ANALYSIS OF SOCIO-ECONOMIC FACTORS AFFECTING PARTICIPATION OF FARMERS IN GROWTH ENHANCEMENT SUPPORT SCHEME PROGRAMME FOR LIVELIHOOD IN KADUNA STATE

BY

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DECLARATION

I hereby declare that this dissertation titled "**Analysis of Socio-economic and Institutional Factors Affecting Participation of Farmers in Growth Enhancement Support Scheme Programme for Livelihood in Kaduna State, Nigeria**" has been written by me and it is a record of my research work. No part of this dissertation has been presented in any previousapplication for another degree or Diploma in this or any other institution. All borrowed information have been duly acknowledged in the text and a list of references provided.

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CERTIFICATION

This dissertation entitled"**Analysis of Socio-economic and Institutional Factors Affecting Participation of Farmers in Growth Enhancement Support Scheme Programme for Livelihood in Kaduna State**" by HussainiTANKOmeets the regulations governing the award of degree of master in Agricultural Extension and Rural Sociology of the Ahmadu Bello University Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is dedicated to my Lord Jesus Christ, my Savior and my Redeemer.

ACKNOWLEDGEMENTS

I give thanks to my only savior and redeemer, the Lord Jesus Christ, for all he has done to make this project work not just a reality but a huge success. Thank you my father.

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ABSTRACT

The study was conducted to determine farmers' participation in Growth Enhancement Support scheme (GESS) programme in Kaduna State. The output and income of participants and those who did not participate in the GESS programme were also compared. A multi-stage sampling method was employed to select 180 respondents. Primary data were collected through the use of questionnaires and interview schedule and were subjected to both descriptive and inferential statistics. The main source of agricultural information was radio. Regression analysis showed that level of age, extension contact, yield and income status were significantly related with level of participation. The mean output of GESS participants (2550kg) was significantly higher than non-GESS participants (857kg). The difference in the mean output levels was largely attributed to participation in GESS programme. Calculated Z-statistic value (246.02) for income was significant at 5%. A major challenge reported by the farmers and agro dealers, and corroborated by the State GESS coordinators, is the timing of input delivery. It is imperative that inputs are delivered to agro dealers before the planting season commences, usually around March/April. To achieve this, preparations required to ensure these dates are met should be made well ahead of time.

Farmers were generally able to purchase the required types of fertilizer, as it appears NPK and Urea is the main types of fertilizer in demand across the states surveyed. However, there were complaints from some farmers that the types of fertilizer supplied were not right for the local soil types. Consideration of the local soil types and crops grown should be made in determining the type fertilizer supplied for each. Also the current two 50kg bags of fertilizer available to farmers under the scheme were found to be inadequate to meet the needs of farmers, even the smallholders. Considerations should be made to increase the number of bags available under the scheme.

To sustain this laudable effort of government, the planning of food production should be a conscious collaboration among several groups, namely state government, private enterprises, training and research institutions and, non-governmental organization. The findings concluded that the difference in the mean income could be attributed to their participation in GESS programme. Therefore continuity of the scheme without misplacing its priority is paramount and recommended.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The Sub-Saharan Africa (SSA), where Nigeria belongs is the only developing region in the world where hunger is worsening, not improving (Yusuf, 2004). The proportion of hungry people in SSA has remained in the 33-35% range since 1970 (highest overall prevalence in the world). The absolute numbers of hungry Africans have increased substantially with population growth, with 88 million in 1970 and 200 million people between 1999 and 2001 (Sarah, 2005). In Nigeria, two of every three Nigerians live below one United States dollar per day and that poverty is concentrated in rural areas, which is home to 70% of the nation's poor, most of them farmers (Edache, 2006). The Nigerian Agricultural Sector has not fulfilled the expectations of farmers as most of them are poorly fed and calorie intake is below the recommended level of 2440 kilo Calories and 65 grains of protein per person per day (FAO,2001). Several schemes have been initiated by successive Governments in Nigeria to bring about improvements in the food supply of the country by attempting to increase food output. These schemes include National Accelerated food Production Project (NAFPP, 1976), Operation Feed the Nation (OFN, 1976-1979), Green Revolution (1979-1983), Back to land (1983-1983), River Basin Development Authorities (RBDAS,1977 to date); credit scheme Nigerian Agricultural Cooperative and Rural Development (1980 to date) and Agricultural Development Project (ADP, 1975 to date) among others. The primary goal in each case is the attainment of self-sufficiency in food production, supply of raw materials to industries as well as to increase the level of farmers' income and standard of living. Tsado (2004) reported that most of these programmes failed to achieve the desired objectives because they were top-down in design and implementation. As part of its

efforts to increase food production, the Federal Government Growth Enhancement Support Scheme was conceived and implemented in 2012.The Growth Enhancement Support Scheme (GESS) was designed as a component of the Agricultural Transformation Agenda of the Federal Government (ATA). The ATA is the current Government's response to the crisis that has riddled the agricultural sector in the past and seeks to put agricultural growth at the centre of the Government's development objective given its critical role for food security and economic diversification. The broad objective of the GESS was to achieve food security for the nation at the macro level, and increase household income for the farmers at the micro level. The scheme was designed to encourage the stakeholders in the fertilizer value chain to work together to improve productivity, household food security and raise the income of farmers by providing direct subsidy through the supply of discounted fertilizers and seeds. GESS was developed as a poverty reduction strategy designed to sustainably increase the incomes of the participant through subsidizing the cost of major agricultural inputs like fertilizers and seedlings (FEPSAN, 2014).

1.2 Problem Statement

Agricultural policy in Nigeria has witnessed several changes since the colonial and post independence years (Yusuf, 2004). Agricultural policies and programmes were usually centred on stimulating great activities in certain specific aspects of agricultural production system. Before independence, emphasis was on the production of cash crops, such as rubber, cotton, groundnut, palm and cocoa, but after independence, the rising food shortages shifted focus to food crops production.

However, despite various efforts geared towards agricultural development, it has been estimated that 65% of Nigerians are living in hunger as food production growth is still as

low as 2.5% per annum, while food demand have been growing at the rate of 2.8% per annum (Ogundari and Ojo, 2007). As observed by Olajide *et al.* (2012) only less than 50% of the Nigerian arable land is under cultivation. There is still high incidence of poverty among participants in agriculture, who are mostly rural based. In relation with GDP, the share of the agricultural sector has been less than 45% since 1986 (CBN, 2003). This is because the sector is dominated by peasant farmers who rely mainly on traditional method of farming and crude implements for cultivation (Nji Forti, 2008). Hence, there is evident stagnation in the growth and productivity of the agricultural sector in Nigeria. Analyst identify policy inconsistencies and too much emphasis on production without due consideration to other value chain requirement as the cause of low productivity in Nigeria's agricultural sector.

The dissatisfaction derived from the performance of the agricultural sector, the failure of some agricultural programmes and the need to provide a well articulated domestic agricultural policy to serve as a key for the development of Nigeria's agriculture have made the government of Nigeria in 2011 to launch a policy document known as Agricultural Transformation Agenda (ATA) (FMARD, 2011). The launch of this policy document was expected to be a roadmap to solving fundamental problems associated with the agricultural sector (Akinwumi, 2011).

GESS is a component of the Agricultural Transformation Agenda (ATA). It is an innovative approach to fertilizer subsidy and other inputs administration through an electronic system that ensures that only registered farmers benefit from the scheme. It is meant to change the mentality of Nigerians to agricultural activities. It is expected that

the scheme will boost food production, the income of farmers as well as the value accorded to locally produced agricultural products.

Nigeria spent about N1.3 trillion annually to import basic food, N635 billion on wheat, N356 on importing rice, N271 billion on sugar and N71 billion importing fish (FMARD, 2012). This constitutes a huge drain on the nation's income with its untold negative effect on the balance of trade. GESS is therefore targeted to produce 20 million tons of food crops by 2015 (Akinwumi, 2011), which will help to reduce government spending on importation. It is against this background that this study seeks to analyze the socio-economic and institutional factors affecting participation of farmers in Growth Enhancement Support Scheme programme for livelihood in Kaduna State.Based on this background, the following research questions are raised:-

i What are the socio-economic characteristics of GESS Participating Farmers in the studyArea?

ii What are the various of agricultural information of the GESS participants?

iii What are the socio-economic factors influencing the participation of farmers in GESS?

iv What are the effects of participation in GESS on the livelihood of participants in the study area?

v What are the constraints encountered by GESS beneficiaries?

1.3 Objectives of the Study

The broad objective of the study was to analyze the socio-economic and institutional factors affecting participation of farmers in Growth Enhancement Support Scheme programme for livelihood in Kaduna State. The specific objectives were to:

i. describe the socioeconomic characteristics of GESS farmers;
ii. assess the sources of agricultural information of GESS farmers;
iii. determine the socio-economic factors influencing the level of participation of farmers in GESS;
iv. determine the effect of participation in GESS on the livelihood of the farmers
v. describe constraints experienced by GESS beneficiaries in the area.

1.4 Hypotheses:

$HO_{1:}$There is nosignificant relationship between Socio- economic factors of GESS Farmers and participation in the GESS intervention

$HO_{2:}$There is no significant influencebetween Participation in Growth Enhancement Support Scheme and the livelihood of participants.

1.5 Justification of study

Food security is of particular concern to all who are interested in the welfare of millions of people in the developing countries, including Nigeria (IITA, 1992). Credit is considered as a catalyst that activates other factors of production and makes under-used capacities functional for increased production (Ijere, 1998). Thus farm credit plays a crucial role in agricultural and rural development as it enables farmers reap economies of scale, venture into new fields of production, employ new technologies and empower them to provide utilities for widening market. Global agricultural activities have become sophisticated and knowledge management according to UNDP Ethiopia (2012) can play a

pivotal role enhancing agricultural productivity and addressing the problem of food security. Amobi (2012) notes that national food security programme according Federal Ministry of Agriculture and Water Resources is to ensure sustainable access, availability and affordability of quality food to Nigerians and the country to become a significant provider of food to the global community. As a result, the federal Government initiated the Growth Enhancement Support Scheme (GESS) to actualize the Agricultural Transformation Agenda (ATA) of the present Nigerian administration. The motive behind the idea of GSS implementation is to mainly achieve food security for the nation at the macro level, and increase household income for the farmers at the micro level. The scheme was designed to encourage the stakeholders in fertilizer value chain to work together to improve productivity, household food security and raise the income of the farmer by providing direct subsidy through the supply of discounted fertilizers and seeds(FEPSAN, 2012).

The foregoing therefore makes it imperative to carry out a study to analyze the socio-economic and institutional factors affecting participation of farmers in Growth Enhancement Support Scheme programme for livelihood in the study area.

The findings from the study will help in evaluating factors affecting participation of farmers in Growth Enhancement Support Scheme programme for livelihood in Kaduna State. It is also hoped that the research will provide relevant information to policy makers which will enhance formulation of agricultural policies aimed at improving agricultural productivity, income of farming households and reduce poverty level among farmers. It is also expected that the data will fill the gap in the existing knowledge in this area.

CHAPTER TWO

LITERATURE REVIEW

2.1 History of Growth Enhancement Support Scheme (GESS)

The Agricultural Transformation Agenda of the previous administration was launched in 2011 after the present administration took over the rein of power. It is aimed at a

proactive change in the practice of Agriculture and its perception in the country in several ways. For the first time in post-civil war, agriculture is being treated as a purely business oriented economy activity rather than a development programme (Osinowo, 2012). In time past, interventions in agriculture has been largely dominated by access to credit, robust extension effort and provision of basic farm inputs, but this has steadily and drastically reduced with the end of World Bank financing of the State Agricultural Development Programmes. It is still believed that agriculture is the life wire of the Nigerian economy, contributing between 30-40% to the gross domestic product and providing employment for the vast majority of the populace especially those in the rural area. However, a policy framework for increasing the strength to release its vast potential for employment generation, economic development, food security and poverty alleviation is elusive (Osinowo, 2012). However, the Agricultural Transformation Agenda (ATA) with its core critical objectives of a value-chain approach and its linkages with key changes in food and trade policies appear to be making impact since its inception (Osinowo, 2012). Government is poised at enhancing efficiency through competition and creation of an enabling environment for a private sector-led survival and modernization of Nigerian agriculture. The development of agricultural key value-chains-such as provision and availability of improved inputs, increased Productivity and production, establishing a well established staple crop processing zone, reduce post- harvest losses as well as improve linkages with the markets are all centred on increased Productivity.

The Growth Enhancement Support Scheme (GESS) is one of the many critical components of the Federal Government Agricultural Transformation Agenda. It was designed for the specific purpose of providing affordable agricultural inputs like fertilizer and hybrid seeds to farmers in order to increase their yield per hectare and make it

comparable to world standard. It is an innovative scheme which seeks to remove the difficulties usually associated with the distribution of fertilizer and hybrid seeds in the country. In the past, there were complaints of diversion, exorbitant cost and adulteration of various inputs, which ultimately led to low productivity, increased poverty, unemployment and lack of interest in farming. The new approach is to target beneficiaries through the use of electronic system and by so doing encouraging the engagement of the private sector in the distribution and delivery of fertilizer and other critical inputs directly to the farmerswith a strong determination to break away from the rot of the past and the ineffective, inefficient and corruption ridden distribution of fertilizer and other government subsidized inputs to farmers. The President of the Federal Republic of Nigeria of the previous administration mandated the Federal Ministry of Agriculture and Rural Development (FMARD) to come up with the mechanism that are farmers friendly and get fertilizer and other inputs directly to the real farmers. However, the thrust of the scheme is to enhance the capacity of the farmers who could not afford a bag of fertilizer and seedlings.The Scheme has the following objectives.

1. To remove the usual complexities associated with fertilizer distribution.
2. To encourage critical actors in the fertilizer value chain to work together to improve productivity.

3. To enhance farmers income and promote food security.

4. To shift provision of subsidized fertilizer away from the general public to genuine small-scale farmers.

Under the new system, the Federal Government is no longer in the business of buying and disturbing fertilizers and seeds; no longer award fertilizer and seed contracts. The system is designed to enable farmers receive fertilizer allocation notices through their mobile phones, which is meant to make the commodity easily accessible and to cut off middlemen. Other programmes introduced under the ongoing Agricultural Transformation Agenda (ATA) to provide credit to Nigeria farmers was the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) - a joint initiative programme by the government. The Ministry of Agriculture militates against the impact of natural disaster on losses of agricultural investments by facilitating low-interest credit to farmers through commercial banks and the liberalization of the insurance sector to increase farmers' access to cost effective agricultural insurance schemes in the country. Government had also made a move to establish marketing

Corporations to coordinate the production, investments, grade and standards, market price stabilization, et cetera, for all value chains in Nigeria. Other government incentives to support investors in agriculture include: zero percent duty on agricultural machinery and equipment imports; removal of restrictions on areas of investment and maximum equity ownership in investment by foreign investors; removal of currency exchange controls; free transfer of capital profits, dividends; provision of constitutional guarantee against nationalization/expropriation; provision of pioneer tax holiday for agricultural investments and infrastructure support, for power, water and electricity (Akinwumi, 2012). The Federal Government is already implementing nation-wide activities with State Governments to improve the value chains for food and cash crops, especially rice, cassava, maize, soybeans, sorghum, cotton, cocoa, oil-palm, fisheries and livestock.

The Federal Government under the GESS programme approved the sum of N30 billion in 2012 for the implementation of GESS to small scale farmers in the in the country. The pilot version of the scheme has been inaugurated and the fund is expected to run for 4 years (2015). In each year 5 million farmers will be targeted. The total subsidy quantum of between 25%-50% will be borne by the states that have opted to participate in the programme and 25% will be from the Federal Government. It is expected that each farmer will receive one bag of urea and NPK fertilizer. Small farmers are the main target at the moment and the benefit derivable from the programme include availability, accessibility and affordability of agricultural inputs. While this initiative is highly commendable, genuine for the realization of a robust agricultural sector, Nigerians are urging government not to allow the sector saboteurs to divert the funds, which has been the case in many past projects. The Federal Government is suggesting for employment of a community based approachin making sure that the resources involved get to reach the genuine farmers (Emmanuel, 2013).

The Minister of Agriculture described GESS as a saving grace for the Nigeria agricultural sector in 2012. Nigerians would have seriously felt the impact of the flood disaster that occurred in some parts of the country, if not for the GESS (Emmanuel, 2013).

2.2 Socio-economic Characteristics of Farmers in the Study Area

Many past studies have demonstrated that personal characteristics of farmers affect their decision on participation and have largely been found to include age, family size, mental flexibility, farm ownership, other occupation, frequency of agents – farmer contact, social status, level of living, exposure to mass communication media and other socio-economic factors (Adesina *etal*.,2000,Ramji *et al*., 2002).

Laogon (1993) revealed that income level, family size, social participation, extension and extent of awareness were significantly related to production. Beyen (1987) found that educational attainment to a certain extent accounted for the socio-economic status and earning capacity of the participants in a project. Nweke *et al.* (1993) found out that the adoption of improved technologies is influenced by the socio-economic factors such as age, household size, farm size, education, income, and community status. Similarly, Atala, *et al*. (1992), in their study of the impact of Training and Visit (T&V) system of extension on adoption of farm output in Kaduna State found that the most important variables which influenced adoption were extension contact, farm size and hired labour.

2.3 The Concept of Livelihood

Livelihoodcomprises the capabilities, assets (including both material and Social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. (Chambers & Conway, 1991)Livelihood in its simplest sense is a means of gaining a living. It refers to as a combination of the resources used and the activities undertaken in order to live. Livelihood outcomes are the achievements of the results of livelihood strategies.

Sustainable Livelihoods (SL) is a way of thinking about targets, possibilities and priorities of development in order to accelerate progress in the eradication of poverty (DFID, 1992, 2003; Scoones 1998; Ellis, 2000). SL is relevant for this study because it addresses the fundamental questions of what institutional mechanisms allow the poor to achieve a sustainable livelihood, while others fail, and what policies and strategies can serve as support for those people who live in poverty (FAO, 2003).

Livelihood Assets:

Assets may be tangible, such as food stores and cash savings, as well as trees, land, livestock, tools, and other resources. Assets may also be intangible such as claims one can make for food, work, and assistance as well as access to materials, information, education, health services and employment opportunities.

Another way of understanding the assets, or capitals, that people draw upon to make a living is categorized into the following five groups: human, social, natural, physical, and financial capitals.

i. **Human Capital:** It represents aptitudes, knowledge, labour skills and good health which on the whole allow populations to take on different strategies and achieve objectives in terms of livelihood. Human capital can be increased investing in education, health care and training for work (World Bank, 2003a). According to the Sustainable Livelihood Approach (SLA) (Sayer and Campbell, 2003) "Human Capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives". Human capital must be seen as a keystone within the SLA, for the reason that the other capitals are, at the least, partly based on the human capital as a basic requirement. Especially for rural, resource dependent people the assessment of this capital implicates difficulties, as for example indigenous knowledge is difficult to evaluate (Kollmair, 2002).

ii. **Social Capital:** This refers to social resources in which populations support each other in the search of their objectives in terms of livelihood. These are developed

through the following: a) Networks and connections, b) Participation in more formal groups and c) Confidence relations, reciprocity and interchanges which facilitate the cooperation, reduce costs of transactions and provide the base to create security networks between those less privileged. Social Capital is, as Human Capital, difficult to grasp with distinctive indicators. Conforming to the SLA Social Capital implicates socialresources, "including informal networks, membership of formalized groups and relationships of trust that facilitate co-operation" (Clark and Carney 2008, Sayer and Campbell, 2003). The nature of social capital is often determined by the social class of the stakeholder, often influenced by gender, age and/ or caste. The inclusion of stakeholders into a network or group implicates the exclusion of others which can result in an interference of development. The high local value of the social capital clearly derives of its capacity of compensating calamities or shortage of other capitals. However, not only the potential of communal solidarity representsthe high local value of this capital. Bebbington(1999) clearly indicates a strong connection between social capital and poverty; apparently studies indicate the involvement into village organizations lead to an enhancement of income.

iii. **Physical Capital:** This includes the basic infrastructure and production goods necessary to support livelihoods. Infrastructure consists in the changes in the physical surrounding that contribute to populations obtaining their basic needs and to become more productive, such as, accessible means of transport, adequate housing and buildings, provision of water and sanitation, clean and accessible energy and access to information (communications). Production goods are the tools and equipment that populations use to function in a more productive way.

(DFID, 2003). Physical capital is a measure for the existence of physical requirements needed to support livelihood in a sense of infrastructure. The role of this asset can be seen in the context of opportunity costs, where an existing accessible infrastructure releases either labour or provides time as a resource for example, and education.

iv. **Natural Capital:** This refers to the portions of natural resources (land, forests, wild and marine resources, water, air quality) from which are derived the flows of resources and services (for example, cycles of nutrients, protection against erosion, assimilation of waste, protection against storms, diversity degree) which are useful in terms of livelihood. Natural Capital is very important for those who obtain all or part of their livelihood from activities based on natural resources (cattle raising, fishing, wood cutting, mineral extraction, etc,) (DFID, 2003). Natural capital describes especially for resource dependent communities the stock all livelihood activities are built on. This capital represents in particular for rural communities, with a high proportion for poor stakeholders, an essential value which in fact is prone to calamities. Not seldom these calamities are caused by natural processes e.g. floods, fires, seasonal storms, earthquakes.

v. **Financial Capital**: It refers to the financial resources that population uses to achieve their objectives in terms of livelihood. The two principle sources of financial capital are available funds or savings (cash, bank deposits or liquid assets such as cattle or jewelry) or loans and regular income (pensions and other payments by the state or money transfers) Balogun, *et al.* (2012). Financial capital can be accumulated from twodifferent sources; one source is represented by

available stock in the form of cash or equivalent available assets as livestock, the other source is characterized by the external inflow of money which originates of labour, income, pensions, remittances or other types of financial liabilities. Within the five capitals, the financial capital enables people to adapt to different livelihood strategies. It sets the precondition for the creation or improvement of other capitals than financial capital.

Livelihood interventions: livelihood interventions are loosely categorized into three overlapping phases that roughly correspond to the immediate, short, and long term needs of affected populations. These phases are livelihood provisioning, livelihood protection and livelihood promotion.

In the acute phase of a disaster, livelihood provisioning activities typically consist of providing critical food and non-items necessary for survival. The livelihood protection phase of interventions aims to protect, replace and rebuild the productive assets needed to initiate a pre-existing or new livelihood. The livelihood promotion interventions serve to initiate and strengthen livelihoods to be more economically and environmentally sustainable as well as more resilient to future disasters. In general, these phased activities build upon each other. The duration of each set of activities will vary based on the type of disaster and the extent of damage. Additionally, different types of interventions will need to be undertaken simultaneously as the recovery rates of households and communities will differ.

Different methods, capacities, resources and timeframes are required to achieve the different objectives of livelihood provisioning, protection, and promotion. Livelihood

provisioning is a relief-based objective, which relies on swift response and the logistical capacity to deliver critical provisions. Livelihood protection is aligned with the recovery phase and requires careful and complex assessment and benefits from local contextual knowledge. Livelihood promotion is the transition from recovery efforts to development goals and requires the long term commitment of governments and other development actors.

2.4 Sources of Information on Intervention Programmes by Farmers

In agriculture, sources of information on new innovations to rural farmers mostly are through extension agents and radio. These sources cut across all the category of farmers, both literate and illiterate. Other sources also found include television, pamphlet, handbills, posters and mobile phones (Okunlola, 2003). On communication and social change, Edna (2007), found that 97% farmers have access to information from extension agents, 96% on radio, 90% on posters and handbills, 70% on television, 40% on journals and 35% on books. For the communication process to be complete and effective the extension agents need to be trained and retrained in order to take the right information and knowledge using appropriate medium to the farmers for them to improve in their agricultural productivity (Edna, 2007).

2.5 Impact of Intervention on Participants

The term "impact" refers to the broad, long term socio-economic and environmental effect of a project on the beneficiaries and the general ecosystem (IAEDG, 1999). Impact of a programme can be seen in relation to what the services actually do to the people who receive them. It is the actual programme outcome in relation to the desired goal (Patton, 1978).

Impact studies are of paramount importance in GESS intervention. It shows the benefits derived by the participants as a result of their involvement in the scheme as well as show their preferences to the programme. It is therefore important to evaluate impact in terms of all the goals and objectives that were set when the intervention was established (IAEDG, 1999). In order to establish whether the programme has impacted on the income of the beneficiaries, therefore assessment of all the goals and objectives should be carried out.

The first GESS monitoring exercise was carried out between September 27 and October 5, 2012 by FEPSAN. In implementing the exercise, 902 respondents consisting of farmers and agro dealers on the GESS, and farmers outside the scheme were interviewed across 12 states. In addition, fertilizer companies, seed companies, and banks on the scheme, as well as Cellulant, were also interviewed. The interviews were conducted using face to face and telephone modes (FEPSAN, 2012).

Farmers interviewed were mostly happy with the scheme under which they found it easier to purchase fertilizer from appointed dealers than was previously possible. There were also only few reports of foul play in the process of redeeming inputs. Similarly, agro dealers found access to fertilizer and seeds much easier under the scheme and were generally satisfied with its operations, their main complaint being in relation to funding to purchase inputs (FEPSAN, 2012).

Over 90% of the farmers surveyed, say the scheme makes purchasing of fertilizer easier. Similarly, 92% rate access to fertilizer under the scheme as easy or very easy. Most farmers said their access to fertilizer has improved with the scheme. On the whole, almost all who had purchased fertilizeron the scheme commended the federal Government

for the scheme saying it is the most effective for getting subsidized fertilizer to farmers, compared to previous schemes (FEPSAN, 2012).

2.6 Factors Influencing the Participation of farmers inGESS intervention

Participation means that people are closely involved in the economic; social; cultural and political processes that affect their lives (UNHDR, 1993). Several studies indicated that there is a long history of participation in agricultural development and a wide range of development agencies that have attempted to involve people in some aspects of planning and implementation.

According to Pan African Institute for Development (1977), participation is a total commitment of both the initiation and the beneficiaries of a programme through the involvement of the participatory agencies and the recipients using multi-sectoral approach in which people take part in the decision making, planning, implementation, execution up to operation of the project.

Some certain institutional factors such as extension contact, access to credit, membership of cooperative associations and sources of information do influence farmers to respond to agricultural innovations. Osuagwu (2002), found a significant and positive relationship between the frequency of extension agents' visit and the adoption of improved agricultural practices. Akanya (1989) found out that extension contact and visit were positively and significantly related to awareness, adoption and gross farm output of farmers. Institutional variables are reported to have either positive or negative influence on participation of farmers in improved and recommended agricultural practices. Also, Awogbade, (1996) in his study stated that several socio-economic factors influencing the adoption of recommended practice in kaduna state, as he pointed out , the family

structural arrangement in which the house head acts as both the legal and the political spoken man on all matters, his decision often influences others to either adopt an innovation or not. Older farmers, perhaps because of several years of investing in a particular practice may not want to jeopardize it by trying out a new farming technology. Atala (1990) found that farmer income, farm size, household size, cosmopolitans and communication status were related to the factors influencing farmers' adoption of farm technology.

2.7Some Constraints Encountered by Farmers during GESS Implementation

Various researches on constraints to effective implementation of agricultural development intervention/innovation have identified a number of factors. Morardet *et al*. (2005) identified inappropriate technology as hindrance in the transfer of many technologies to farmers practicing irrigation. Other constraints include lack of understanding of the socio-economic and socio-cultural elements of the communities or participants by project implementers; lack of appropriate institutional frame work and linkages between government's agencies and research institutes charged with the responsibilities for management and implementation of agricultural policies and programmes (Arokoyo, 1995; Kabre and Zabo, 2001).

Farmers often face several problems when implementing technological innovation recommended by a programme. Ekong (2003) reported barriers to implementation of diffused innovations as relative advantage, cost, complexity, visibility, divisibility and compatibility. On the other hand, socio-economic and cultural factors of farmers could be responsible for poor or non implementation of programmerecommendation: social

structure (Awogbade, 1987); conservation and unfavourable producer prices (Onazi, 1973); landlessness (Williams, 1978; Norman, 1976).Moreover, Beyen (1987) reported that among the problems that hinder participation is political turmoil that culminates in a change of government compounds problems by causing a temporary closure of projects and research centres, which hinders project implementation by reducing the period of the project. Lacking in keeping records (data) thus when the research centres are closed due to political instability, they stop collecting data. This generally undermines data analysis.

2.8 Theoretical Framework

This study was anchored on Hermann Günther Grassmann's extension theory which posits that increased adoption rates would occur as information about the innovation is communicated through farmers' social networks. The theory is used to evaluate how the media aids in achieving Sustainable Agricultural Development in Nigeria (Age, 2009). Traditionally, it is assumed that all farmers would eventually see the benefit of new innovations and thus adopt them. Therefore, views and measures of the success of an innovation are based on the level at which an innovation is adopted. A further assumption is that increased adoption rates will occur as information about the innovation is communicated through farmers' social networks. This organized and formal process of actively communicating such information is called extension, basically the process of changing voluntary behaviour via communication. The goal of extension is to determine how to convey information regarding a new innovation to a certain population (such as farmers) so that they will adopt it. The challenge of extension is to design an appropriate communication channel (Röling, 1988).

Over time, the term agricultural extension has also been used to collectively include any advisory, consulting, technology transfer, research, training, marketing, industry

development, learning, change, communication, education, attitude change, collection and dissemination of information, human resource development, facilitation, or self-development activities that are undertaken with the aim of bringing about positive change on farms and in agriculture (Fulton, Tabart, Ball, Champion, Weatherley ,and Heinjus, 2003).

2.8.1 Social Change Theory.

It is said that the only thing that is constant in life is change. Everything changes: the physical universe, the biological universe, the social universe, and the bewildering variety of phenomena that make up these universes (Igbo, 2003). When such alterations take place in interaction it is 'termed social change' (Jibowo, 2000). Rogers and shoemaker (1971) and Chitamber (1983), defined social change as the process by which change occurs in the structure and the function of a social system. In this regard, social change denotes a planned change that either as ideas, norms, values, roles and social habits of the people or in the composition or organization of the society. "the interventions" such as the GESS programme aimed at changing the government subsidized inputs supply pattern. The Federal Government has decided from the 2012 farming season to opt out of direct procurement and distribution of inputs and instead instituted the Growth Enhancement Support Scheme (GESS), aimed at delivering subsidized farm inputs to farmers through an electronic wallet. Under the Scheme, an accredited farmer will receive agro inputs allocation through an e-wallet that hosts unique voucher numbers sent to his or her phone, and goes to an accredited agro dealer to redeem his inputs. It is expected that this should lead to improvements in agro inputs distribution and marketing by private sector; as well as consequent improvement

in crop and agricultural productivity; and profitability for both the input supplier/dealer and farmer (FEPSAN, 2012). In this study, impact implies changes that programme made to the beneficiaries' livelihood. This theory, therefore, provides the framework for understanding the social changes that would have taken place in the life of the beneficiaries and non-beneficiaries specifically to their income, output and social well-being.

2.8.2 The Concept of Socio-Economic Impact Assessment

According to Alene *et al.* (2006), impact assessment of agricultural research is viewed as an important activity to ensure accountability, maintain credibility and improve internal decision-making process and the capability to learn from the past experience. Approaches to Impact Assessment are categorized as; conventional, participatory and livelihood approaches. Impact Assessment Concept is very comprehensive focusing on people lives and resources or defined projects outputs. Also an impact assessment helps researchers in development to better understand the extent to which activities affect the poor, which objectives are fulfilled, and the magnitude of their effects on people's welfare (Tshuma, 2009). However, impacts are the broader, longer-term, economic, social, or environmental effects resulting from research or development interventions and acquire expert from different disciplines.

The combination of these concepts will be used in this study in order to help us realize the intricacies and bearing of development project implementation on beneficiaries' participation for ultimate change in their livelihood.

2.8.3 The Concept of Participation

Participation is the active engagement of the minds, hearts and energy of people in the process of their own healing and development. Because of the nature of what

development really is, unless there is meaningful and effective participation, there is no development (Bopp and Bopp, 2006). In the past, participation was used to describe an outsider's engagement with community. However, with an understanding of participation, it becomes a term infused with community empowerment rather than with community need and concession. Adopting this view, along with the teachings of Freire (2006), participation becomes a theory driven mechanism in which local communities and outsiders come together, as participants, to achieve community defined goals. Participatory development provides a mechanism in which genuine dialogue and action within a local community and between a local community and outside researchers/practitioners can occur. The relationship between local community members and outsiders is important to human development in general as Freire (2006) professed.

Therefore, the rural people should be consulted as they, more than anyone, know the extent of their situation. Consequently, decision-making should be decentralized allowing the community to decide the best strategy for local development (Narayan, Patel, *et al*. 2000). This implies that if GESS participants are appropriately empowered, they can often take part in the scheme. Hereby, it is assumed that such participation and empowerment initiatives will ensure sustainable GESS management and livelihood improvement of farmers. However, local participation and empowerment can only be realistic if there is adequate government support.

2.8.4 Conceptual model

Conceptual framework is a construction that shows the relationship existing among variables and most often these relationships are depicted schematically and mathematically. Akin (1970), sees a conceptual framework as simply an attempt to

classify the major elements of an entity or phenomenon with regards to their functions and inter-relationships in order to observe more closely causal relationships.

A model is a figurative representation of a perceived object used to guide one in the pursuit of knowledge (Adeniji, 2002). The model is meant by a broad system of explanation which is founded not so much on prior research findings but largely on untested and unapproved assumptions about social realities (Ekong, 2003).

In this research work it is expected that accessibility to GESS intervention will cause change in the livelihood (assets possession, increase income and crop output of the farmers and increase food security) of the GESS farmers. Therefore, socio-economic characteristics such as age, farm size, extension contact, household size, source of information, amount paid for inputs, quantity received, total farm income, level of education will constitute independent and intervening variables. The model is designed to explain the relationship between the socio-economic and institutional variables of the GESS farmers. Existence of these variables is expected to cause changes in output, income, and living standard of the participants (Figure 1).

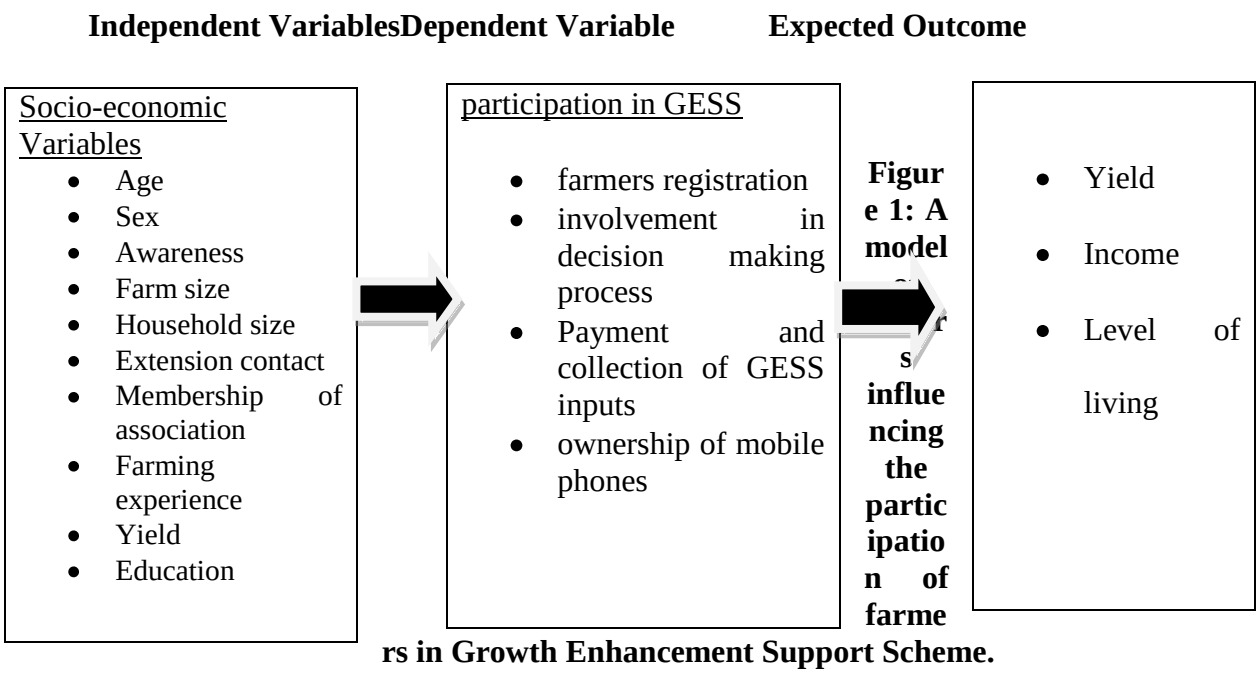


Figure 1: A model showing the factors influencing the participation of farmers in Growth Enhancement Support Scheme.

CHAPTER THREE

METHODOLOGY

3.1. Description of the Study Area

The study was conducted in Kaduna state which is located in the North Central part of Nigeria and lies between latitude 9^0 10' – latitude 11^0 3' North and Longitude 6^0 – 90 10' East. It has an estimated total population as at the end of 2010 of 6,210,208, comprising of 3,139,041 males and 3,071,667 females (NPC, 2006). The total arable land is estimated to be about 2,148,700 hectares. The primary occupation of most households in the state is crop farming. Other major occupations that sizeable proportions of households are involved in include livestock farming and trading (KADP, 2007). The state falls mostly within the Northern Guinea-Savannah zone with an average annual rainfall of 1,482.9 millimeters. . Kaduna State shares boundaries with Katsina and Kano States to the north, Plateau State to the north east, Nasarawa and Abuja to the south, and Niger and Zamfara States to the west (Kaduna State government, 2012).

3.2. Sampling Procedure and Sample Size

A multi-stage sampling procedure was employed in selecting the sample size used for this study. In the first stage three Local Governments Areas were purposefully selected based on their performance in GESS. The level of participation was based on the farmers' output records made available by Kaduna State Agricultural Development Authority

(KDARDA, 2013). The selected local government areas were Chikun, Kajuru and Kachia. The second stage involved purposive selection of two villages each in the Local government areas based on observed degree of rurality and intensive participation of food crop farmers in the Scheme (GESS). These villages are Kujama, Magashanu in Chikun L.G.A., Gumel, Crossing in Kachia L.G.A and Gyengyere and Gefe in Kajuru L.G.A. A total of six villages were chosen for the study. The sampling of 10% GESS participants and non-participants through lottery method or random numbers from the list sample frame was made. In all, one hundred and eighty (180) respondents from the sampling frame (1797) were selected as shown in Table 1.

Table I**:** Distribution of Respondents in the Study Areas

L.G.As	**Communities**	**Participants**	**Non-Participants**
Chikun	Kujama	210(20)	198(20)
	Magashanu	109(11)	120(12)
Kajuru	Gefe	122(12)	122(12)
	Gyengyere	150(15)	130(13)
Kachia	Crossing	159(16)	175(18)
	Gumel	152(15)	154(15)
TOTAL		**902(90)**	**895(90)**

*source: (KADP, 2013).

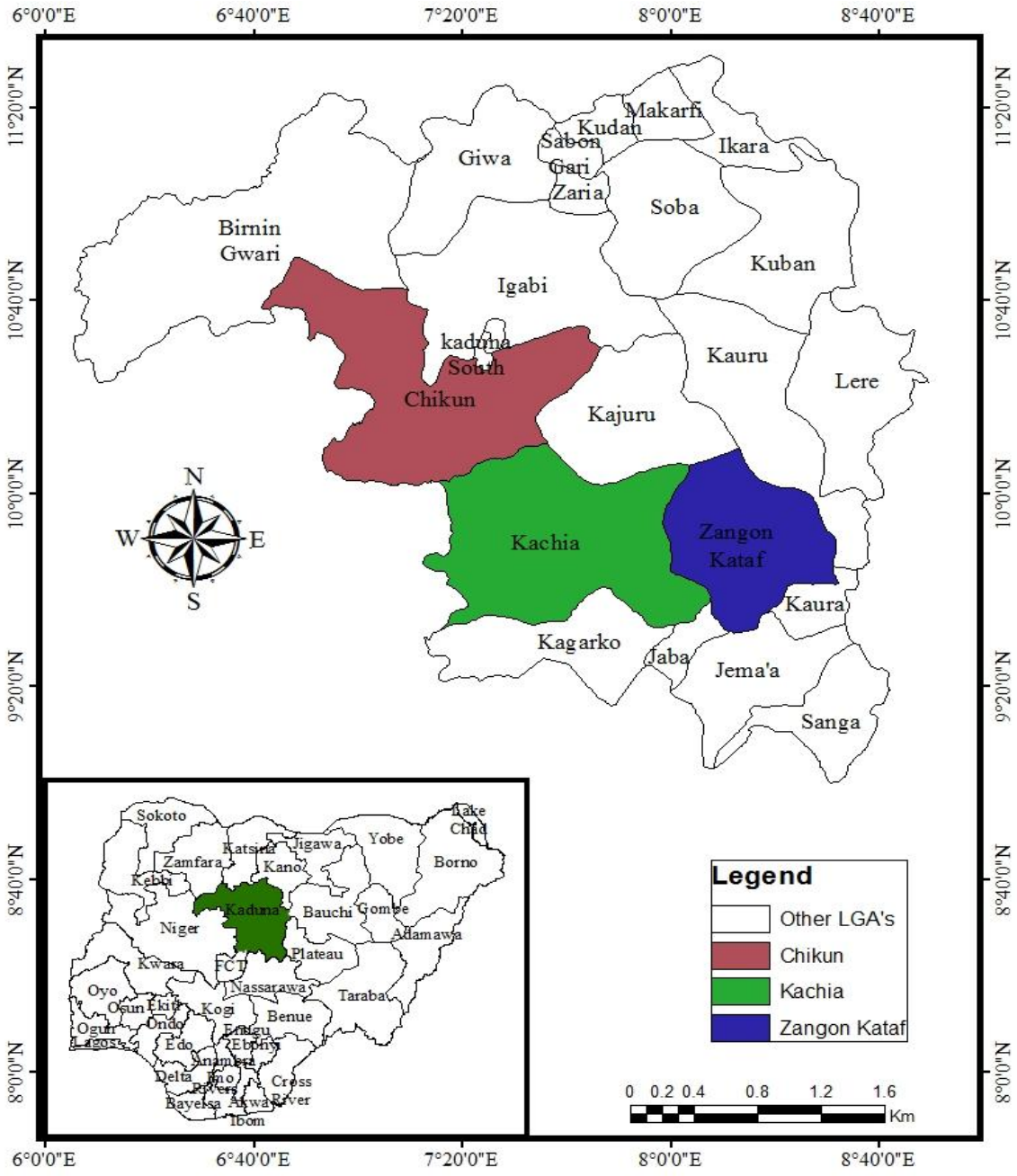


Figure 2: Map of Kaduna State showing the Study Areas

3.3 Data Collection

The study made use of primary data and secondary information. The primary data were obtained through structured questionnaire that were administered to the GESS and non GESS participants in the study area while the secondary data were from records, journals, textbooks, internet and other publications**.** Information were collected on: (a) farmer's socio-economic characteristics such as age of household head, gender of household head, marital status, educational level of household head, farm size,awareness, yield, capita aggregate income, membership of cooperative, household size;(b) constraints faced by the farmers;(c) farmer's food consumption and expenditure, labor (man-days), quantity of fertilizers (kg),and cost of other simple farm tools such as cutlass, hoes and other simple farm implements. Data of 2013-2014 cropping season were used.

3.3.1. Analytical Analysis

Descriptive statistics such as percentages, frequency distribution were used to achieve objective i, ii, iv and v of the study.

Multiple regressions were employed to achieve objective iii; i.e., factors influencing farmers' participation in the scheme. The Z test was used to test the hypotheses

3.3.2 The multiple regression models for objective iii

This technique is useful for estimating the contributions of each independent variable, it has been specified below:

Y= $a+b_1X_1+b_2X_2+b_3X_3+b_4X_4\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots b_{12}X_{11}+u$

Where:

Y= participation (Dependent Variable) is the level of involvement of farmers in GESS intervention.

$\mathbf{X_1}$**=** age of respondents

$\mathbf{X_2}$**=** level of education (years of schooling**)**

$\mathbf{X_3}$**=** household size (number)

$\mathbf{X_4}$**=** farm size (ha)

$\mathbf{X_5}$= sex (male 1, female 2)

$\mathbf{X_6}$**=** years of farming (Years)

$\mathbf{X_7}$**=** Income (Naira)

$\mathbf{X_8}$**=** Yield (Naira)

$\mathbf{X_9}$**=** extension contact (no of visits)

$\mathbf{X_{10}}$=Awareness (yes or no)

$\mathbf{X_{11}}$=Membership of cooperative societies (number)

$\mathbf{b_2}$ **to** $\mathbf{b_{11}}$**=** Regression coefficient

u= Error term

a = Constant

3.3.3. Impact Variables (Livelihood)

Livelihood comprises the capabilities, assets (including both material and Social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. (Chambers & Conway, 1991) Livelihood in its simplest sense is a means of gaining a living. It refers to as a combination of the resources used and the activities undertaken in order to live. Livelihood outcomes are the achievements of the results of livelihood strategies. Outcome categories were examined in relation to the following categories:

i. Crop Output: this was measured as the total crop output in kilogram (kg) accruing to the farmer during the cropping season**.**

ii. Income: this is the amount of money in naira generated by the farmer from the sales of the produce.

iii. Level of living: for this study, livelihood meant the standard of living of the participating farmers and that of the non participants. This was measured by the quantity of goods owned by a household such as motor cars, motorcycles, bicycles, houses, radio, TV, cushion chairs, refrigerator, handsets, amount spent on healthcare per year, on administration of children per year, total expenditure on food and clothing per year.

3.3.4 Measurement of Independent variables

Age: It is s a chronological age reported during the survey by the respondents. The age was measured in years.

Level of formal education: this referred to number of years spent in acquiring education through regular or formal attendance of schools and colleges. The number of years respondents spent determined the level of his/ her education. Therefore, the respondents' level of education was measured in years**.**

Household Size (HHS): this was the total number of persons in the family sharing the same catering arrangement. HHS was measured by the number of dependents given by a house hold head during the study.

Farm size:this refers to the total area of land under cultivation measured in hectare. Farm size has been found to have a significant effect on yield (Igbokwe, 2000).

Sex: this is the biological characteristics for identifying an individual as either a male or female. Adesehinwa and Okunlola (2000) found that no significant relationship between sex and ruminant production.

Years of farming: this refers to the actual number of years put in farming activities. It is expected that farmers will gain more experience as they spendyears in farming **activities**. This has also been found out to have significant effect on agricultural productivity (Ounfiditimi, 1981).

Extension Contact: this explains whether or not a farmer ever has been visited or spoken to in connection with GESS. Participants were scored based on number of time visited.

Ownership of mobile phone: this explains whether or not a farmer owns a mobile phone for the e-wallet fertilizer distribution. This was measured 1 and 0 for otherwise.

Amount of input received: this explains the amount of fertilizer received by the farmer from the scheme. It was measured in naira.

Source of inputs used in the farm: this refers to the source of input from where a farmer obtained his/her facilities used in the farm. Whether such farm inputs are obtained from GESS or through purchase in the open market. It was scored I where participant says yes and 0 where otherwise.

Total farm output: this explains the total yield from the farm which was measured in naira.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Socio-economic and Institutional Characteristics of Farmers

Socio-economic and institutional variables were considered in this study to elicit relevant information on the participation of farmers in GESS in the study area.

4.1.1 Age

Information on GESS farmers was collected and analyzed. The result in table 4.1 showed that 6.7% participants and 4.4% non participants were less than 29 years. The result also shows that 21.1% participants and 23.3% non participants were between the ages of 30 to 39 years, 44.4% and 36.7% participants and non participants respectively were between the ages of 40 and 49 years. Similarly, 11.1% and 22.2% participants and non participants respectively were between 50 to 59 years, while 16.7% participants and 13.3% non participants were 60 years or more. This shows that majority of participants were within their productive age where their energies could be harnessed and utilized for productive venture in agriculture. It could be seen that farmers are still very strong and full of vigor and can contribute immensely, mentally and physically to promote crop production through participation in GESS. Farmers' age can contribute to receptiveness to new agricultural innovations, which will in turn boost production and contribute to food security. The result also indicates that farmers with lesser farming experience accept the interventionmore than those with higher farming experience. Farmers with higher farming experience may be reluctant in accepting newer innovations because of the risk associated with modern means f farming introduced by project this can be attributed t the fact that often, farmers who have more years of experience are more resistant to change than new entrants (edeoghon, 2008).

Table 1: Age Distribution of Respondents

AGEParticipants	Non Participants	
29 years 6 (6.7)	4(4.4)	
30-39 years	19(21.1)	21(23.3)
40-49 years	40(44.4)	33(36.7)
50-59 years	10(11.1)	20(22.2)
60 years 15(16.7)	12(13.3)	

*Figures in parentheses are the percentages

4.1.2 Gender

The gender of the respondents revealed that 87.8% participants were male while 12.2% were female and 83.3% non participants were male while 16.7% were female. Adewale *et al.* (2003) observed that gender is not hindrance to the active involvement in farming activities. meanwhile, Oladeji *et al.* (2003) observed that there is a general outlook that males are more involved in farming because they are more energetic than their female counterpart, also being bread winners of their respective homes, they have no choice but to provide for the up keep of the family and personal needs, so there is every need to participate in farming activities, moreover the low percentage of the female farmers could be attributed to the fact that females in the study area are involved in other ventures or activities like hawking, tailoring, hair dressing and so on.

Table 2:Sex Distribution of Respondents

Sex	Participants	Non Participants
Male	79(87.8)	75(83.3)
Female	11(12.2)	15(16.7)

*****Figures in parentheses are the percentages

4.1.3 Marital status

Table 4.1 shows that 97.8% participants and 84.4% non participants were married, 1.1% and 15.6% participants and non-participants respectively were single, while only 1% participants and none for non-participants were separated. On the issue of marital status of rural farmers as it affects farming; young people in rural areas tend to get married earlier than their peers in the urban centres. This tendency to marry early helps in building a virile farming population, which agrees with the assertion of Perez-Morales (1990) who noted that young people in rural areas get married earlier than their urban counterparts. Mamder (1986), 0bserved that the notion of youth (15-24) years, bachelor and still undergoing training or looking for a first employment, seems to be less realistic in African setting. An African girl of 15 is already a woman and the African rural boy of 20 years is already an adult with a household. Ugwoke *et al.* (2005) discovered in their finding that 53.0% of the respondents were either married or widowed. They noted that young people in rural areas get married earlier than their peers in urban areas

.Table 3: Marital Status of Respondents

Marital status	**Participants**	**Non Participants**
Married	88(97.8)	76(84.4)
Single	1(1.1)	14(15.6)
Separated	1(1.1)	0(0)

*Figures in parentheses are the percentages

4.1.4 Household size:

According to Ojuekaiye (2001), household size is defined as the number of people eating from the one pot. This implies that the consumption unit is also the production unit. Also family is an important in agricultural production because sometimes the

available workforce is gotten from it and the size of the farm land is sometimes related to it.

So going by the above variables, it indicates that 87.8% participants and 83.3 non-participants have between one to ten people in their family, 8.9% and 12.2% participants and non- participants had eleven to twenty people in their family, while 3.3% and 4.4% participants and non-participants respectively had 21-30 people in their family. Mean household size of participants and non-participants is 14 and 7 respectively.

Table 4: House Size Distribution of Respondents

Household size	**Participants**	**Non Participants**
1-10	79(87.8)	75(83.3)
11-20	8(8.9)	11(12.2)
21-30	3(3.3)	4(4.4)

*Figures in parentheses are the percentages

4.1.5 Farm size

Table 4.1 shows that the size of farm cultivated is a function of population pressure, family size, and financial background of the farmer. One the major characteristics of small scale farming are fragmented landholding. The result of this study shows that 72.2% participants and 67.8% non participants cultivated on less than one hectare while 20% participants and 27.8 non-participants farmed on between one to two hectares. About 7.8% and 4.4% participants and non-participants respectively cultivated on four or more hectares. This agrees with Ojukaiye (2001), classification of farm size of o.1 hectares to 5.9 hectares as small farms. This implies that all the respondents were small scale farmers. This also implies that meaningful contribution to food security in the country is not feasible.

Table 5: Farm Size Distribution of Respondents

Farm size	Participants	Non Participants
Less than 1 ha	65(72.2)	61(67.8)
1-3 ha	18(20)	25(27.8)
4 ha and above	7(7.8)	4(4.4)

*Figures in parentheses are the percentages

4.1.6Level of Education

Table 4.1 reveals that 25.6% participants and 27.8% non-participants had no formal education, 18.9% participants and 17.8 non-participants had between 1 to 6 years, 21.1% and 22.2% participants and non- participants respectively had between 7 to 12 years while 34.4% and 32.2% participants and non-participants respectively had 13 to 18 years of formal education. This implies that farmers in the study area had one form of education or the other. This agrees with the results of Ojukaiye (2001) who reported that education is an essential socio-economic factor that influences farmers' decision because of its effects on the awareness, perception, reception and quick adoption of innovation that can increase productivity.

Table 6: Education Level of Respondents

Level of Education	Participants	Non Participants
No formal education	23 (25.6)	25(27.8)
1-6	17(18.9)	16(17.8)
7-12	19(21.1)	20(22.2)

13-18	31(34.4)	29(32.2)

*Figures in parentheses are the percentages

4.1.7Extension Contact

The relationship between agricultural extension agent and the farmer is an important determinant in improving yield as well as ensuring food security. Agricultural extension service constitutes a driving force for any agricultural development. the results showed that majority of participants (48%) and non-participants (61%) had no opportunity for coming in contact with the change agents, 32% participants and 24% non participants were visited 1-2 times, 12% and 11% participants and non-participants respectively were visited 3-4 times while only 8% participants and 3% non-participants were visited 5 times or more. the visit was not frequent, but the more frequent the visit, the better for the farmers who need all the necessary information and technicality for better input and yield.

Table 7:Distribution of Respondents according to number of Farm Contact

Farm visit	**participant's**	**non participants**
None	43(47.7)	55(61.1)
1-2	29(32.2)	22(24.4)
3-4	11(12.2)	10(11.1)
5 and above	7(7.8)	3(3.3)

*Figures in parentheses are the percentages

4.1.8Membership Cooperative

Membership of cooperative contributes to the dissemination of new ideas, practices and products as well as in sourcing for loan and farm inputs. It was found that only a few of the respondents belonged to any farmers' organizations. The only ones mentioned were farmers' cooperatives (15.6) for participants and 2.2% for non-participants and farmers'

council non for participants and only 1% for non-participants. About 48% participants and 61% non-participants did not belong to any membership association. This reveals why majority of small-scale farmers have limited access to credit facilities. This also could determine the extent of production capacity.

Table 8: Cooperative Membership of Farmers

Association	**Participants**	**Non Participants**
None	71(78.9)	58(64.4)
Young Farmers Club	5(5.6)	2(2.2)
Farmers Cooperative	14(15.6)	29(32.2)
Farmers Council0(0)	1(1.1)	

*Figures in parentheses are the percentages

4.1.9Farming Experience

Majority of the participants (58%) and non participants (34%) had farming experience of between 31 and more years for participants and 6-10 years for non participants. The results indicate that experience is a very vital tool in farming and it is gained and perfected by practice, time and age spent. As number of year's increases in farming, experience also increases. The results also indicate that 88% participants and 83% non-participants had an average household size of 14 and 7 respectively. According to Ojuekaiye (2001), household size is the number of people eating from the same pot. This implies that the consumption unit is also the production unit. Also family size is an important variable in agricultural production because;

1. the available workforce is gotten from it; and
2. the size of farm-land is sometimes related to it.

4.1.11 OCCUPATION

Most of the participants (76%) and non-participants (58%) had farming as their major occupation. About 15.6% participants and 25.6% non-participants respectively were civil servants and at same time farmers. This could be as result of livelihood diversification.

Table 9: Distribution of Respondents According their major Occupation

Occupation	Participants	Non Participants
Farming	68(75.6)	52(57.8)
Business	5(5.6)	9(10)
Artisan	3(3.3)	6(6.7)
Civil servant	14(15.6)	23(25.6)

*Figures in parentheses are the percentages

4.2 Sources of Agricultural Information of the Farmers

Table 4.2 shows that radio was the most important source of agricultural information for both participants (40%) and non participants (35.6%). this was followed by contact farmers for participants (30%) and for non-participants (34.4%). This finding was very much expected as most farm information in most parts of northern Nigeria is diffused mainly through the radio and extension contact. The least source of agricultural information among the participants and non-participants was the internet selected by 1% and 0% respectively. According to Yahaya (2003),Mass media institutions such as newspapers, magazines, books, motion pictures, radio, TVs, internet and sound recording help in the generation and dissemination of messages that are of immediate needs to the general public.Besides, these media institutions contribute greatly towards the growth and development of knowledge as well as its preservation through documentation. Through this, researchers can gather enough research data and finally come out with workable

solutions needed to solve human problems that hitherto had formed a cog in the wheel of national development.

Table 10:Distributions of Respondents according to their Major sources of Agricultural Information

Source of Information	Participants	Non Participants
Internet	1(1.1)	0(0)
Contact Farmers	27(30)	31(34.4)
Radio	36(40)	32(35.6)
Friends	8(8.9)	6(6.7)
Television	4(4.4)	3(3.3)
Cooperatives	5(5.6)	6(6.7)
Newspaper	3(3.3)	2(2.2)
Neighbours	2(2.2)	4(4.4)
Sales Agents	4(4.4)	6(6.7)

*Figures in parentheses are the percentages

4.3 Socio-economic Factors Influencing Farmers' Participation in Growth Enhancement Support Scheme Program in the Study Area and Hypothesis Testing 1.

The linear regression was used for this analysis. The regression result as shown in table (4.3) shows that the coefficient of determination (r^2) is about 43%. This suggests that about 43% of variability in the dependent variable is explained by the independent variables in the model. Four of the independent variables (age, extension contact, yield, income) were found to have significantly contributed to farmers' participation in GESS in the study area. Therefore, the null hypothesis 1 (Socio- economic factors of GESS

participants have no significant effect on their participation in the GESS intervention) is hereby rejected as the analysis indicates that certain socio-economic and institutional factors influence the participation of farmers in GESS.

Age: From the table, age was found to be positively related to farmers' participationin GESS and was significant at 1% level of probability.This is plausible because older farmers would tend to stick to farming, reflecting their age-old occupation and would work hard to improve on their output. Any new agricultural programme that will bring this improvement, the farmer would have greater desire to participate in it (Damisa *et.al*, 2013).

Extension Contact: from the Table 4.3, extension contact was significant at 1% level of probability. Extension agents play vital role in the dissemination of latest agricultural information. The coefficient of 0.328 means that a farmer who gains additional information on GESS would participate higher by 0.328. This agrees with the findings of Atala (1984) who confirmed the important role of extension agents in the diffusion and adoption of an innovation.

Yield: Table 4.3 revealed that yield has positive relationship(r=0.453) with participation in GESS at 1% level of significance. the significance in yield could be attributed to the agricultural information disseminated by the change agent whose impacts were also significant to participation in GESS, this agrees with the findings of osinowo (2005) who reported that crop yield significantly influence the participation of farmers in agricultural projects/ interventions.

Income: The income of the respondents contributed positively and significantly towards participation of farmers in GESS with a coefficient of 0.385 at 1% level of significance.

This implies that a unit increase in the income of the farmers will result in a unit increase in the level of farmers' participation in the scheme. This agrees with the findings of Salau, *et al.* (2012) that the more income a farmer obtains from his produce the more his participation increase in farming activities. This is expected because any farmer who does not experience gains after his participation in any agricultural innovation would not want to continue embracing such an intervention. There is every likelihood that such a farmer will withdraw or reduce his participation in such an intervention in order to avoid further losses.

Table 11:Result of Multiple Regressions showing the Relationship between Socio-economic and Institutional Characteristics of the Farmers and Participation.

VARIABLES	**COEFF.**	**S.E**	**T.VALUE**	**SIG.**
Constant	-2.301	2.113	-1.089	0.279
Age	20.407*	3.350	6.092	0.000
Sex	0.019	0.090	0.211	0.833
Awareness	0.149*	0.278	0.536	0.046
Household S.	1.501	3.541	0.424	0.680
Education	0.015	0.098	0.153	0.879
Farm size	68.528*	20.637	3.321	0.001

Extension	0.328*	0.102	3.222	0.002
Farming Exp.	-0.143	0.152	-0.939	0.350
Membership	-0.226	0.200	-1.129	0.262
Yield	0.453*	0.122	3.327	0.000
Income	0.385	0.095	4.034	0.000

*P<0.01
**P<0.05

4.4 The Effects of GESS Programme on the Farmers' Output and Income and Testing of Hypothesis ii

The calculated Z-statistic was 10.15 but at 0.05 level of significance, the critical table value of Z is ±1.96. Since the calculated Z-value (10.15) is greater than the Z-critical or Z- tabulated value, it implied that there was significant difference in the mean output level of participants and non participants. Also the estimated mean output of participants was much higher than that of non participants, (2550Kg) as against (857Kg), as indicated in Table 4.5. Hence GESS participants declared a higher level of output from their agricultural participation in the scheme than non GESS participants. Hence the impressive difference in the farmers means output levels were largely attributable to farmers' participation in GESS programme. The calculated Z-statistic value for income was 274.04 but at 0.05 level of significance, the critical or table value of Z is ±1.96. Since the calculated Z-value (274.04) is greater than Z-tabulated, it implied that there is significant difference in the mean income of participants and non participants.Therefore, the null hypothesis (ii) is hereby rejected as the analysis indicates that Participation in Growth Enhancement Support Scheme has significant impact on the livelihood of participants. Also the estimated mean income of participants (₦36148/ha) was discovered to be much higher than the estimated mean income of non participants

(₦11212/ha). Hence GESS participants had higher mean income from their participation than the non GESS participants. The table also revealed that the mean monetary value for household items possessed by participants was ₦56296 while the non participants got ₦15745, a difference of ₦40551. The result in table4.5 of multiple regression analysis further revealed that there was significance difference between participants and non participants' income and level of living which revealed the advantage of participating in GESS intervention.

Table 12: Means and Standard Deviation of farmers' Yields, Income and level of living among Participants and Non-participants in GESS

Indicators	Participants		Non-Participant		T-value	SIG
	Mean	Std.V	Mean	Std.V		
TOTAL YIELD	2549.56	2377.16	856.73	629.53	-0.348	0.729
INCOME	36148.15	11669.52	11212.12	2980.46	1.954	0.054
LEVEL OF LIVING	56296.30	38252.92	15745.33	4963.58	1.673	0.098

4.5 Challenges Facing GESS Participants

Most participants (91.1%) reported that the quantity of fertilizer subsidized was inadequate to meet their needs. Furthermore 84.4% participants complained that the fertilizers did not arrive on time and should have been available before the start of the rainy season. A few farmers (26.7%) complained that the price of the fertilizer was still too high. Some farmers (60%) reported that agro dealers did not have fertilizer to sell to them, and in some cases only had one type of fertilizer to sell. There were reports from 84.4% of the farmers that the types of fertilizer available at the collection centers were not the types required for their crops and farms. About 74.4% of the Farmers reported

that the locations of collection centers were too far for them; hence it was difficult for them to access the inputs. Some farmers (60%) generally found the process of redeeming fertilizers cumbersome, coupled with long queues (96.7%) and the need for repeated visits to collection centers before being able to purchase fertilizer. About 22.2% could not redeem their inputs. The e-wallet was found to be ineffective in many parts of the study area, mainly because of the poor telecommunications network as reported by 6O% of the participants. Many farmers did not receive the e-wallets and had to resort to the use of scratch cards, which were insufficient for the number of farmers who required them. Among those who did receive the e-wallets, a large proportion (74.4%) of participants did not know how to activate their numbers, or the numbers to dial for inputs.

Table: 13:Distributions of GESS farmers according to Constraints facing them

Challenges	**Participants**		**Percentage**	
1. Long queues at collection	90		100	
2. Could not get the quantity demanded	90		100	
3. Collection centres too far		87		96.7
4. Inadequate land	85		94.4	
5. Inadequate supply of inputs		82		91.1
6. Inadequate extension agents		77		85.6
7. Late delivery of inputs		76		84.4
8. Fertilizer not right for local soil		76		84.4
9. Lack of knowledge on how to activate number		67		74.4
10. Difficulty in accessing the inputs	54		60	
11. Telecommunication problem		54		60
12. Illiteracy	67	74.4		
13. Price too high	24		26.7	

14.	Could not redeemed inputs	20	22.2

Total number exceeds n=180 due to multiple responses

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

A sample of 180 farmers was drawn for this study. Data were collected through personal interviews, using questionnaire administered by the researcher and other trained enumerators. Descriptive statistics (mean, percentages and frequency distribution) and multiple regression analysis were used to analyze the data.

The result showed that 6.7% participants and 4.4% non participants were less than 29 years. The result also shows that 21.1% participants and 23.3% non participants were between the ages of 30 to 39 years, 44.4% and 36.7% participants and non participants respectively were between the ages of 40 and 49 years. Similarly, 11.1% and 22.2% participants and non participants respectively were between 50 to 59 years, while 16.7% participants and 13.3% non participants were 60 years or more. The gender of the respondents revealed that 87.8% participants were male while 12.2% were female and 83.3% non participants were male while 16.7% were female. The result shows that 97.8% participants and 84.4% non participants were married, 1.1% and 15.6% participants and non-participants respectively were single, while only 1% participants and none for non-participants were separated. The result indicates that 87.8% participants and 83.3 non-participants between had one to ten people in their family, 8.9% and 12.2% participants and non- participants had eleven to twenty people in their family, while 3.3% and 4.4% participants and non-participants respectively had 21-30 people in their family. Mean household size of participants and non-participants is 14 and 7 respectively. The result of this study shows that 72.2% participants and 67.8% non participants cultivated on less than one hectare while 20% participants and 27.8 non-participants farmed on between one to two hectares. About 7.8% and 4.4% participants and non-participants respectively cultivated on four or more hectares. As number of year's increases in farming, experience also increases. Majority of the participants (58%) and non participants (34%) had farming experience of between 31 and more years for participants and 6-10 years for non participants. It also reveals that 25.6% participants and 27.8% non-participants had no formal education, 18.9% participants and 17.8 non-participants had between 1 to 6 years, 21.1% and 22.2% participants and non- participants respectively had between 7 to 12 years while 34.4%

and 32.2% participants and non-participants respectively had 13 to 18 years of formal education. The results showed that majority of participants (48%) and non-participants (61%) had no opportunity for coming in contact with the change agents, 32% participants and 24% non participants were visited 1-2 times, 12% and 11% participants and non-participants respectively were visited 3-4 times while only 8% participants and 3% non-participants were visited 5 times or more. It was found that only a few of the respondents belonged to any farmers' organizations. The only ones mentioned were farmers' cooperatives (15.6) for participants and 2.2% for non-participants and farmers' council non for participants and only 1% for non-participants. About 48% participants and 61% non-participants did not belong to any membership association. Most of the participants (78%) and non-participants (58%) had farming as their major occupation. About 15.6% participants and 25.6% non-participants respectively were civil servants and at same time farmers.

Multiple regression analysis of the data indicated that seven of the variables were significantly related to level of participation of farmers in GESS programme. The variables were age, farming experience, sources of information, income, wealth status, farmers' awareness and education. The regression analysis also showed that all the variables taken together explained 43% of the variability in the participation behaviour of the respondents. Therefore, the null hypothesis (1) is hereby rejected as the analysis indicates that certain socioeconomic and institutional factors influence the participation of farmers in GESS intervention. Age contributed 23% of the variability, thereby making it the greatest single contributor to the behaviour of the farmers. Common ones were unavailability of farm inputs, high cost of fertilizer and illiteracy.

5.2 CONCLUSION

A number of conclusions could be drawn from the findings of this study.

It is apparent from of the findings of this study that farmers in the study area were relatively young and had primary education as their highest level of education attainment. The frequency of visits by the extension worker to farmers was quite low and majority of the farmers had no opportunity for coming in contact with the change agent. The best sources of information in the study area are radio followed by extension worker and the use of friends.

It was also the conclusion of this study that age, farming experience, source of information, income, wealth status and farmers' awareness were found to be significant factors influencing participation of farmers in GESS.

The result further revealed that farmers' participation in GESS had resulted in an increase in yields, income and improved level of living. There is no doubt that various administration in Nigeria have continued to pursue policies that will ensure overall agricultural development for Nigeria to be self sufficient in domestic production. Though the impacts have already been felt, but such impacts were minimal. For GESS, the expectation is that with full commitment of all the three tiers of government to agriculture, through the policy objectives of GESS the scheme will bring out the best from both the small and large scale farmers all over the country. Effort at all levels should be made to make the scheme sustainable. The scheme will be more functional, efficient, generate employment, enhance farmer's income and reduce poverty and at the end make food security a dream come true.

5.3 RECOMMENDATIONS

Based on the findings of this study, the following actions are proposed for a smoother operation of the GESS:

i. Establishment of clear alternative procedures for redeeming inputs where E-wallets are no received. Replacement of the current 10-digit activation numbers with more user friendly digit codes. Increased sensitization of farmers on the operational procedures of the scheme in languages easily understood by farmers (e.g. local languages, pidgin, etc) improvement in operational procedures to ensure inputs are delivered to agro dealers by the right time.

ii. Establishment of a monitoring framework to ensure farmers receive one bag each of NPK and Urea as intended under the scheme. Establishment of more collection centers, especially in rural locations close to farms.

iii. To improve the effectiveness of the scheme, there is need for extensive sensitization on the procedures for redeeming inputs. This should be done using local channels that can reach out to farmer effectively such as radios, community leaders, and cooperative associations, extension workers, etc. The communication should also be in languages easy for farmers to understand, such as pidgin and local languages ofstates. In addition, there is need to develop numbers that will be easy for the farmers to remember and work with.

iv. The E-wallet was found to be limited in effectiveness, due largely to poor telecommunication services. As most of the registered farmers that were called during the survey period were not reachable, probably due to the telecommunications network, switched-off phones, or discontinued use of numbers. Since not much can be done directly by the government about these issues, at least in the short term, clear alternative procedures for redeeming inputs, such as the use of scratch cards, should be developed and communicated to all stakeholders.

v. A major challenge reported by the farmers and agro dealers, and corroborated by the State GESS coordinators, is the timing of input delivery. It is imperative that inputs are delivered to agro dealers before the planting season commences, usually around March/April. To achieve this, preparations required to ensure these dates are met should be made well ahead of time.

vi. Farmers were generally able to purchase the required types of fertilizer, as it appears NPK and Urea is the main types of fertilizer in demand across the states surveyed. However, there were complaints from some farmers that the types of fertilizer supplied were not right for the local soil types. Consideration of the local soil types and crops grown should be made in determining the type fertilizer supplied for each. Also the current two 50kg bags of fertilizer available to farmers under the scheme were found to be inadequate to meet the needs of farmers, even the smallholders. Considerations should be made to increase the number of bags available under the scheme.

vii. To sustain this laudable effort of government, the planning of food production should be a conscious collaboration among several groups, namely state government, private enterprises, training and research institutions and, non-governmental organization.

5.4 CONTRIBUTION TO KNOWLEDGE

1. Growth Enhancement Support Scheme Programme had effect on farmers' yield (74.8%)
2. The use of radio (40%) constituted the highest source of latest agricultural information to Growth Enhancement Support Scheme participants

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APPENDIX

"ANALYSIS OF SOCIO-ECONOMIC FACTORS AFFECTING PARTICIPATION OF FARMERS IN GROWTH ENHANCEMENT SUPPORT SCHEME PROGRAMME FOR LIVELIHOOD IN KADUNA STATE".

QUESTOINNAIRE

DEAR RESPONDENT,

I hereby seek for your kind assistance to help me fill this questionnaire in order to make the research a successful one. Be assured that all information supplied will be confidentially treated.

FARMER PROFILE

NAME _____

DATE OF INTERVIEW_____

TOWN_____

SECTION A; SOCIO-ECONOMIC CHARACTERISTICS

1. Age: (a)15-25 [ ] (b) 26-35 [ ] (c) 36-45 (d) 46-55 [ ] (e) 56- above
2. Sex: (a) male [ ] (b) female [ ]
3. Marital status: (a) single [ ] (b) married [ ] (c) divorced [ ]
4. household size _____
5. Farm size (a) less than 1ha [ ] (b) 1-2 ha [ ] (c) 2.1-4.9 ha [ ] 5-9.9 ha [ ] 10-14.9 ha [ ] 15.19.9 ha [ ] 20 and above [ ]
6. Years of farming_____
7. Major occupation: (a) business [ ] (b) artisan [ ] (c) civil servant [ ] (d) farmer [ ]
8. Have you ever been visited by extension worker (a) yes [ ] (b) no [ ]
9. How many times? _____
10. Access to mobile phone (a) yes [ ] (b) no [ ]
11. Did you get inputs from the scheme? (a) yes [ ] (b) no [ ]
12. What was the price paid for 50 kg bag of NPK and Urea (a) NPK……..(b) Urea……..
13. Quantity of fertilizer received in kg
    (a) 50-70 [] (b) 71-90 [ ] (c) 91-110 [ ] (d) 111-130 [] (e) 131-150 [ ] (f) 151-above [ ]
14. Quantity of seed received in kg
    (a) Less than 5 [ ] (b) 5-10 [] (c) 11-15 [] (d) 16-20) (e) 21-30 [ ] (f) 31-50 [ ] (g) 51 and above [ ]
15. Total farm input in Naira (N'000)
    (a) Less than 100 [ ] (b) 100-150 [ ] (c) 151-200 [ ] (d) 201-250 [ ] (e) 251-300 [ ] (f) 301- 350 [ ] (g) 351-400 [ ] (h) 401 and above [ ]
16. Income in Naira (N'000)
17. Less than 100 [ ] (b) 100-150 [ ] (c) 151-200 [ ] (d) 201-250 [ ] (e) 251-300 [ ] (f) 301- 350 [ ] (g) 351-400 [ ] (h) 401 and above [ ]
18. How effective is the scheme in fertilizer distribution
    (a) Effective (b) very effective (c) ineffective (d) very ineffective

SECTION B: SOURCES OF INFORMATION CONCERNING AGRICULTURE

19. Do you know about GESS? (a) yes [ ] (b) no [ ]
20. how did you get to know about GESS
    (a) Internet [ ] (b) Phone [ ] (c) Television [ ] (d) Cooperatives [ ] (e) Radio sets [ ] (f) Friends [ ] (g) Agricultural extension worker [ ]

    (h) (Others specify) _____

SECTION C: FACTORS INFLUENCING PARTICIPATION OF FARMERS IN GESS

21. Are you GESS participant? (a) Yes [] (b) No [ ]
22. If yes, why do you participate? Tick as appropriate. (a) age [] (b) extension contact [ ] (c) household size [ ] (d) income [ ] (e) information [ ] (f) experience [ ] (g) sex [ ] (h) (others specify)_____
23. If no why?(Tick as appropriate) (a) I did not have money to register [ ] (b) I was not aware [ ] (c) I did not have phone [ ] (d) I do not have land [ ] (e) I doubted the scheme []
    (f) 0thers (specify) _____
    _____

SECTION D: EFFECTS OF GESS ON LIVELIHOOD

24. Have you benefitted from GESS? (a) yes [ ] (b) no [ ]
25. Has the scheme impacted on your annual income? (a) yes[ ] (b) no [ ]
26. What do you think is the effects of GESS? (a) increase income [ ] (b) increase food availability [ ] (c) adulterated supply of inputs [] (d) increase quality of inputs supply (e)decrease food availability [ ] (f) late delivery of inputs [ ] (g) timely delivery of inputs [] (h) increase quantity of fertilizer used [ ]
27. 0thers (specify)_____
    _____

SECTION E: CONSTRAINTS OF GESS

28. Do you identify any constraints in the scheme?
    (a) yes [ ] (b) no [ ]
29. If yes, in what aspect? [ ]
    (a) Accessing the inputs? [ ]
    (b) inadequate supply of inputs [ ]
    (c) late delivery of inputs [ ]

(d) I did not receive e-wallets [ ]

(e) insufficient of scratch cards [ ]

(f) I did not know how to activate number [ ]

(g) I did not know the number to dial [ ]

(h) I did not redeem my input [ ]

(i) I did not register [ ]

(j) fertilizer not right for the local soil [ ]

30. Other constraints(specify)_____

_____