, examined the relationship between making farm decisions and the socioeconomic characteristics of the women. Major findings from the study revealed that overall, respondents were not significantly involved in making various farm decisions, widows made more farm decisions than their married and single counterparts, and respondents in the age categories of 31-40 years and 41-50 years took the most active part in making farm decisions (Ani 2003). The study concluded that policymakers should be ensuring that a conducive environment is made available for female farmers in decision making. It also underscored that women are not a homogeneous group and thus, policies need to be designed with different groups of women in mind, such as targeting interventions by age.

Despite improvements in building women's capacity, gender gaps in entitlements (the resources which women and men can command through available legal means) continue to persist. This gap is reflected in unequal rights between men and women for both natural and physical capital which lead to the inadequate and inappropriate use of resources, low incomes, poor diets and a low standard of living. These disparities have serious consequences for the well-being of women, their families and society (Akinsanmi et al. 2005).

Gender inequality hinders a woman's chances of employment, education, access to decisionmaking and affects her and her household's food security. Women typically have limited access to land, education, information, credit, technology and decision-making forums. Women have the primary responsibility for child rearing and rely on developed social networks that act as an informal safety net for the family in times of crisis. When involved in formal employment, women typically command lower remuneration rates than their male colleagues, even when they perform the same tasks. Because of this triple burden of the productive, reproductive, and social roles that women are expected to play, women also tend to have less time to attend to their own personal needs.

Inequities in access to and control of assets have severe consequences for women's ability to provide food, care, health, and sanitation services to themselves, their husbands, and their children, especially their female children. In the African context, female children have double tragedy of coincidence, first, they are least preferred in the household because of their gender in the provision of food, care, health, etc, and secondly, when they grow up to be adults they have

to deny self in order to make these earlier mentioned provisions for their family members (Akinsanmi et al. 2005). Women with less influence or power within the household and community are unable to guarantee the fair distribution of food within the household. These women also have less ability to visit health clinics when their infants and children are sick.

Gender inequalities between men and women in accessing and controlling resources is not only unfair to women and their children, but also constitutes bad economics, resulting in the misallocation of scarce resources, increased healthcare costs, lowered productivity, and poor human development trends. Investment in the nutrition of women is an important short-term barometer in assessing expected returns to improving household nutrition and overall human development capacity for a country (Oniang'o and Mukudi 2002).

Land is a very crucial farm resource without which there would be no agricultural production. It is very important in directly providing two out of the three basic necessities of life, i.e. food and shelter, and indirectly providing clothing. Perhaps the major economic constraint for most rural women is the lack of land ownership. Women do not have direct access to land and are usually bound to a large extent by the decision of the land owner.

Patriarchal structures and authorities give more resources to men resulting in women having less access to productive resources in agriculture. Also social, cultural and religious constraints hinder access of women to productive resources such as credit, improved technologies on seeds, fertilizers, etc. Their male counterparts are favored by patrilineal rules for inheritance of land, even in matrilineal societies. Women's access to land is through their male counterparts or relatives, therefore increasing their dependence on men. Women's access to other productive farm resources is limited because of their high illiteracy, hence their inaccessibility to information, available on-farm resources and improved technological innovations that can impact positively on farm productivity and efficiency.

Akinsanmi et al. (2005) found that female heads of households are more efficient with the use of capital and labor while male heads are more efficient with the use of land. The factors influencing gender roles and decision making differ between the two groups. While the male-headed households have higher incomes and a relatively better standard of living, their health situation is worse compared with female-headed households.

Anosike and Fasona (2004) found in their survey of farmers in Lagos that women hold relatively small parcels of less fertile land that are less conducive to efficient farming practices. This has led to the adoption of different farming methods associated with adverse environmental impacts and poor yields. Most farms headed by women in Lagos State are often located in unsafe and insecure areas on the edges of the cities and lack basic services such as water and electricity. They sometimes have to transport water over a distance of between 100 and 300 meters especially during the dry season. Also, most female-headed farms depend on the assistance of hired labor and family members (children), which makes the production expensive and unprofitable, and in addition affects the quantity of time the children can spend at school. Consequently, female farmers are much less likely than men to plant more profitable crops.

Wage discrimination undermines women's participation in the labor force. The marginal product of 1 day of labor in agricultural self-cultivation for women is 75 percent of the wages earned by men. Daily wages in the casual labor market also reflect this disparity. This discrimination in casual labor markets creates barriers to land rental, making it particularly costly to women (World Bank 2008).

Women and Food Production

Bzugu and Kwaghe (1997) reported that women form the highest proportion of the economically active population in rural Nigeria and play an important role in agricultural activities, particularly in subsistence food production, where they contribute an estimated 60-80 percent of the total labor used. These women contribute significantly to both the economic growth and national development (Ajayi 1997). The majority of the women are not in agriculture by choice, but they grow into it, as it is the dominant occupation in the areas in which they live. Therefore, their work as mothers, wives and citizens has always been combined with the essential economic role of food producers. In addition, they fully engage in a wide range of other off-farm and household activities (African Event 1991).

In Nigeria, women play a major role in the production of food crops and also undertake activities such as trade to earn cash income. Female farmers are associated with traditional subsistence and low-yield food crops, due to their lack of influence and their inability to access agricultural innovations (Ani et.al. 2000). There may be differences in agreement as to the extent of the involvement of women in agricultural production, but there is a consensus that women are important participants in all sub sectors of agriculture, namely crops, livestock, fisheries and agro-forestry.

Religious, cultural and social norms constrain women's rights and activities while reproduction and household responsibilities impinge on their time and mobility. The range of agricultural activities and crops cultivated by women is dictated by norms rather than their capabilities. Hence, variations exist among different social groups in women's role in agriculture (Ezumah et al. 1995).

In Nigeria, research studies have shown that women play major roles in key farming operations such as planting, weeding and harvesting. Some areas have certain crops designated "female" crops. Due to the fact that gender relationships are socially determined, there is great diversity from one area of Nigeria to another. There are three major ethnic groups in Nigeria. These are the Yoruba in the southwest, the Ibo in the southeast and the traditionally Muslim Hausa-Fulani in the north. On the surface, women's activities seem different among the three major ethnic divisions. However, the traditional farming systems among the three groups are similar in that there is a division of labor between men and women, especially among the Ibos and the Yorubas. Traditionally, Yoruba farmers rely predominantly on male labor while Ibo farmers depend heavily on female labor. Furthermore, Ibo women tend to be farmers first and then traders while Yoruba women are inversely traders first and then farmers.

In southeastern Nigeria, yam is the traditional prestige crop for men while cassava and other ephemeral crops like melon and cocoyam are crops for women. In the north, religion plays a large role in the division of labor. Among Muslim Hausa-Fulani's, seclusion norms dictate that women are less involved in outside-the-compound farming tasks (other than harvesting of certain crops by widows or women who have reached menopause). However, non-Muslim women are involved in every stage of agricultural production. In parts of southwestern Nigeria, women combine petty trading with food and cash cropping. In the middle belt states, women own and manage farms without restriction as to the crops they cultivate. However women generally carry out most farming operations on family farms, owned and controlled by male heads of the family and their own farms are allocated by the husband. In eastern Nigeria, women farmers participate actively in the production of yams, maize and other cereals. Generally, rural women are actively involved in post-harvest processing as well as in raising poultry and small animals (sheep and goat), even when in purdah. They do this as a way to store wealth, which serves as a "living savings account" (Blumberg 1987). Comparative measurements of productivity by gender have not received considerable research, though in

female-dominated food crops, female farmers are as productive as their male counterparts (Adesina et al. 1997).

Awotide et al. (2006) revealed in their study on relative efficiency of women rice farmers in Ogun State that male rice farmers are more economical and price efficient than female rice farmers, implying that male rice farmers maximize profit better than female rice farmers because of the higher technical efficiencies among them. This assertion has been corroborated by Adesina and Djato (1996), Ajani (2001) and Awotide (2004).

A research study conducted by Ezumah and Di Domenico (1995) revealed a shift in conventional gender roles in agricultural labor among Igbo women of Nigeria due to the increased participation of Igbo men in non-farm activities and wage employment. This resulted in an increased workload for women in food production as well as a breakdown in the gender division of labor in agriculture. Igbo women perform some of the conventional male agricultural tasks such as land clearing, heaping and staking of yam vines in addition to carrying out traditional female activities in the household. Even when performing the conventional male tasks, though, they still face challenges in accessing productive resources. The authors challenged that policy measures should address this issue.

Given the increasing population in Nigeria (5.4 percent birth rate and 3.2 percent death rate), and high rural-urban migration of males seeking paid employment in the urban areas, more effort should be made to make farm resources available to female farmers so that they can achieve greater productivity. Women's access to needed farm resources have been assessed to be very low due to marital and religious reasons, lack of awareness caused by low literacy, lack of ownership and control, lack of sufficient and substantive collateral, and inadequate knowledge and training in the use of improved technologies (Amaza et al. 1999; Hassan et al. 2002).

Influence of Gender on Agricultural Labor Utilization

Chianu et al. (2002) studied the influence of gender on labor allocation in agricultural production activities in the savannas of northern Nigeria and indicated the various correlations along gender lines (Appendix A). Using data from 322 households in Nigeria, the researchers investigated gender influences on labor allocation in four enterprises. Results indicated a high positive correlation in labor allocation between mothers and female children in crop production and processing, a medium positive correlation between fathers and male children in processing and livestock production, and a low positive correlation between mothers and male children in production and processing activities and between male children and female children in crop production. Capacity building and sustainability interventions must target mothers because they have great influence on the younger generation. Where religious barriers limit the influence of mothers on male children, fathers must also be targeted to effectively reach male children. Fathers must also be motivated to pursue produce processing since this will encourage male children to join. For capacity building and sustainability of general agricultural and rural development interventions in this study area and similar environments, this study highlighted the fact that planners and development agencies (including NGOs, CBOs, IDAs, etc.) must target spouses (mothers) who have great influence on the younger generation (in general both the female children and the male children). In looking at the data from the study, the influence of the mothers (spouses) on the children followed religious lines. For instance, in the Guinea savanna zone, where both Christian and Muslim mothers (spouses) are found, the influence of the mothers (spouses) on both the female and the male children was much higher. This influence could be due to the freedom that allows Christian women to interact with the larger society. In the Sudan savanna zone, where the presence of Christian women is negligible, the influence of the spouses was high on female children and insignificant on the male children. This could be

due to the fact that the female children most often stay indoors with their mothers to assist them and learn their future roles as mothers whereas the male children are more mobile as are their fathers--a behavior necessary to adequately provide for the needs of all in the household (including the less mobile women, especially the mothers). In instances like this, planners and development agencies have to target the household heads in order to influence (or reach) male children. Results from this study also revealed that in order to encourage male children to pursue agricultural produce processing (as seen in the case of Sudan savanna zone where the percentage of labor allocation for both the household heads or fathers and the male children was low but the correlation positively high (see Table 6 and Figure 4 in Appendix I), development agencies must target the household heads (fathers) and motivate them.

Following the findings of Nweke et al. (2002) which pointed out that men increase their labor input in cassava producing areas where cassava is mainly produced for cash and for urban consumers, the motivation of household heads could be in the form of market and market infrastructure development. The motivation of the household heads (fathers) will in turn encourage the male children who tend to emulate the household heads or fathers in their attitude towards agricultural produce processing as seen in the case of the Sudan savanna. If the household heads (fathers) who have great influence on their male children are not motivated, agricultural produce processing is likely to remain a female activity, as noted by Chianu and Tsujii (in press). Considering the value-adding potential of agricultural produce processing and the strong decision-making role of the household heads (fathers), this behavior will negate the much-needed improvements in household income, food security and general household welfare.

Ezumah et al. (1995) reported on the use and distribution of labor in various farm activities in three types of farms operated by Igbo Women in Nigeria, namely, male-headed farms, female-headed farms and jointly owned farms, explicitly illustrating the significant contribution of women to agricultural labor supply. The major contribution of labor in these three farms is by the woman in that she must see to the daily performance of tasks on the farms but may not contribute to decision making and control of proceeds from these farms except her own homestead farm. The man does not supply labor services to the wife (s) farm but has a significant control over the proceeds from the woman's farm. The woman however hires labor on her own farm to handle tasks that are labor intensive like land clearing, weeding and harvesting, but can plant, apply fertilizers, harvest, transport, and market her farm proceeds using own and/ or family labor.

Women and Appropriate Technology for Food Production

Women produce a substantial amount of food consumed in the household and are engaged in its processing and utilization. Due to lack of access to improved technologies, women still use crude and traditional implements in food crop production. The efforts of the Women in Agriculture (WIA) component of the extension system in Agricultural Development Projects (ADPs) has substantially reduced the drudgery faced by some female farmers in food crop production as well as its processing and utilization (Ani 2004). In places where women do not own or inherit land, difficulties have been experienced in expanding farm land with the use of mechanized farm machines like tractors and ploughs which make land clearing easier and reduce labor time.

Women's farms are scattered and in small parcels thereby preventing any mechanized form of farming, and the use of traditional implements is still prevalent. To perform farm tasks like weeding, heaping, fertilizer application, harvesting processing and storage, various appropriate technologies packages have been developed and have been transferred to farmers in rural areas. The extent to which female farmers adopt them depends on the cost of the technology,

their technical know how, and the adaptability (suitability) of these tools to the cultural norms of these farmers.

Various food production technologies include:

1. Different kinds and types of sprayers for spraying chemicals that prevent weeds, insects, fungus and other pathogens.
2. Tractors, ploughs, ridgers, combine harvesters, etc. (These are available for purchase or hire in state ADPs, research institutes, and tractor-hiring units of state ministries of agriculture.)
3. Apron harvesters and wheel barrows for transporting harvested farm products from designated areas on the farm to farmhouses.

The extent of use of such tools depends on the earlier factors enumerated, but a particular constraint is the fact that most of the improved packages are not suitable--either in terms of cost or application--for small-scale farmers. There is therefore the need for engineers to look inward and source local materials for the fabrication of appropriate farm machines that will be appropriate to a farmer's scale of operation.

Ogunlana (2001) examined the social problems encountered by Nigeria women in the adoption of alley farming and their major uses of alley trees. Nigerian women farmers are owners and operators of alley trees in their own right, not only in agricultural productivity but also in non-farm work.

Labor as a factor of production is highly varied in type and availability. This makes it have a pronounced hunting effect on women's productivity due to the strenuous nature of various activities performed on the farm by women as well as domestic and care work performed at the household level, making them have a double burden of time and labor constraint which lowers their productivity. Hence, women should be provided with appropriate technologies that are both time saving and labor saving. Tools and equipment should be easily fabricated with local materials. The height of equipment such as grinders, shelling machine and extractors should not exceed the elbow for easy handling and maintenance. The introduction of cheap and non-toxic herbicides will save women's time in weeding, one of their principal farming tasks.

Women and Extension Services

Gender can be said to categorically affect women farmers' participation in agricultural extension services, even with improved extension services for various reasons. Female farmers are constrained by time due to their multiple roles as homemaker and income earners. They also are constrained by restricted mobility due to poor transportation systems in rural areas.

Adetoun (2006) in her study on the organization and management of extension services for female farmers in Southwestern Nigeria randomly sampled a total of 1,033 female farmers from four states--Oyo, Osun, Ogun and Ondo. Both the farmers and 262 male farmers in Osun State were interviewed to have a comparative analysis based on gender. Extension agents were also interviewed. Data analysis revealed that only 55.8 percent of the female respondents were aware of the presence of village extension agents, while only about one-third (35.8 percent) of them actually had regular contacts with these agents. The respondents ranked the radio as the most important means of information for agricultural activities, which was followed by extension agents and spouses. A few of the respondents identified school children as one of their sources of information. The early maturing cassava types and improved maize seeds were the most widely adopted innovations. Even though soya-bean planting and processing have been widely promoted (especially for female farmers), it has not been rapidly adopted due to several factors such as lack of additional labor for land clearing, unsuitable land, lack of marketing outlets, etc.

The farmers identified their training needs and made suggestions for improving female farmers' productivity. Extension agents also identified the challenges and constraints to the effective performance of their jobs. These include among others logistics to effectively channel extension messages to farmers, religious and cultural constraints especially reaching women in "pudah" in some Northern parts of the country.

Gender Dimensions of Poverty in Nigeria

The concept of poverty is controversial in several respects, most especially in how to define and measure poverty, how to establish the poverty line, and what methods to use for identifying and targeting the poor. Another area of controversy is whether poverty is a social, economic or political problem or a combination of any of the three (Onimode 1995).

Regardless of the level of controversy associated with the concept of poverty, one thing is very clear--there is poverty in Nigeria and its level is very high (Ogwumike and Ekpenyong 1995; Okunmadewa 2001). Despite its wealth of human and natural resources, Nigeria is ranked among the 13 poorest countries in the world, with two out of every three citizens living below the extreme poverty line of less than \$1 or N128 per day.

According to 2006 population figures for Nigeria, the population of males is 50.04 percent while 49.96 percent is females. The Gender Development Index (GDI) value (2007/2008), which measures the achievements in same dimensions as the HDI but captures the inequalities in achievements between women and men for Nigeria stood at 0.470, indicating a measure of gender disparity. Out of 156 countries with both HDI and GDI values, 139 countries have better ratios than Nigeria. The value of Nigeria's GDI is 97.0 percent of its HDI value while some countries like Maldives and India had 100.4 percent and 97.0 percent respectively (UNDP 2008).

Poverty analyses and studies in Nigeria reveal that men, women, boys and girls experience poverty in similar yet different ways. The circumstances surrounding the poverty experienced by men and women can be different and their capacities to escape poverty and their vulnerability are often different. In order to reduce poverty, the specific needs of poor women and poor men have to be addressed. An estimated 70 percent of Nigerians are said to live below the poverty line compared with 27.2 percent in 1980, 43.6 percent in 1985 and 42.8 percent in 1992. Agriculture has the highest poverty incidence rate (62.7 percent) among all occupational groups considered in the NLSS (2004). A high proportion (48.3 percent) of the Nigerian active population is involved in agriculture. This group of households also has the highest poverty depth (26.1 percent) and severity (10.7 percent) among all occupational groups; when compared to across group averages there is 17.5 percent and 6.9 percent for depth and severity, respectively. The reasons for poverty among agricultural workers are numerous: low productivity; poor agricultural produce prices, hence poor farm income; inadequate infrastructure; and limited access to credit and improved farm inputs (Ode Ojowu et al. 2007).

The poverty problem in Nigeria goes beyond low income, savings and growth. It features high inequality in terms of income, assets, access to basic infrastructure and services (education, health, etc.). Inequality contributes to high levels of poverty in that for any given level of mean income, higher inequality implies higher poverty as smaller shares of resources are obtained by those in the lowest deciles or quintiles of the population.

Within each of the geographic regions inequality is high, as it is within many states. Nigeria's Gini coefficient (a measure of inequality which ranges between 0 and 1, the closer it is to 0, the lower the inequality and the closer it is to 1 the higher the inequality in income, assets, access to basic infrastructure and services), is 56.9, which indicates high levels of inequality. In urban areas, the expenditure level of the top 10 percent of households is 16 times that of the poorest

10 percent. In rural areas, it is about 18 times as high. Also, the richest segments of the population spend more proportion on non-food items than on food. But while the poorest 20 percent of the households account for only about 5 percent of total expenditure, the richest 20 percent account for almost half of total expenditure, thus clearly confirming the concentration of wealth in the country.

Inequality is evident both in terms of access to services and in outcomes. The poor use social services much less than the wealthy. They have lower enrolments, are less likely to visit doctors trained in Western medicine and are less likely to have a post-natal visit. They have higher levels of child mortality, higher rates of malnutrition and lower levels of education (Ode Ojowu et al. 2007).

Quantitative and qualitative data and extrapolations based on the characteristics of poverty in Nigeria show that poverty has a feminine face in Nigeria. The poor include predominantly rural dwellers, those in riverside and remote areas, the poorly educated, those working in informal sector occupations, poorly paid wage earners, and widows and the aged. Women are more prominent than men in all of these groups. There is the view that “unequal bargaining power within the household can result in under-investment in human capital for women. Public interventions targeting poor households have thus been considered as inadequate with the view that gender-targeted policies as more effective” (Aigbokhan 2000; World Bank 1995).

For Nigeria, women lag far behind men in most indicators of socioeconomic development. With 52 percent of rural women living below the poverty line, women constitute the majority of the poor, the unemployed, and the socially disadvantaged (Ode Ojowu 2007). One significant flaw in most poverty alleviation policies in Nigeria is the lack of special provision for women. Given the fact that poverty is felt more by women, a special program on poverty alleviation for women is highly desired (Garba 2005).

Poverty is not gender neutral. Research has demonstrated the disparities between men and women in access to and control of land, credit facilities, technology, education and health. In Nigeria, women's vulnerability to poverty stems from customs, beliefs and attitudes that confines women mostly to the domestic sphere. This is evident considering the non-recognition of the economic activities of women in the informal sector in the computation of the gross national product (GNP). This was traced by the Federal Ministry of Women Affairs and Social Development (1999) to the colonial era in which mostly men were employed to work for wages and salaries in the introduction of the cash economy. The belief was that men were the ones to provide for their families while the women remained at home. Henceforth, the economic contribution of the women began to be less valued in the economy.

Female-headed households constituted about 16 percent of total households sampled in the 2004 National Living Standard Survey (NLSS). Female-headed households had lower poverty levels on average due to the smaller household size that characterize them especially when compared to their male headed household counterparts (Ode Ojowu et al. 2007). Women in non-poor households have much more decision power than women in poor households for virtually all areas of spending. Women spend substantially more time than men on domestic tasks in both rural and urban areas. This difference starts quite young with girls ages 6-14 spending a third more time on domestic tasks than boys of the same age. Access to water and/or power has an important impact on time use for women in both urban and rural areas, substantially reducing the amount of time women spend on domestic tasks.

Education has been found to be the key determinant of poverty. The World Bank's World Development Report (2008) posited that a woman's negotiating power is affected by her participation in economic activity, which itself depends on her asset endowment (including human capital) and her access to and control of the household's assets. Consequently, most

women in Nigeria are less educated and trained for paid employment than men, and they engage more in jobs with lower pay than men. The World Bank (2000) put male and females' illiteracy rate in Nigeria in 1996 at 3.3 percent and 58.2 percent respectively. Also men spent more years in school than women.

The gender dimension of these indices can be appreciated when each is considered for each gender in the Nigerian population. The index of female primary enrolment is 81 compared to 116 and 99 in China and Zambia, respectively. This means that women enroll more in primary school for elementary education in China and Zambia than in Nigeria. A recent study in Akinyele LGA of Oyo State confirmed this finding in that this was the most predominant risk that girls faced in the households sampled (Durojaiye 2004). This makes the perpetuation of intergenerational illiteracy and poverty a plausible reality for women and hence the most vulnerable in attaining specific skills and higher occupational status.

Vulnerability of Women

Assessing vulnerability examines a group or person's movement in and out of poverty and the determining factors of such movement. A recent study on risk and vulnerability assessment shows the poverty and vulnerability within different segments of the population (Table 1).

Table 1: Profile of Poverty and Vulnerability in Nigeria

	Population Share	Share of poor	Share of vuln.	Poverty head count	Mean Vuln.	Vuln. Head count	Vuln. to Poverty
Total	100	100	100	63.5	68.5	87.0	1.37
Sector of residence							
Urban	21.35	9.8	9.0	57.8	65.7	70.9	1.23
Rural	78.65	90.2	91.0	66.8	70.2	89.0	1.33
Sex of HH Head							
Male	86.42	91.2	99.0	63.8	71.2	7.4	1.21
Female	13.58	8.8	1.0	60.8	61.2	93.4	1.54
Education of HH Head							
No Education	61.13	66.90	92.7	69.2	74.7	78.6	1.14
Primary	21.09	17.33	3.4	55.2	59.7	69.3	1.26
Secondary	12.85	11.47	2.6	55.3	58.6	71.6	1.29
Tertiary	4.93	4.30	1.1	49.0	59.6	33.6	0.69
Occupation of HH Head							
Profess/Tech.	3.42	3.5	0.40	56.4	66.4	84.4	1.50
Administration	0.15	0.2	4.8	43.7	83.7	87.9	2.01
Clerical & Related	4.56	5.1	2.4	58.2	63.4	81.9	1.41
Sales workers	14.59	15.7	3.8	57.6	63.2	56.4	0.98
Service Industry	1.23	1.2	0.3	64.1	54.1	67.9	1.06
Agric. & Forestry	67.12	66.1	86.7	68.0	70.8	78.9	1.16
Production & Transport	1.35	1.8	0.4	64.9	79.3	83.5	1.29
Manufacture & Processing	1.63	1.6	0.5	51.7	68.3	80.3	1.55
Others	2.93	2.1	0.6	50.3	64.4	64.7	1.29
Student & Apprentice	3.01	2.7	0.8	47.5	66.0	34.2	0.72

Source: Alayande (2003)

As shown in Table 1, while about 63.8 percent of men are in poverty, their mean vulnerability is 71.2 percent, compared with 60.8 percent of women in poverty and a mean vulnerability of 61.2. However, the vulnerability headcount is 7.4 percent for males compared with 93.4 percent for females.

The number of vulnerable males is 21 percent higher than the number of household members in poverty compared with 54 percent of females. The implication of this finding is that females are more vulnerable to poverty than their male counterparts when the household poverty situation is considered. This is very obvious giving a woman's low education level, low skill acquisition level, less access to productive resources such as credit, improved technologies, etc., when compared to her male counterpart.

Access to Financial Resources

Despite significant contributions of women to economic development and the household, overall, they have less access to land, capital, credit, technology and training than men do. This significantly entrenches poverty in the female gender.

According to Olayemi (1998), credit involves all advances released for farmers' use to satisfy needs at the appropriate time and returned later in the day. Credit can be in the form of cash or kind, obtained either from formal or informal sources.

Ayanwale and Alimi (2004) surveyed beneficiaries of the non-governmental microcredit agency Farmers Development Union (FADU). Beneficiaries comprised of smallholder farmers in Ibadan, Oyo State. Using a simple student' t-test and difference between means, it was discovered that women had restricted access to land as a productive venture, except when making an outright purchase which was costlier (see Annex 3, Table 3 for more data). Although men had more of their requested loans granted than women, the study found that women obtained more loans than men in absolute terms. The beneficiaries were found to obtain an average income that was more than the World Bank poverty line threshold of \$1.00 per day; this was not the case before their involvement in the program. The authors thus submitted that the microcredit enhanced the income level of the beneficiaries and lifted them out of the poverty cycle.

Amaza et al. (1999) in a survey of on the participation of small-scale female farmers in agricultural cooperatives in Borno State, Nigeria, found that 70 percent of the women did not participate due to some socioeconomic constraints, of which educational level and access to credit were dominant.

Access to formal credit services is often an insurmountable barrier for women. Lending is directed by male-dominated large enterprises that make the minimum loan larger than what is needed by women. In order to collect large amounts, collaterals like land and houses are required. Women lack such collaterals. However this scenario is changing quickly in urban areas with women in the working class of paid job categories being able to provide such collaterals needed by formal sources of credit. Therefore women's inability to provide acceptable assets as collateral drastically reduces the possibility of obtaining credit facilities for their farming activities, which is a great limitation to what women can do in the real sectors. The need for credit to enable investment activities to go on unhindered is essential because equity capital is seldom sufficient to meet the expenditure requirement for higher productivity and expected production.

Other factors limiting women's access to credit frequently cited in the literature include:

- High rates of female illiteracy, especially in rural areas, coupled with complex procedures for securing loans (e.g., completing loan application forms or needing a place of business)
- Fear of indebtedness, which is a result of poverty and risk awareness
- Low savings capacity and high requirements on the part of Banks for savings
- Lack of collateral
- Little opportunity to establish a reputation for credit as independent agents

Gender and Government Expenditure

Explicit data may not be available to indicate the level of government expenditure by gender but there is substantial funding by the federal, state and local governments on the various sectors and activities of the Nigerian populace. With the advent of democratization since May 29, 2001, there have been focused government expenditures by the three tiers of government on various poverty eradication programs launched by the First Lady, the wives of State Governors and local government chairmen. Examples include the "Idera De" Foundation of the wife of Oyo State Governor, Mutiat Ladoja, and the WOTCLEF (Women Trafficking and Child Labor Eradication Foundation) of Titi Atiku, wife of Alhaji Atiku Abubakar, a former head of state during the transition period

Hence it can be said that since democratic governance has been put in place, funding by the government has been very gender sensitive and if sustained may ensure balanced growth and development of women, food production and food security. The recent move by the Obasanjo Administration to use the Debt Relief Grant (DRG) given to the federal government of Nigeria to finance the Millennium Development Goals (MDG's) through ministries and parastatals is likely to impact positively on the lives of women and children given that most of these projects/ programs are implemented through the Federal Ministry of Women Affairs (Onwuka 2008).

Livelihood and Gender

Women dominate informal sector activities as well as the service sectors in both rural and urban settings. Because of this, women contribute very substantially to development projects. At the home front, women bear more than 90 percent of the domestic production tasks to assure the well-being of the family and that of the society. In particular, Nigerian women play indispensable roles in solving many problems that constitute bottlenecks in small-holder farming systems. Women have indispensable source of planting materials which they normally keep from old planting stock, with rich indigenous knowledge of storage practices that are passed down from one generation to another to mention a few of these roles that help solve the problems of small holder farming. Early planting period can face the dearth of planting materials thereby causing a considerable delay in the onset of the planting season. Such planting stock kept from previous harvest can serve as a means of ensuring early planting and as such bumper harvest (Awoyemi 1989). From the above, it is clear that many women derive their incomes from both agricultural and non-farm activities such as making mats, weaving cloth, making pottery and other activities. These activities rely on raw materials from the agricultural products available in the immediate environment of women. However, as the national economy develops from subsistence to a more monetized one, women start to produce cottage industrial products. This yields a marketable surplus that can be sold to

earn income for buying other household items to satisfy family and societal needs (Fatunla 1991).

Policymakers and implementation officers at the three tiers of our national government should work in collaboration with counterpart implementing agencies in the private sector such as NGOs, CBOs, and the organized international private sector to create the enabling environment to make female entrepreneurs self-reliant.

Even as more technologies are being introduced into the productive economic activities usually regarded as “women's work,” men have a penchant for taking them over. For example, when cassava processing was mainly done manually, it was exclusively a female-dominated business. As mechanized graters were introduced, men took over the business but left the manual frying of the cassava to women. There are similar examples documented in other economic activities such as oil processing, soap production and rice milling, etc.

Strategies for Improved Income-Generating Projects for Women

To rectify the present situation and involve more women in the productive activities that assure higher incomes, less laborious and tedious working conditions and improved quality of life, various empirical researches in Nigeria have confirmed that the following should be encouraged and pursued with commitment by those responsible for policy formulation (Afolami et al. 1996; Meludu et al. 1999; Odebode 2000).

Education

Formal and informal education opportunities should be made available for females, whether they are girls, middle-aged women or older women. They should be encouraged to undertake science and technology-oriented skills building programs. Illiterate women should be given the opportunity to gain minimum literacy and numerical skills to allow them to access more information that will be useful to their economic or productive efforts.

Provision of easily accessible capital and other credit facilities

Capital grants for project start-up are essential for the establishment of small-scale industries that ensure increased production and incomes. Apart from the existing facilities at People's Bank, FEAP, etc., more easily accessible loan schemes exclusively for women should be made available. The loan repayment issue is the hallmark of any credit facility scheme. When income generation schemes are established, non-repayment of borrowed funds has killed most laudable credit facilities' schemes. At the bank level, it must be ensured that loan beneficiaries are monitored to pay back all loans when due.

As income generation projects become sustainable with breaking even and making more profits, such profits should be ploughed back into the business and not be invested in consumables and non-profit yielding sociocultural activities such as funerals, ceremonies and naming, etc. Loan beneficiaries should learn to re-invest their profits so that the business can expand and generate farther income and employment for more people.

Supporting and enabling environment and basic infrastructure and mechanism

This should be put in place to monitor, evaluate and improve income-generation programs for women. Of relevant importance is the need to ensure the following:

1. Proper book-keeping and accounting systems
2. Group collateral
3. Appropriate technology
4. Business plans and feasibility studies for project, monitoring and appraisal

Gender Dimensions of Nutrition in Nigeria

In Nigeria, 60 percent of child deaths are related to protein energy malnutrition (PEM), making it the greatest single cause of child mortality. If no action is taken, PEM will be the underlying cause of about 2.5 million child deaths between now and the year 2015. This is about 700 deaths per day everyday in the next 10 years, which is five times the estimated number of child deaths that will be attributable to HIV/AIDS over the same period of time (Akinyele et al. 2005). Food and nutrition policies are untargeted, simply because issues of nutrition and food are thought to revolve around women and children.

The federal government formulated the National Food and Nutrition Policy in Nigeria to deal with major nutritional problems with an aim of reducing malnutrition, especially among children, women (pregnant and lactating mothers) and the aged, and in particular severe and moderate malnutrition among under-fives by 30 percent by the year 2010. The policy also aims to reduce micronutrient deficiencies, particularly iodine deficiency disorders (IDD), vitamin A deficiency (VAD) and iron deficiency anemia (IDA) by 50 percent of the current levels by the year 2010. Despite the increased attention, the health of women is undermined by multiple factors, which include lack of access to health services in the sparsely populated areas where they live, inadequate sanitation and nutrition and low levels of education and information. Harmful traditional practices and violence continue to plague the health of women. Essential obstetrical care remains insufficient. At 704 per 100,000 live births, the maternal mortality rate is still unacceptably high.

Hunger and malnutrition remain among the most devastating problems facing the majority of the world's poor and needy, continuing to compromise their health. Nearly 30 percent of humanity is currently suffering from one or more of the multiple forms of malnutrition (WHO/NHD, 2000). According to UNICEF, globally one quarter of children who are under the age of five are undernourished, totaling 146 million children. This is in large part to the fact that their mothers are malnourished during pregnancy (Social Watch Report 2006).

The tragic consequences of malnutrition include death, disability, stunted mental and physical growth, and as a result, a delayed national socioeconomic development. Given the rapidity with which traditional diets and lifestyles are changing in many developing countries, it is not surprising that food insecurity and undernutrition persists in the same countries in which chronic diseases are emerging as a major epidemic. The root causes of malnutrition include poverty and inequity. Eliminating these causes requires political and social action of which nutritional programs can be only one aspect. Sufficient, safe and varied food supplies not only prevent malnutrition but also reduce the risk of chronic diseases.

Improved diet and nutrition are important factors in the promotion and maintenance of good health throughout life. Their role in reducing chronic non-communicable diseases is well established and therefore occupies a prominent position in prevention activities. It is clear that the earlier labeling of chronic diseases as "diseases of affluence" is increasingly a misnomer, as they emerge both in poorer countries and in the poorer

population groups in richer countries. This shift in the pattern of disease is taking place at an accelerating rate; furthermore, it is occurring at a faster rate in developing countries than it did in the industrialized regions of the world half a century ago (Popkin 2002). Diets evolve over time, as they are influenced by many geographical, environmental, social and economic factors and complex interactions of income, prices, individual preferences, beliefs, cultural traditions, etc.

The socially constructed gender roles of men and women interact with their biological roles to affect the nutritional status of the entire family and of each gender. Because of women's cyclical loss of iron during childbearing, their nutrition status is particularly vulnerable to deficiencies in diet, care, and health or sanitation services. Moreover, the nutrition status of newborns and infants is intimately linked with the nutrition status of the mother before, during and after pregnancy.

Poor nutrition early in a woman's life reduces her learning potential, increases her reproductive and maternal health risks, and lowers her productivity. This situation contributes to a woman's diminished ability to access other assets later in life and undermines her attempts to eliminate gender inequalities. In essence, women with poor nutrition are caught in a vicious circle of poverty and under nutrition (Oniang'o and Mukudi 2002). Indirect efforts to improve the nutritional status of women include ensuring food security at the household level. Access to food of good nutritional quality at all times should be the primary focus in programming. Measures to ensure equal access to food for men and women, especially for those facing chronic or transitory food insecurity should focus on the more sustainable options as well. Such options include the development and promotion of fast-maturing crop species and more drought-resistant varieties.

A crucial indirect policy to improve the nutritional status of girls and boys is improving girl's access to education. Improvement in girl's education improves literacy rates and also lowers fertility rates. This consequently increases the probability that girls will participate in the economy at a higher level. It also ensures that girls are skilled in caregiving abilities and thus acquire better nutrition for themselves and their future children.

Gender Dimensions of Food Security in Nigeria

Food security is a broad concept that has various definitions. However, all definitions seem to revolve around three pillars, namely the availability, accessibility and nutritional factors of food (World Bank 2001). Food availability for the farm household means that sufficient food is available for them through self production. Food availability is crucial, but not sufficient to achieve food security. It matters where the food comes from, when it is available on the market, and whether it supplements or displaces local production. (Spielloch 2007).

Food insecurity affects more women than men (FAO 2005). Food security exists when "all people at all times have access to safe and nutritious food to maintain a healthy and active life (FAO 1996)." The Committee on World Food Security defines food security as the physical and economic access to adequate food by all household members without undue risk of losing such access. However, the definition adopted by the countries attending the World Food Summit of 1996, and reconfirmed in 2002, accepts the USAID'S definition, which has the three key elements of food availability, food access and food utilization. However, another concept is increasingly becoming accepted in the definition, namely, the risks that can disrupt to any of the three factors. There are

therefore four major elements of food security: food availability, food access, food utilization and not losing such access. Availability, access and utilization are hierarchical in nature. Food availability is necessary but not sufficient for food accessibility and access is necessary but not sufficient for utilization.

Food access means reducing poverty and increasing the purchasing power of the people. Access to food is often dependent on larger social determinants, including political dynamics, poverty and social status, which themselves are interconnected (Murphy 2005). Nutritional factors have to do with good nutritional outcome, which is nutrition security. Under this pillar, issues such as nutrition education, health care, provision of safe water and better sanitation, and a host of others become pertinent (Obamiro 2003).

Makinde (2000) in his study on the measurement and determinants of food security in the Northern Guinea savanna zone of Nigeria reported that family size, dependency ratio, household income and food expenditure were particularly significant in explaining food security in the study area. These results are consistent with findings reported in similar studies in the country (Adesimi and Ladipo 1979; Ma and Popkin 1995; Falusi 1997).

Obayelu (2008), studying the determinants of food security and food demand in the North Central zone of Nigeria asked 396 respondents from Kwara and Kogi States to empirically classify their households as “food secured,” “food insecure without hunger” and “food insecure without severe hunger” using the USDA food security measures derived from the new food security paradigm. This new food security paradigm consisted of an 18-item household scaled survey, which allowed for a distinction to be made between moderate and severe hunger. His study revealed that female-headed households were more food secure than male-headed households given the reasons peculiar to the study area, like small household size, preparation of nutritionally balanced diet, and importance attached to food consumption in the household rather than purchasing food from food vendors. These reasons can be generalized for Nigeria given the similarities in the nature of food demand and consumption of households studied which is a mirror other households in the country .

In their study of the food security situation of households in Lagos State, Omonona and Agoi (2007) classified households as “food secure” or “food insecure” using a food security index to establish the food security status. They found that socioeconomic characteristics (price, household size, per capita quantity consumed, age and level of education of the household head and per capita quantity consumed) of households and price of livestock products affected their food security level and that the food security status did not necessarily affect the demand pattern of household for livestock products. Food insecurity incidence was found to increase with an increase in age of household heads, given the age range. It was highest when household heads were within the range of 61–70 years at 0.58 and least within range of 21–30 years at 0.30. Food insecurity incidence was higher in female-headed households at 0.49 than in male-headed households at 0.38. Food insecurity incidence decreased with an increase in the level of education. Food insecurity incidence increased with an increase in household size. There was also a decline in food insecurity incidence as income increased from 0.41 for the low-income group to 0.20 for the high-income group. Food insecurity incidence increased with an increase in dependency ratio. This increased from 0.30 for households with no dependence to 0.50 for households with greater than 1.0 dependency ratio.

The World Bank (2008) reported that women, more than men, spend their income on food, thus improving household food and nutrition security and particularly the development of children. Thus, enabling women to move beyond subsistence production and into higher-value and market-oriented production is an important element of successful agriculture for development strategies.

Ukeje (2004) theorized that 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, women need to be empowered through education and the provision of appropriate technology that is gender sensitive.

Challenges in Attaining Food Security for 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. 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 contribute to food security. In spite of the important role that urban agriculture plays, it still faces many problems. The major problems militating against urban agriculture and food security in Nigeria were identified by Ukeje (2004) 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.

Identified Gaps in the Literature

The important information gaps identified in the literature reviewed included:

- Empirical research done at both the micro level and macro level in the areas of agriculture, poverty, nutrition and food security are not designed with gender issues as the main focus, therefore data gathering, analysis and results are given without due considerations of gender. This buttresses the fact that gender issues in Nigerian are given token attention.
- Gender relations are treated as a dummy variable in most empirical research works (in which 0 represents male/ female and 1 represents female/ male), and the important gender relations are not considered. It is a general knowledge that gender is pivotal to economic development and sectoral growth.
- Data design, collection, coding, aggregation, analysis, interpretation and reporting are done with minimal knowledge of gender analysis. This does not reveal the gender dimensions but rather conceals many facts that are necessary for policy design, implementation and strategy.
- Gender goes beyond “women’s studies” because it is impossible to fully understand the roles and level of involvement of women in different activities without considering them in relation to those of men. Russo et al. (1989) stated that gender is a socioeconomic variable analyzing roles, responsibilities, constraints and opportunities of the people, both men and women. Therefore, future research should focus on dichotomizing roles, responsibilities, constraints and opportunities from the conceptualization stage of research studies.
- Data reporting (especially nutrition and food security data) in many parastatals in Nigeria is done by sector, agro ecological zones and/ or geopolitical zones and not along gender lines because the methodology used in the questionnaire design are not done along gender lines.

- Once information in research and data reporting are presented along male- and female-headed household formats, it is believed that justice has been done to gender assessment/ dimensions and this is not necessarily so. This format of reporting disregards the specific roles, responsibilities and tasks carried out by different gender categories. This is common with poverty studies and data.
- There is need to extensively document and collate available and future gender research in the various components covered in this literature review such that the studies are made available on a website where it can be easily accessible.

Conclusion

There is an emerging paradigm shift in the conventional stereotype roles, responsibilities and tasks of women and men in agriculture in Nigeria due to globalization and trade liberalization, causing women to be more involved in tradable cash crops like cocoa, oil palm and ground nut unlike the earlier mentioned traditional female-crops and male crops concept, therefore constraint in access to productive inputs needed to increase female farmers productivity should be addressed.

Access to new forms of resources is a key empowerment strategy that will reduce and consequently eliminate gender deprivation and discrimination of women in Nigeria. Policies that seek to address the gender dimensions of poverty and to tackle gender discrimination in society have an important role to play in this process of change as they can help to expand the range of possibilities available to women and men. Government will thus need not only to advocate but also to legislate and demonstrate gender mainstreaming in national and local governance. Government action should ensure that legislation does not discriminate against women in areas such as decision making, inheritance, wages and property ownership.

The main source of food insecurity in Nigeria is the massive post harvest loss, which has been estimated to be as high as 20 percent. The level of on-farm storage is still very poor and the state of agro-allied industries in the country has not helped matters. Previous efforts to empower women through various poverty alleviation programs 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, women need to be empowered through education and the provision of appropriate technology that is gender sensitive. The need to strengthen women with appropriate technological support as well as a capital base for the establishment of cottage industries cannot be over emphasized.

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Appendix A

Selected research data on gender disaggregated basis

Table 2: Combinatorial for computing the correlation coefficients

Combination no or combinatorial ^a	Combination of gender
1	Household heads (Fathers) vs. Spouses (Mothers)
2	Household heads vs. Male children (Sons)
3	Household heads vs. Female children (Daughters)
4	Household heads vs. Women (Spouses + Female children)
5	Spouses vs. Male children
6	Spouses vs. Female children
7	Spouses vs. Men (Household heads + Male children)
8	Male children vs. Female children
9	Male children vs. Women
10	Female children vs. Men
11	Men vs. Women

Source: Chianu et al. 2004: Developed based on household survey data (February/March and September/October 2002).

^a The underlined combinatorials are between the core gender. The rest are between the core gender and combined gender (e.g., Household heads vs. Women) and combined gender and combined gender (e.g., Men vs. Women).

Table 3: Correlation coefficients of labor allocation to different enterprises in the savannas of northern Nigeria

Crop production						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.1876	-0.1219	0.1629	-	0.1925
Spouse	0.1876	1.0000	0.2321	0.6733	0.3181	-
M-children	-0.1219	0.2321	1.0000	0.2564	-	0.2660
F-children	0.1629	0.6733	0.2564	1.0000	0.3201	-
Men	-	0.3181	-	0.3201	1.0000	0.3486
Women	0.1925	-	0.2660	-	0.3486	1.0000
Livestock production						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.0049	0.2292	-0.0062	-	-0.0010
Spouse	0.0049	1.0000	0.1356	0.2287	0.0965	-
M-children	0.2292	0.1356	1.0000	0.2059	-	0.2190
F-children	-0.0062	0.2287	0.2059	1.0000	0.1387	-
Men	-	0.0965	-	0.1387	1.0000	0.1508
Women	-0.0010	-	0.2190	-	0.1508	1.0000
Agricultural produce processing						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	-0.0543	0.3644	-0.0160	-	-0.0460
Spouse	-0.0543	1.0000	-0.0439	0.4228	-0.0587	-
M-children	0.3644	-0.0439	1.0000	0.0139	-	-0.0247
F-children	-0.0160	0.4228	0.0139	1.0000	0.0005	-
Men	-	-0.0587	-	0.0005	1.0000	-0.0414
Women	-0.0460	-	-0.0247	-	-0.0414	1.0000
Other enterprises						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.1615	0.0014	0.1852	-	0.2145
Spouse	0.1615	1.0000	-0.0029	0.2968	0.1036	-
M-children	0.0014	-0.0029	1.0000	0.0383	-	0.0208
F-children	0.1852	0.2968	0.0383	1.0000	0.1502	-
Men	-	0.1036	-	0.1502	1.0000	0.1562
Women	0.2145	-	0.0208	-	0.1562	1.0000

Source: Chianu et al. 2004: Computed from household survey in February/March , September/October 2002.

(- Indicates linear dependence e.g. Men=Household head + Male children).

^a M-child means male children; ^b F-child. means female children.

Table 4: Correlation coefficients of labor allocation to different enterprises in the Guinea savanna zone of northern Nigeria

Crop production						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.3219	-0.1708	0.2832	-	0.3256
Spouse	0.3219	1.0000	0.3186	0.7369	0.4970	-
M-children	-0.1708	0.3186	1.0000	0.3157	-	0.3403
F-children	0.2832	0.7369	0.3157	1.0000	0.4639	-
Men	-	0.4970	-	0.4639	1.0000	0.5164
Women	0.3256	-	0.3403	-	0.5164	1.0000
Livestock production						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	-0.1596	0.2742	0.1058	-	-0.0124
Spouse	-0.1596	1.0000	0.0319	0.3553	-0.0821	-
M-children	0.2742	0.0319	1.0000	0.3118	-	0.2292
F-children	0.1058	0.3553	0.3118	1.0000	0.2593	-
Men	-	-0.0821	-	0.2593	1.0000	0.1331
Women	-0.0124	-	0.2292	-	0.1331	1.0000
Agricultural produce processing						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	-0.0893	0.2909	-0.0097	-	-0.0644
Spouse	-0.0893	1.0000	-0.1373	0.4591	-0.1352	-
M-children	0.2909	-0.1373	1.0000	0.0289	-	-0.0772
F-children	-0.0097	0.4591	0.0289	1.0000	0.0080	-
Men	-	-0.1352	-	0.0080	1.0000	-0.0862
Women	-0.0644	-	-0.0772	-	-0.0862	1.0000
Other enterprises						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.1501	0.1202	0.2364	-	0.2283
Spouse	0.1501	1.0000	-0.0033	0.4392	0.0857	-
M-children	0.1202	-0.0033	1.0000	-0.0162	-	-0.0115
F-children	0.2364	0.4392	-0.0162	1.0000	0.1268	-
Men	-	0.0857	-	0.1268	1.0000	0.1256
Women	0.2283	-	-0.0115	-	0.1256	1.0000

Source: Chianu et al. 2004: Computed from household survey in February/March , September/October 2002.

(- Indicates linear dependence e.g. Men=Household head + Male children).

^a M-child. means male children; ^b F-child means female children.

Table 5: Correlation coefficients of labor allocation to different enterprises in the Sudan savanna zone of northern Nigeria

Crop production						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	-0.0457	-0.0362	-0.0796	-	-0.0787
Spouse	-0.0457	1.0000	0.0388	0.0820	0.0055	-
M-children	-0.0362	0.0388	1.0000	0.1269	-	0.0978
F-children	-0.0710	0.0820	0.1269	1.0000	0.0590	-
Men	-	0.0055	-	0.0590	1.0000	0.0353
Women	-0.0787	-	0.0978	-	0.0353	1.0000
Livestock production						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.1143	0.1905	-0.0927	-	0.0202
Spouse	0.1143	1.0000	0.1869	0.1487	0.2007	-
M-children	0.1905	0.1869	1.0000	0.1584	-	0.2285
F-children	-0.0927	0.1487	0.1584	1.0000	0.0667	-
Men	-	0.2007	-	0.0667	1.0000	0.1801
Women	0.0202	-	0.2285	-	0.1801	1.0000
Agricultural produce processing						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	-0.0132	0.5036	-0.0316	-	-0.0235
Spouse	-0.0132	1.0000	-0.0129	0.4081	-0.0148	-
M-children	0.5036	-0.0129	1.0000	0.0174	-	-0.0020
F-children	-0.0316	0.4081	0.0174	1.0000	0.0001	-
Men	-	-0.0148	-	0.0001	1.0000	-0.0109
Women	-0.0235	-	-0.0020	-	-0.0109	1.0000
Other enterprises						
	Head	Spouse	M-child. ^a	F-child. ^b	Men	Women
Head	1.0000	0.1745	-0.0808	0.1541	-	0.2104
Spouse	0.1745	1.0000	0.0095	0.2264	0.1419	-
M-children	-0.0808	0.0095	1.0000	0.0941	-	0.0621
F-children	0.1541	0.2264	0.0941	1.0000	0.1851	-
Men	-	0.1419	-	0.1851	1.0000	0.2064
Women	0.2104	-	0.0621	-	0.2064	1.0000

Source: Chianu et al. 2007: Computed from household survey in February/March, September/October 2002.

(- Indicates linear dependence e.g. Men=Household head + Male children).

^a M-child means male children; ^b F-child means female children.

Table 6: Labor allocation by gender to enterprises in the Guinea savanna agro-ecological zone ^a of northern Nigeria (percent)

Enterprise	Household head ^b	Spouse ^c	Male children ^d	Female Children ^e
Crop production	82.627	59.752	74.115	65.165
Livestock production	3.978	9.270	10.317	11.403
Agricultural produce processing	1.041	19.218	2.206	18.207
Other enterprises ^f :				
Fuelwood/charcoal business	4.778	5.279	1.902	3.924
Food gathering/hunting	1.596	0.000	0.704	0.076
Trading	2.866	6.364	0.452	0.776
Other non-farm activities	2.004	0.118	9.759	0.449
Salaried job	1.110	0.000	0.545	0.000

Source: Adopted from Chianu and Tsujii 2007 .

^a Mostly in Kaduna administrative state

^b All survey households were male-headed except one

^c Spouses were females in all cases

^d Including other male relations living in the household

^e Including other female relations living in the household

^f Presented for the constituent components to also show the negligible percent labor allocation to each of them that informed our decision to combine them in this paper

Table 7: Labor allocation by gender to enterprises in the Sudan savanna agro-ecological zone ^a of northern Nigeria (percent)

Enterprise	Household head ^b	Spouse ^c	Male children ^d	Female Children ^e
Crop production	78.714	0.076	68.210	0.668
Livestock production	4.835	4.316	5.227	12.397
Agricultural produce processing	0.484	79.593	0.704	53.165
Other enterprises ^f :				
Fuelwood/charcoal business	0.359	2.509	0.745	3.659
Food gathering/hunting	0.302	0.005	0.264	0.269
Trading	3.121	5.038	3.919	3.920
Other non-farm activities	9.695	8.464	17.478	25.915
Salaried job	2.490	0.000	3.453	0.009

Source: Adopted from Chianu and Tsujii 2004 .

^a Mostly in Kano administrative state.

^b All survey households were male-headed.

^c Spouses were all females.

^d Including other male relations living in the household.

^e Including other female relations living in the household.

^f Presented for the constituent components to also show the negligible percent labor allocation to each of them that informed our decision to combine them in this paper.

Figure 2: Relationship in percent labor allocation between spouses (mothers) and their female children in crop production as illustrated in Table 2.

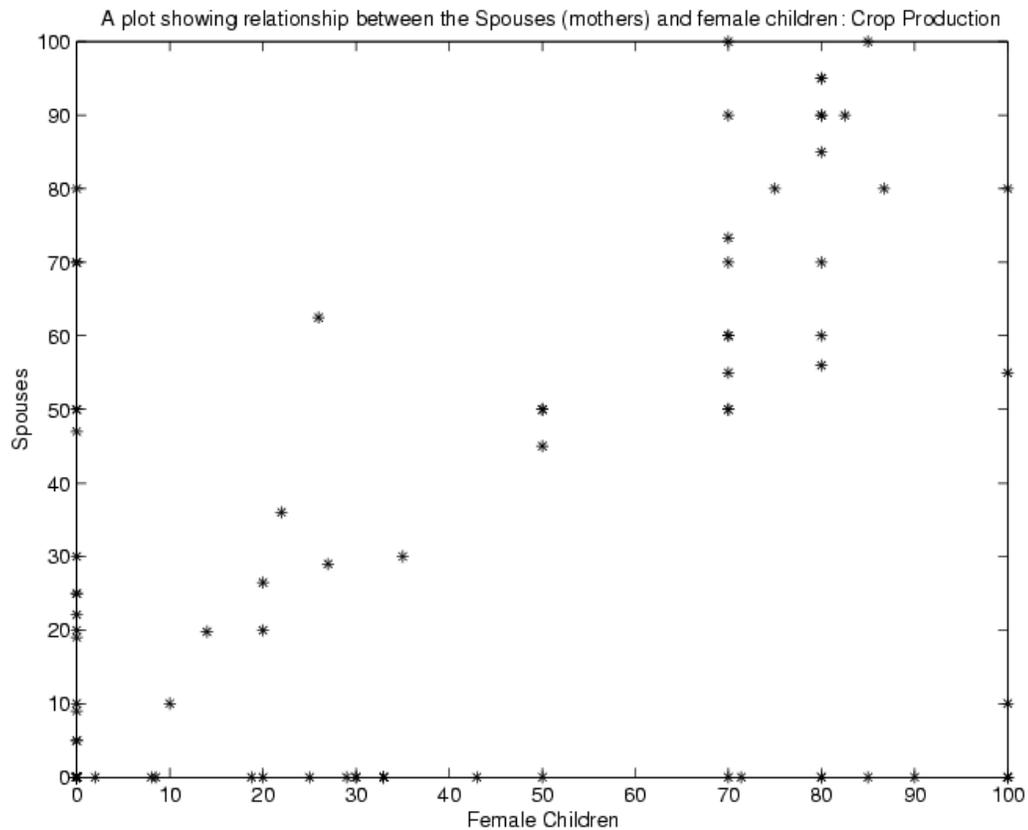


Figure 3: Correlation coefficients vs. the combinatorial numbers from the savannas of northern Nigeria

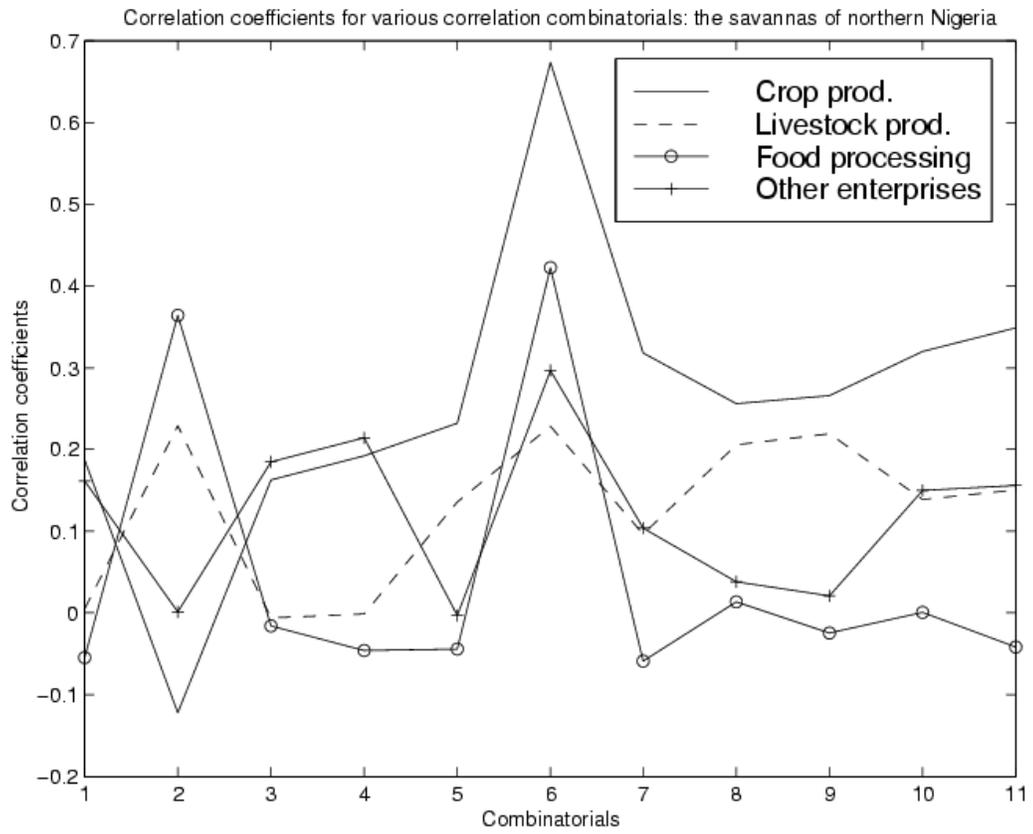


Figure 4: Correlation coefficients vs. the combinatorial numbers from the Guinea savanna zone

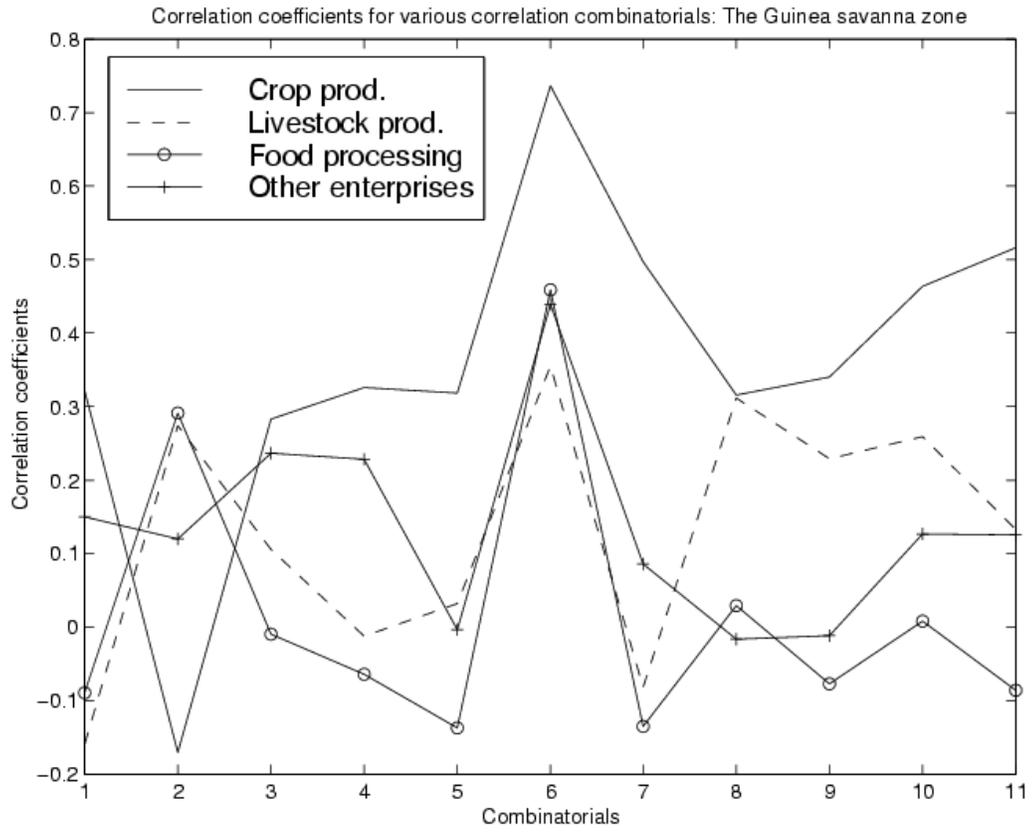
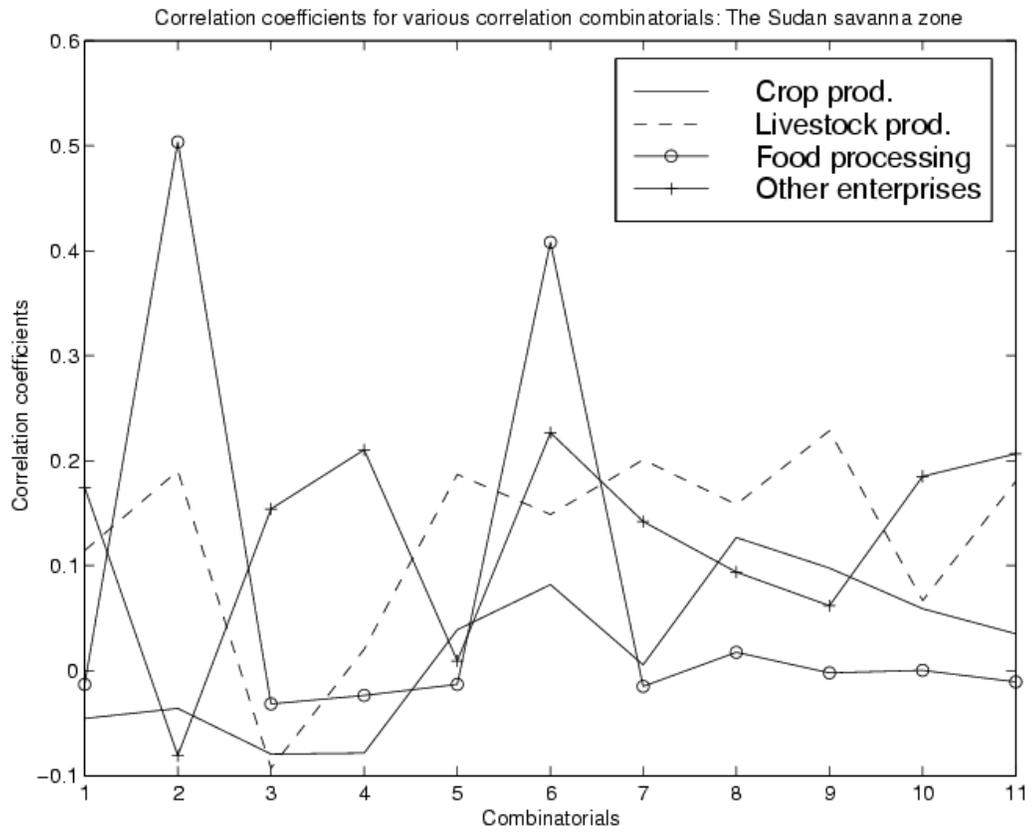


Figure 5: Correlation coefficients vs. the combinatorial numbers from Sudan savanna zone



Appendix B

List of Data Resources Available in Nigeria on Gender Dimensions of Agriculture, Poverty, Nutrition and Food Security

Topic	Source	Status
Agriculture	NLSS, 2004, National Bureau of Statistics Nigeria Gender Statistic Book, 2006, Federal Ministry of Women Affairs, Abuja.; National Fadama Office, Abuja	Not gender disaggregated but classified into male- and female-headed households
Poverty	Core Welfare Indicator Questionnaire, 2006, National Bureau of Statistics, Abuja	Not gender disaggregated but grouped as male- and female-headed households.
Nutrition	Nutrition Policy document, Abuja National Planning Commission,	Not gender disaggregated but gender targeted in terms of the recipient of policy in Nutrition that are always women and children to the detriment of adult male group.
Food Security	Nigeria Food Consumption and Nutrition Survey 2001-2003 (Summary), Federal Minister. of Agriculture, Federal Reserve Agency, Abuja; The International Institute of Tropical Agriculture, Ibadan, State Agricultural Development Projects	Not gender targeted, but national food security projects address farmers in general

Some specific data variables are given below:

Gender policy documents exist in the Federal Ministry of Women Affairs and Social Development, Abuja in the following areas:

- Handbook of Gender Sensitive Indicators for Results (2006)
- Nigeria Gender Statistics Book (2006)
- Questionnaire for data collection/ collation for the establishment of Gender information system (2006)

Other sources of gender-related data in agriculture, poverty, and nutrition and food security are:

- National Living Standard Survey 2004, National Bureau of Statistics, Abuja.
- Facts and Figures about Nigeria 2007, National Bureau of Statistics, Abuja.
- Nigerian Nutrition Policy Document 2001 National Planning Commission, Abuja

- State-level information on the Special Project on Food Security Program in participating states 2001
- World Bank, Gender Assessment Profile of Nigeria 2001

Gender-Related Data

General data in the National Population Commission (NPOPC):

- Age and sex in the population census (2006)
- Nigerian census figures (1963, 1991, 2006)
- Projected population by age and sex (2000, 2001, 2002, 2003, 2004, 2005)
- Birth by state and gender in the last 12 months per 1000 births (June 2005)
- Percentage of males and females (2006)
- Headship of households (2006)
- Migration (2006)
- Literacy rates by sex and year (2006)
- Total fertility (number of children per woman) (2006)
- Maternal mortality rate (2006)
- Teenage pregnancy (2006)
- Family planning (2006)
- Child immunization (2006)
- Acquired Immune Deficiency Syndrome/ and HIV Infection (2006)
- Occupational groups by gender (2004)

The 2004 National Living Standard Survey (NLSS) data revealed that 36.06 percent of males were engaged in agriculture and forestry, while most of the females were in the Student/ Retired/ Unemployed/ Inactive category and 20 percent of the females were engaged in agriculture and forestry. This category came second after the occupational group (Student/ retired/ unemployed/ inactive) 32.52 percent for males and 46.16 percent for females.

Poverty-Related Data

Poverty by gender of head of household:

The data revealed in the NBS poverty profile for Nigeria using the 2004 NLSS that male-headed households are more likely to be poor than female-headed ones. This is because female-headed households are smaller in size and their educational levels are generally high. Female-headed households constituted only about 16 percent of the households surveyed and most of them were headed by widows while most of the male-headed households were lead by males in monogamous marriages. The household size of 50 percent of female-headed households was 2-4 persons, while the household size of about 46 percent of male-headed households was 5-9 persons.

Per capita expenditure by sex of household heads

Almost 50 percent of total expenditure by both male and female-headed households was on food. The proportion was 56 percent for the male-headed households and 50 percent for the female-headed households. Data revealed that in absolute terms, the female-headed household spent more on food (□18, 483 Naira) and non-food (□22, 521 Naira) items than their male-headed households (□16,831 Naira) on food and (□17,746 Naira) on non-food items [NLSS,2004 (1USD is equivalent to N54.00)].

Agricultural related data

- Ownership of livestock by sex (NBS 2004)
- Use of agricultural inputs by quintile (not gender disaggregated) (NBS 2004)
- Sources of raw materials by sex (NBS 2004)
- Use of agricultural inputs by sex (NBS/ NLSS report 2004)
- Sex of holder and means of obtaining land (NBS 2004)
- Primary crops grown by sex (NBS 2004)
- Agricultural population by age group and relative poverty incidence (not gender disaggregated) (NBS/ NLSS report 2004)

Income-Related Data

Core Welfare Indicator Questionnaire (CWIQ) Survey, Nigeria 2006

The information is derived from the 2006 Nigeria CWIQ Survey that sampled 75, 675 households. Gender-related data in the CWIQ (NBS 2006)

- Participation in income-generating activities: Statistical table 10.1b
- Participation in housekeeping activities: Statistical tables 10.2a & 10.2b
- Participation in decision-making process on household matters, on matters affecting community, local, state and federal governments: Statistical tables 10.3a & 10.3b
- Access to credit facilities: Statistical tables 10.4a & 10.4b
- Access to resources and ownership: Statistical tables 10.5a & 10.5b
- Time use: Statistical table 10.6

National Gender Statistics 2006 (Federal Ministry of Women Affairs and Social Development)

The main objective is to publish a statistical gender book to provide for accurate recording of data and information on women and children issues.

Three types of data collection format were designed: namely questionnaire one on women and their education; questionnaire two on women and the economy and questionnaire three on women and social services.

Nutrition-Related Data

Reports on the following documents are available:

- Nigeria Food Consumption and Nutrition Survey (NFCNS) (2001-2003)
- Nigerian Demographic and Health Survey (NDHS) (1990, 1999)
- Participatory Information Collection Study (PIC) (1993)
- Multiple Indicator Cluster Survey (MICS) (1995, 1999)
- Bench Mark Survey (BMS) (1996)
- Vitamin A supplementation by geopolitical zones (NFCNS) (2001-2003)
- Baby Friendly Hospital Initiative (BFHI) Impact Evaluation (1999)

The most recent national survey on food security and nutrition in Nigeria is the Nigeria Food Consumption and Nutrition Survey (NFCNS), which was conducted between August and October 2001 and completed in September 2003. Highlights of the report are given below.

Nigeria food consumption and nutrition survey, 2001-2003

This report summarizes the finding of the 2001-2003 Nigeria Food consumption and Nutrition Survey (NFCNS) conducted by the International Institute of Tropical Agriculture (IITA), Ibadan, in collaboration with the National Planning Commission (NPC), the Federal Ministry of Health, national institutes and universities, Technical assistance was provided by the United States Department of Agriculture and other funding agencies mentioned in the report.

Gender-related data on the nutritional status of Nigerians:

- Percentage national prevalence of malnutrition in children under 5 years
- Percentage prevalence of malnutrition among children under 5 by geopolitical zone
- Percentage prevalence of malnutrition among children under 5 by sector
- Nutritional status of women as measured by Body Mass Index (BMI) at the national, agro ecological and sector levels
- Micronutrient status of children under 5, mothers and pregnant women
- Vitamin A status of children under 5, mothers and pregnant women at the national, agro ecological and sector levels
- Vitamin E status of children under 5, mothers and pregnant women at the national, agro ecological and sector levels
- Iron status of children under 5, mothers and pregnant women at the national, agro ecological and sector levels
- Zinc status of children under 5, mothers and pregnant women at the national agro ecological and sector levels
- Iodine status of children under 5, mothers and pregnant women at the national, agro ecological and sector levels

Food Security-Related Data: Gender-related data in the report (NFCNS) with respect to food security is not available, but rather in form of national agro-ecological zones and sector level of food availability and affordability of major staple and non-staple food, consumption of staple and non staple food crops. No presentation of data on headship of households (as conventionally given in male and female headed households) even in terms of coping strategies in response to food insecurity.

Appendix C

Empirical gender disaggregated data analysis from studies in Nigeria

Table 8: Female and male labor contributions to staple crops production in Isuikwuato local government area of Abia State, Nigeria (in percent)

Crop	Field preparation	Planting	Weeding	Harvesting	Storage
Yam	F 10 M 90	F 10 M 90	F 90 M 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
Cowpea	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 in Ukeje 2005.

Table 9: Gender Characteristics of Farmers in Lagos State (%)

Sex	Male	Female
Population	72	28
Dependents	41	59
Full-time farmers	47	53
Part-time farmers	67	33
Cultivation	82	18
Marketing	48	52
Processing	64	36

Source: Field Survey in Anosike and Fasona 2004.

Table 10: Gender Analysis of FADU beneficiaries

Characteristics	Male (mean)	Female (mean)	T-ratio
Sex	89.00	75	
Age (years)	48.69	43.38	2.908*
Educational level	3.34	3.72	-0.918
Farming experience (years)	22.94	14.28	3.330*
Rent land	8.31	5	0.235
Purchase land	15.89	60	-2.792*
Lease	19.00	10	10.69
Gift	1.83	1.72	0.998
Family size	11.75	10.5	0.26
Number of children	2.32	1.71	1.803**
Hoes	4.46	5.48	-1.456
Cutlass	5.50	7.92	-1.710**
Tractor	1.37	1.17	1.779**
Amount spent on food	2263.64	2065.62	0.671
Amount spent on children's education	6152.38	5050	0.677
Amount of loan obtained cooperative from N'000	25.00	25.84	3.856*
Amount of loan obtained from FADU	32.50	36.9	2.005*
Income obtained from farm operations	93.97	40.84	3.013*
Loan requested N'000	38.13	42.59	-0.731
Loan granted N'000	23.31	24.66	-0.348
Amount of contribution N'000	1.44	1.74	1.230
Amount put in cooperative N'000	0.59	0.943	-0.935
Total savings	35.88	17.45	2.775*

Source: Analysis of Field Survey Data in Ayanwale and Alimi 2004.

