IMPACT OF IFAD COMMUNITY BASED AGRICULTURE AND RURAL DEVELOPMENT PROJECT ON THE LIVELIHOOD OF SMALL HOLDER CROP FARMERS IN KATSINA STATE, NIGERIA

BY

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Ph.D/Agric/01526/06-07

A THESIS SUBMITTED TO THE SCHOOL OF POST GRADUATE STUDIES, AHMADU BELLO UNIVERSITY (ABU), ZARIA, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF DOCTOR OF PHILOSOPHY IN AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY

DEPARTMENT OF AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY, FACULTY OF AGRICULTURE
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OCTOBER, 2015

DECLARATION

I hereby declare that the work in this thesis titled "**Impact of IFAD Community Based Agriculture and Rural Development Project on the Livelihood of Small-Holder Crop Farmers in Katsina State, Nigeria"** has been written by me and it is a record of my research work. No part of this work has been presented in any previous application for another degree or diploma at any institution. All borrowed information have been duly acknowledged in the text and a list of references provided.

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CERTIFICATION

This thesis titled: **"Impact of IFAD Community Based Agriculture and Rural Development Project on the Livelihood of Small-Holder Crop Farmers in Katsina State, Nigeria "** by **Jamilu Alhaji ABDULLAHI** meets the regulations governing the award of the degree of Doctor Of Philosophy **(**Ph.D) 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 thesis is dedicated to the memory of my late father, Alhaji Abdullahi Malumfashi. May His gentle soul rest in peace, Amin.

ACKNOWLEDGEMENTS

My gratitude goes to Almighty Allah, the beneficent and the most merciful for taken me to this height despite my shortcomings. I would like to express my thanks and appreciation to my supervisors, Professor T.K. Atala, Professor J.G. Akpoko and Professor S.A. Sanni for their positive and constructive criticisms and suggestions for this research. In fact, words cannot exactly express how grateful I am to you. I feel highly indebted to you for the unflinching support, which I received throughout this programme of study.

I would also like to extend my sincere gratitude to Professor Zakari Abdulsalam, Professor D.F. Omokore, Professor Ben Ahmed, Dr. Damisa, Professor M.O. Akinola and all lecturers in the Department for their guidance, contributions and encouragement. Appreciation is also due to the management and staff of the International Fund for Agricultural Development Project Community Based Agriculture and Rural Development Project (IFAD-CBARDP) of Katsina State who assisted in coordinating the enumerators in the twelve Local Government Areas. My thanks also are due to all the farmers who sacrificed their valuable time to answer the survey questions, in fact, this study would not have been possible without your contributions. I am grateful to the field staff that served as enumerators during the data collection.

I would like to thank the Management and staff of the National Agricultural Extension and Research Liaison Services (NAERLS) A.B.U, Zaria for the support and encouragement given to me during the period of data collection and analysis. Specially, my Director Mal. Ismail I. Ilu, Professor A.Z. Abubakar, Professor S. J. Auta, Professor E.I. Ikani, Dr. B.M. Sani and Dr. Y.A. Sani.

I am indeed indebted to my employer, Ahmadu Bello University, Zaria for the opportunity given me to undertake this programme. In fact, without your permission, support and cooperation, this work would not have been possible. I would like to acknowledge the interest and unflinching support of my colleagues particularly Salisu S. Kura, Sani Isiyaku,

Sani Usman, Dr. Abdulrahman Ali, Amani A., Mr. Bidoli T. Amos, Aliyu Ja'afar, Aliyu Yari, Musa Malumfashi, Abdullahi Aguri, Abdulkadir Mustapha and Amina Baidu.

To my mother, Hajiya Hafsatu, my wife Hajiya Rukayyat, my children and my brothers and sisters, their patience and prayers during this trying period remain a memorable moment in my life.

Finally, I appreciate the contributions of Zuwaira Usman and Dahiru Baba for coding and analyzing the data and Malam Sani Adam and Mr. I.A. Akaa for the careful handling of the manuscripts and typing.

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LIST OF ABBREVIATIONS

ADP	Agricultural Development Project
ARD	Agricultural and Rural Development
ACB	Awareness and Capacity Building
CAADP	Comprehensive Africa Agriculture Development Programme
CBARDP	Community Based Agriculture and Rural Development Project
CBNRMP	Community Based Natural Resources Management Programme
CBO	Community Based Organizations
CBM&T	Capacity Building Management and Training
CBN	Central Bank of Nigeria
CDAs	Community Development Associations
CDD	Community Driven Development
CDF	Community Development Funds
CDDT	Community-Driven Development Team
CFAs	Cooperative Finance Agencies
CI	Community Infrastructure
DFID	Department for International Development
ECWA	Evangelical Church of West Africa
FAO	Food and Agricultural Organization
FDC	Federal Department of Cooperative
FFS	Farmer Field School
FGN	Federal Government of Nigeria
FMF	Federal Ministry of Finance
FMARD	Federal Ministry of Agriculture and Rural Development
FOS	Federal Office of Statistic
GVGD	Gender and Vulnerable Group Development

GDP	Gross Domestic Product
HIV/AIDS	Human Immunodeficiency Virus Infection and Acquired Immune Deficiency Syndrome
IAEG	Impact Assessment and Evaluation Group
IDEP	International Day for the Eradication of Poverty
IDRC	International Development Research Centre
IFAD-CBARDP-	International Fund for Agricultural and Rural Development Community Based Agriculture and Rural Development Project.
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
ISNAR	International Service for National Research
IPM	Integrated Pest Management
LGAs	Local Government Areas
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MF/S	Micro Finance Institutions
NACRDB	Nigerian Agricultural Cooperative and Rural Development Bank
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organization
NPC	National Population Commission
NPAFS-PSO	National Programme for Agriculture and Food Security Programme Support Office
PEU	Planning and Evaluation Unit
RBRDA	River Basin and Rural Development Authorities
RCD/CDD	Rural Community Development/Community-Driven Development

REDFLS	Rural Enterprise Development and Financial Linkage Services
REFILS	Research Extension Farmer Inputs Linkage System
RTEP	Root and Tuber Expansion Programme
RUFIBP	Rural Finance Institutions Building Programme
RUMEDP	Rural Micro Enterprise Development Programme
SAD	Sustainable Agricultural Development
SRLF	Sustainable Rural Livelihood Framework
SSO	State Support Office
UNCCA	United Nation Common Country Assessment
UNDP	United Nation Development Project
VA	Village Area

ABSTRACT

The International Fund for Agricultural Development Community Based Agriculture and Rural Development Project (IFAD-CBARDP) was an integrated agriculture and rural development programme. This study assessed the impact of IFAD-CBARDP on the livelihood of smallholder crop farmers in Katsina State. Multistage sampling technique was used to select the respondents. The first stage involved a purposive sampling of one village that had the highest number of participating farmers out of the three villages in each Local Government Area. The second stage involved the use of systematic random sampling technique to select 12% from 2894 participating farmers from the twelve participating villages, which gave a sample of 349 participating farmers. Also, 349 non-participating farmers were selected using systematic random sampling from the neighbouring communities to serve as control group, this gave 698 respondents. In addition, 3 IFAD-CBARDP officials from each LGA were randomly selected as respondents. Data were analysed using descriptive statistical analysis, logistic regression analysis, chow and z-test statistics. Findings revealed that the average ages of the participating and non-participating farmers were 46 and 48 years respectively. Majority (91%) and (99%) of the participating and non-participating farmers respectively were males. On the level of involvement of the participating farmers in the project, findings revealed that very few participating farmers (9%, 15% and 19%) collaborated in development of local plans, conducting need assessment and identification of priority public infrastructure respectively. The result also revealed that level of education (-0.309), sex (-0.283) and household size (-0.041) had negative co-efficients and were significant at 1% level, while farm size (0.801), membership of cooperative (0.547) and extension contact (0.583) had positive co-efficients and were significant at 1% level of probability. Findings revealed that 87.2%, 83% and 82.73% of the respondents respectively adopted the use of recommended fertilizer, method and dosage of fertilizer application and the use of seed dressing chemicals. Findings also revealed that the project had a positive impact on the yield of participating farmers with a yield differential of 84.44% over that of the non-participating farmers. Finding further showed that the project had a positive impact on the income of the participating farmers with a mean difference of ₦ 27,556.22 over that of the non-participating farmers. Findings also showed that 16.9%, 15.2% and 14.6% of the respondents respectively identified low counterpart funding, untimely disbursement of funds and inadequate mobility of extension staff as the major constraints to the effective implementation of the programme. The study also found that 16.1%, 16.0% and 15.7% of the respondents respectively identified inadequate capital, inadequate agricultural credit and inadequate storage facilities as the major constraints to the effective participation in the programme by the participating farmers. It was concluded that the adoption of IFAD-CBARDP recommended farming practices had increased the yield, income and level of living of the participating farmers. Based on the success of this project in the study area, it was recommended that it should be scale out, to the neighbouring villages in the study area and beyond by the stakeholders.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Majority of the world's extremely poor people live in rural areas and have livelihoods which are bound closely to smallholder agriculture as farmers, labourers, transporters, marketers and processors of produce and as suppliers of non-agricultural services to households whose income is principally agriculture-derived (Jonathan, 2002). Approximately 1.5 billion people are engaged in smallholder agriculture across the world. They include 75% of the world's poorest people, whose food, income and livelihood prospects depend on agriculture (Andrea, 2014). In Nigeria, agricultural production which is the major livelihood activity for the rural dwellers is still largely practiced at subsistence level, due to the fact that most of the farmers are smallholder farmers who use unimproved inputs and traditional production tools that are capable of generating only very small income. Food production in Nigeria, for example depends mostly on the smallholder farmers who are often characterized by use of unimproved farm implement and traditional production tools that are capable of generating very small income for the farmers. This cycle is often referred to as "vicious cycle of poverty" which implies that a farmer is poor because he is unable to save and invest (Nafziger, 1994).

Peasantry is the dominant mode of agricultural production and livelihood in Nigeria with over 70 percent of the population engaged in agricultural activities as a career and largely feeding the nation (Atala *et al.,* 2012*).* According to them, extension can be a powerful instrument for transformation of the country`s agricultural industry and eradication of extreme poverty and hunger in the rural areas. Poverty reduction in Nigeria will not be possible without rapid agricultural growth. Over the years, rural development in Nigeria has been closely associated with agriculture. This is not surprising as agriculture is the

most important sector in the whole development process. Agriculture still remains the mainstay of the economy of most African states of which Nigeria is among. Yet current estimates indicate that some 200 million people or 28% of Africa's population is chronically hungry (NEPAD, 2004). High population growth rate, which leads to increase in demand for agricultural production, natural and human disasters such as drought, floods and land degradation, as well as civil conflicts in some parts of Africa, contributes to this alarming situation.

In an attempt to improve the quality of life of the people living in the rural areas and to reduce their level of poverty, the Nigerian government has put in place several agricultural development programmes such as the Agricultural Development Projects (ADPs) River Basin and Rural Development Authorities (RBRDA) Extension Programmes and the establishment of Research Institutes. In relation to this, Ijere (1992) asserted that the Nigerian government had made effort in transforming the rural areas through various policies programmes. Most of the efforts failed due to "top-down non participatory approach in which development programmes are structured regardless of people's opinions or their felt needs" Ijere (1992). Oyedikun (2003) noted that 70% of Nigerians live below poverty line and survive on less than $1(₦180.00) per day.

Babatunde (2006) saw poverty as the denial of choices and opportunities most basic to human development to live a long, healthy and creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect of others. Babatunde (2006) reported that the concern over increasing poverty levels especially in the developing countries such as Nigeria and the need for its alleviation as a means of improving the standard of living of the people has led to the conceptualization and implementation of various targeted or non-targeted poverty alleviation programmes worldwide. An example of this is the

International Fund for Agricultural Development - Community Based Agriculture and Rural Development Prgramme (IFAD- CBARD) Programme. Poverty is mostly widespread in the northern part of Nigeria. Previous studies have shown that about 80% of Nigeria's poor are found in the northern part of the country and they are engaged in agriculture (Babatunde, 2006). Hence, it becomes imperative that appropriate policy measures aimed at alleviating poverty must take agriculture and rural development into consideration. Poor families are in higher proportion in farming households who are mainly in the rural areas (FOS, 1999). One major way of alleviating poverty is increasing the farmers' agricultural output and enhancing their livelihoods.

The International Fund for Agricultural Development (IFAD) was established as an international financial institution in 1977 as one of the major outcomes of the 1974 World Food Conference. The main goal of the project is to empower poor rural women and men in developing countries to achieve higher incomes and improved food security (Bukar, 2005). The project seeks to ensure that poor rural people have better access to, and the skills and organization they need to take advantage of:

i. Natural resources, especially secure access to land and water, and improved natural resource management and conservation practices.

ii. Improved agricultural technologies and effective production services

iii. A broad range of financial services

iv. Transparent and competitive markets for agricultural inputs and produce

v. Opportunities for rural off-farm employment and enterprise development

vi. Local and national policy and programming

The International Fund for Agricultural Development (IFAD) support to the Nigerian Government's poverty reduction programme in rural areas targets large numbers of smallholder farmers and is essentially people-centred. IFAD supports programmes and projects that work with communities, with smallholder farmers as the key players. The organization also promotes commodity-based interventions that provide technical and financial support along several value chains – such as livestock products, rice and other cereals, roots and tubers, vegetables and agro forestry products (IFAD, 2013).

The objectives are to empower poor rural people, especially women, by increasing their access to resources, infrastructure and services; and to promote the management of land, water and common property by local communities, helping to overcome environmental degradation. IFAD-supported programmes and projects address issues such as erosion and the loss of soil fertility, as well as coastal zone natural resource management.

IFAD directs assistance towards:

i. Empowering small-scale farmers, landless people and rural women to generate sustainable incomes from farming and other activities

ii. Supporting pro-poor reforms and local governance to expand access to information, effective transport systems, village infrastructure and technology

iii. Improving access by poor rural communities to financial and social services.

At the government level, IFAD helps build capacity and strengthen institutions that provide services to poor rural people. It assists with necessary policy changes, developing local organizations to enhance their effective participation, and it promotes initiatives to foster rapid poverty reduction and economic growth led by the private sector (IFAD, 2013).

The International Fund for Agricultural Development Community Based Agriculture and Rural Development Programme (IFAD-CBARDP) was an integrated agriculture and rural development programme. The programme was launched on 31st January 2003 with a completion date of 31st march 2013 in eight states of northern Nigerian where poverty is widespread namely; Jigawa, Kano, Katsina, Kebbi, Sokoto and Zamfara in the north-west, and Borno and Yobe in the north-east (Bukar, 2005). It builds on the project previous experience with implementing community-based projects in the northern states of Sokoto and Katsina, and its objective is to help the most vulnerable groups improve their incomes and living conditions.

The major objectives include-

i. the improvement of the livelihoods and living conditions of the rural poor with emphasis on women and other vulnerable groups;
ii. empowerment of poor rural communities to enable them identify their needs, implement a broad range of agricultural and rural development (ARD) initiatives, and
iii. Institutionalise and internalise community-driven development (CDD) into government policies and procedures.

The programme targets a large section of the rural population, especially women, landless people, nomadic pastoralists and small-scale farmers, and those with only marginal lands.

It was designed to empower these groups to participate in development activities. Specifically, the programme works to:

i. Promote awareness and build the capacity of public and private-sector service providers to respond to the needs of poor rural women and men.

ii. Empower poor communities to manage their own development and support vulnerable groups.

iii. Improve agricultural practices, resolve conflicts between farmers and pastoralists, and intensify crop and livestock production.

iv. Develop or upgrade safe water supplies, environmental sanitation, irrigation, and health and education facilities

1.2 Problem Statement

Smallholder agriculture is presently a key sustainer of the majority of the world's poorest people Jonathan (2002). However, available statistics have shown that high population growth rate has led to increase in the demand for agricultural products in the country, (Abullahi, 1986). This problem therefore made government to import some food and raw materials in order to augment this shortage in supply. This has tremendously worsened the condition of the smallholder farmers in the country as well as affected food and cash crop production in the country. It is also a well- known fact that agriculture in Nigeria provides food and bulk of employment and income for the populace. However, after fifty one years of independence, Nigeria is still battling with an agricultural sector characterized by food shortages and inconsistent agricultural policies with majority of the farmers living below poverty line (IFAD, 2011). With about 70% of the country's food produced by smallholder

farmers cultivating plots of land of less than 1.5 hectares, the agricultural sector accounts for 33% of the country's GDP (IFAD, 2011). Despite this, poverty is still a major problem in the country particularly in the rural areas where social services and infrastructure are limited. Farmers are highly dependent on rain-fed farming, with only 7% of land under irrigation (IFAD, 2011). Awolabi (2004) noted that despite the attack on persistent poverty in Nigeria and the progress during the past decade, the battle is far from being won, and progress has been slower than had been hoped at the beginning of the 2000s. Of course, the fight against poverty has not yet yielded any appreciable result considering the pervasive dimensions of mass poverty and its consequences in the country.

In tackling the rural poverty problem, after several conferences, summits and resolutions, the United Nations in September 2000, adopted a new global partnership to reduce extreme poverty by the year 2015. This has become known as the Millennium Development Goals (MDGs), which has been premised on eight goals (NEPAD, 2004) viz: (i) Ending poverty and hunger, (ii) Universal education (iii) Gender equality, (iv) Child health (v) Maternal health, (vi) Combat malaria and HIV/AIDS, (vii) Environmental sustainability, and (viii) Global partnership. IFAD's work on the eradication of rural poverty in Nigeria fits in with MDG 1. In this regard, IFAD's programmes implemented in Nigeria to improve the incomes and living conditions of the rural poor are : i) Roots and Tubers Expansion Programme (RTEP) ii Community-Based Agricultural and Rural Development Programme (CBARDP) iii Community-Based Natural Resource Management Programme (CBNRMP) iv Rural Finance Institutions Building Programme (RUFIBP) and v Rural Micro Enterprise Development Programme (RUMEDP). One major component of the programme is the empowering of poor rural communities to have the capacity to plan, implement, monitor, and evaluate their development activities as well as make service providers more responsive to their demand. The programmes also support vulnerable groups such as

women, youth and the landless and made available a community development fund to support community initiatives in sustainable livelihood improvement (e.g. sustainable agriculture, rural enterprise, natural resource management and the provision of small-scale community infrastructure). In addition to Goal 1 (Eradicate extreme poverty and hunger), IFAD also contributes to Goal 3 (Promote gender equality and empower women) by supporting projects that increase women's assets (such as land, credit, access to quality of life, improving technologies, leadership and literacy skills and participation in project decision making. IFAD's work also contributes to goal 6 (Combat HIV/AIDS, malaria, and other diseases in the field) and goal 7 (Ensure environmental sustainability). IFAD supports interventions that promote access to natural and productive resources; land reform and secure tenure; productivity increasing farm technologies; wide participation in sustainable natural resource management; rural finance schemes; access to sustainable use of water for irrigation.

For the Nigerian government to realize its Millennium Development Goal of halving poverty by the year 2015, the government passionately committed itself to partner with the United Nations under the New Partnership for African Development (NEPAD) and the International Fund for Agricultural Development (IFAD). This gave birth to the IFAD – Community based Agriculture and Rural Development Project in Nigeria. The programme aimed at the improvement of the livelihoods and living conditions of the rural poor with emphasis on women and other vulnerable groups like children, unemployed youth, widows, young couples, women headed households, physically challenged, the sick and the aged. It is jointly founded by the International Fund for Agricultural Development (IFAD), Federal Government of Nigeria (FGN), seven (7) participating states of Borno, Jigawa, Katsina, Kebbi, Sokoto, Yobe and Zamfara, and sixty nine (69) Local Government Area Councils and two hundred and seven (207) rural communities. The programme

became effective on 31 January, 2003 with a completion date of 31 March, 2010. The programme consists of three main components: -

(i) Programme Management and coordination

(ii) Capacity Building/Awareness and

(iii) Community Development Fund to finance support services as well as infrastructure at community level.

The programme has the following broad objectives:

(a) Empowering poor rural women and men to critically analyse their constrains, opportunities and support requirements; and also to increasingly or effectively manage their own development;

(b) Support institutionalization of the policies and process, create awareness and develop the capacity of public and private sector service providers to become more relevant and responsive to the rural poor women and men;

(c) Support balanced sustainable social, agricultural and economic development interventions for appropriate village women's and men's groups and individuals.

The Nigerian Government and IFAD have spent huge sum of money over the years to finance agricultural development through the adoption of Community Based Agriculture and Rural Development Programme (CBARDP) development strategy in the programme areas. Yet, poverty seems to persist among most of the rural families with clear evidence of gender marginalization in some of the programme areas (Bukar, 2005). Significant proportion of the farming population depends on the government and donor agencies for improved production technologies, inputs and credits. Also, despite the existence of the

IFAD Community Based Agriculture and Rural Development Project in Katsina State for over ten years, it is not clear whether the contribution of this project has made any remarkable impact on the livelihood of the participating and non-participating farmers in the study area. It is on this basis that this study aimed at examining the impact of IFAD-Community Based Agricultural and Rural Development Project on the livelihood of smallholder crop farmers in Katsina State of Nigeria in order to provide answers to the following research questions.

i. What are the socio-economic characteristics of the smallholder crop farmers in the study area?

ii. What is the level of project implementation and involvement of the target beneficiaries?

iii. What are the socio-economic factors influencing farmers participation in the project?

iv. What is the level of adoption of IFAD-CBARDP recommended farming practices by the participating farmers?

v. What is the impact of the programme activities on the yield, income and level of living of participating farmers?

vi. What are the major constraints to the effective implementation and participation in the programme by the target beneficiaries?

1.3 Objectives of the Study

The broad objective of the study was to determine the impact of the IFAD- Community Based Agricultural and Rural Development Programme activities on yield, income and

level of living of participating and non-participating smallholder crop farmers in the study area. The specific objectives were to:

i. describe the socio-economic characteristics of the smallholder crop farmers in the study area;

ii. assess the level of project implementation and involvement of the target beneficiaries;

iii. determine the socio-economic factors influencing farmers participation in the programme;

iv. examine the level of adoption of IFAD-CBARDP recommended farming practices by the participating farmers;

v. determine the impacts of the programme activities on the yield, income and level of living of participating farmers, and

vi. identify the major constraints to the effective implementation and participation in the programme by the target beneficiaries.

1.4 Justification of the Study

The emphasis placed by the three tiers of government in the country on agricultural development and the need to improve the living conditions of the smallholder farmers in the country through poverty alleviation and enhancement of rural livelihood as well as the desire of the government to achieve the objectives of the Millennium Development Goals particularly that of eradicating poverty by the year 2015, justify the need for this study. However, the impact can easily be determined when the income, living standard and livelihoods of the farmers in the project area are evaluated. Agriculture is the mainstay of

rural livelihoods and social fabric and still account for about 45% of GDP and 60 – 70% of employment, but its importance is declining in the face of growth of other sectors and diminishing returns (IFAD, 2011). Limited accessibility to inputs, equipment, new technology, and markets kept agricultural productivity low. Small farmers are also more acutely affected by exogenous factors such as climate change and rising commodity prices (IFAD, 2011).

Most of the farmers in Katsina State are smallholder farmers that depend mostly on agriculture for their livelihoods. They rely on income from this occupation to finance their investments and domestic needs. Income from agriculture also affects the savings ability of the farmer which invariably determines his or her ability to increase their scale of production. Also, the income generated from agriculture by the smallholder farmers affect their ability to provide their children with formal education and training, which will enhance their ability to respond to innovation and adopting them. Smallholder farmers are often important producers of semi-tradable foodstuff that tend to be consumed by the poor. Smallholder agriculture is presently a key sustainer of the majority of the world's poorest people, so the dynamics of smallholder agriculture ought to be a central question for research and debates about development, Jonathan (2002).

The study therefore would provide information on the contribution of the programme towards agricultural development in the country and living standard and livelihood of participating farmers in particular. The findings are intended to furnish IFAD, Federal, States and Local Government as well as extension agencies, researchers, policy - makers, and Non-Governmental Organizations (NGO_S) with useful information on the livelihoods of smallholder farmers to enable a refocus of activities for the benefit of Nigerian farmers.

By determining the factors that influence farmers participation in IFAD-CBARDP activities in the study area, this work would provide guidance to the IFAD-CBARDP stakeholders. As such, the added knowledge on which factors have the greatest influence on IFAD-CBARDP participation will help administrators make more informed decisions on how to promote IFAD-CBARDP recommended agronomical practices within the study area and beyond.

The findings would also influenced policy makers and non-governmental organizations that are involved in agricultural extension activities thereby resulting in proper planning, designing and execution of more appropriate agricultural extension programmes and projects that would be demand driven, participatory and goal oriented.

1.5 Hypotheses

The null hypotheses tested in this study were:

Ho_1: Farmers' socio-economic characteristics have no significant influence on participation in the project.

Ho_2: The IFAD-CBARDP has no significant impact on the yield, income and level of living of the participating farmers in the study area.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Concept of Rural Development

Agricultural Development has been a major concern to most developing countries within the last two decades (Stella, 2012). Rural Development is the bedrock of agricultural development in developing countries (including Nigeria) where most farmers are involved in subsistence agricultural practice. Obinne (1997) defined rural development as a process of creating and widening opportunities for individuals to realize full potential through education and share in decisions and action, which affect their lives. Idachaba (2000) defined rural development as a means of providing basic amenities, infrastructure, improved agricultural productivity, extension services and empowerment generation for the rural dwellers. Olayide (1980) defined rural development as a process whereby concerted effort are made to facilitate significant increase in rural resources and productivity with the central objective of enhancing rural income and crating employment opportunities in rural communities for rural dwellers. Hence, it is an integral approach to food production, provision of physical, social and institutional infrastructures with an ultimate goal of bringing about good healthcare delivery system, affordable and quality education, improved and sustainable agriculture etc.

Ladele (1990) defined rural development as a cyclic process involving analysis of the current situation, policy, modeling and implementation of measures to be used. He further opined that the programming of rural development is very essential for any agrarian economy. He further stated that the greatest empowerment that could benefit rural folks is education and information. Extension education therefore will serve as an essential tool for the attainment of sustainable rural development.

Banji *et al.* (2011) defined rural development as the improvement of the living standards of the low-income population living in rural areas to a self sustaining basis through transformation of socio-spatial features of their productive activities. The national policy on integrated rural development (2006) defined rural development as a strategy and process designed to transform the nations rural life and landscape by ensuring progressive social, economic, cultural, and political improvement. It stresses a fundamental principle that the rural people must share fully in this development process through equitable access to resources, inputs and services and participation in the design and implementation of development programmes. Meaningful development of rural people must be on a sustaining basis, through transforming the socio-spatial structures of their productive activities. It implies a broad-based organization and mobilization of the rural masses to enhance their capacity to cope more effectively with the daily tasks of their lives.

Williams (1985) conceived rural development not as mere agricultural and economic growth alone, but as the creation and fair sharing of social and economic benefits resulting from this growth. In this view is implied a massive effort to increase production, create and spread employment, and root out fundamental causes of poverty, disease and ignorance. This view implies a modernization, which would not only increase the productive capacity but also change attitudes, replacing the sense of dependence on the natural environment by the desire and ability to manipulate it. An economic base is to be established which would generate progressively higher levels of production and living. The ambit of rural development is therefore very wide which includes generation of new employment; more equitable access to arable land; equitable distribution of income; widespread improvement in health, nutrition and housing; maintenance of law and order; creation of incentives and opportunities for saving, credit and investment (Williams, 1985). It also involves creating wider opportunities for individuals to realize their full potential through education and

sharing in the decisions and actions which affect their lives. Rural development is not sectoral, but a comprehensive process involving interacting forces. In essence, rural development is designed to achieve the following:

- improve the living standards of the subsistence population.
- enhance mass-participation by allocation of resources to low income classes.
- develop appropriate skills and implement at local, regional and national levels for use of the low income people in the rural areas.

According to Ekon (2003) rural development is a process through which a set of technical, social, cultural and institutional measures are implemented with and for the inhabitants of rural areas with the aim of improving their social-economic conditions in order to achieve harmony and balance both on the regional and national levels. Idachaba and Olayide (1980) defined rural development as the outcome of a series of qualitative and quantitative changes occurring among a given rural population and whose covering effects indicate, in time, a rise with standard of living and favourable changes in the way of life of the people concerned. It does not mean isolated programmes of 'community development', health, mass education, agricultural extension, health and nutrition extension or any of the other terms applied to sectoral programmes which are carried out in the rural areas or within the rural community. It therefore means a comprehensive development of the rural areas. The idea of comprehensiveness further led to the popularization of the term "Integrated rural development" which according to Ekon (2003) presupposed the recognition of a rural-urban continuum and the implication that the rural areas cannot be considered in isolation but in relation to the urban counterpart for it is in this sense that the problems of rural-urban migration, rural exodus and agricultural and industrial development can be tackled.

Declining basis indicators of poverty and experience from previous projects and field observations indicate that poverty in rural areas in the northern regions of Nigeria is becoming more widely entrenched. Traditional approaches to poverty alleviation through rural development including projects focusing on a small area, cannot have a major impact on poverty as they; cannot mobilize sufficient external resources to assist a large target group, do not ensure a high proportion of funds to reach the target groups; do not make use of existing government programmes and resources; and have been set up outside government process so that even successful models have difficulty of sustainability once project funding is finished (IFAD, 20I0). To address this current decline, a new approach is required to mobilize and redirect existing resources at community, local and state government levels to improve the effectiveness of rural development in northern Nigeria. It is against this background that development using the community driven development approach was formulated. States of Jigawa, Kano, Katsina, Kebbi, Sokoto and Zamfara in the northwest and Borno and Yobe in the northeast implemented the programme in the seven states with Kano abstaining from taking the loan but adopting the approach.

2.2 Community-Based Agriculture and Rural Development Project in Nigeria

Community based organizations are formal voluntary social groups that are found in the community, which differ widely in terms of their sizes, objectives and degree of interaction among members (Akinloye *et al.*, 2011). According to Ekong (2003) community-based organizations are formed for the purpose of projecting and promoting common interest of people in the field of politics, economics, agriculture, religion, society, recreation and enjoyment. According to Jibowo (1992), formal voluntary association posses some characteristics such as established offices holding periodic meetings regularly as agreed upon by members; establishing criteria for individuals to qualify as members; have formalized activities through division of labour among members and usually have a

constitution which governs their operations. Studies have shown that community-based organizations (CBO) have been part of every community in Nigeria (Fakoya *et al.,* 2000; Awa and Ema, 1992; Anyanwu, 1992; Adejumobi, 1987). This is based on the principle of "self reliance" and "citizen participation", which need active participation and cooperation of the people in activities that will make their communities a better place to live. Many local community-based organizations play very active role in rural agricultural extension. The principle of decentralization which empowers communities to take their destiny in their hands has been seriously upheld by the Nigerian government since 1986 (Auta *et al.,* 2007) when private sector has been called upon to play active role in job creation, provision of social services and welfare packages for their members. Since then, community–based organizations have been part and parcel of many community development projects that will make their communities a better place to live.

The Community-based Agricultural and Rural Development Project used agricultural extension as the main vehicle for realizing its main goals. This usually centers on improving agricultural production, improving living standard of the rural people and enhancing livelihood and rural development. Adedoyin (2002) defined extension as a comprehensive programme of services deliberately put in place for expanding, strengthening and empowering the capacity of the present and prospective stakeholders. The stakeholders are usually farmers, farm families and other rural economic operators such as processors, marketers, rural agro-industrialists, farm managers and farm labour force for sustainable agricultural productivity and improved livelihood of farmers in the rural communities, a modern extension method that is capable of enhancing the aforementioned is therefore required. As such, the Community Based organization extension strategy which is a farmer centered strategy that is capable of developing agriculture through the farmers themselves with their own resources and assistance of other

stakeholders must be adopted. This strategy would not only develop agriculture but eventually remove the ugly socio-economic situations described by Adedoyin (2004) as a result of weak agriculture in spite of abundance resources in Nigeria. This community based extension strategy otherwise known as the farmer-centered extension strategy is based on participatory methodology involving all stakeholders, farmers' needs, input services through services providers, and collaboration between government organizations and Non-governmental organizations (Farinde, 1995). Participation of the people has been the indigenous mechanism and technique developed and employed by the people to identify their pressing needs. Today, many people have constituted themselves into development associations, farmers co-operatives, cultural unions, non-governmental organizations (NGO's) and community based organizations (CBOs) with the aim of mobilizing resources to improve their social economic and cultural conditions (Yahaya, 2005). The Catholic Diocese, the Evangelical Church of West Africa (ECWA) and a host of communities have Community Development Associations (CDAs) and Community Based Organization (CBOs) which are focused on improving the welfare of rural communities (Akpoko *et al.,* 1998). Several factors can be deduced for the renewed interest in the potential contribution of NGO's and the organized private sector in rural development; government institution have poor records about rural areas, including the giving out of inadequate credit and technical assistance. Cornea (1981) noted that NGOs are closer to the rural population than the government. This is usually due to the fostering of popular participation, which include articulating the needs of the weak, working in remote areas, changing the behaviour and attitudes of local people.

Oakley (2002) saw participation as the involvement of significant number of rural people (project beneficiaries) in decision-making process. While the Food and Agricultural Organization (FAO), considers participation as contribution by the people to public

programes to the complete exclusion of any involvement in the entire decision making process. The Food and Agricultural Organization (FAO), emphasized participation in all decision making process but by the people's own organization and through self organized action. Participation in development is sought the world over because there has been consensus on its usefulness in development of projects. Some of its usefulness or advantages include effective utilization of available resources and allowing people and other agents to work together towards achieving their objectives. It is also effective because lack of peoples' involvement in project development as it is the case with some government projects has been identified as one of the major causes of failure of most entrepreneurial projects. In addition, it leads to self reliance because it does not create a kind of dependency syndrome whereby the people will be looking at the government for solution to their problems. It also covers the vulnerable section of the society thereby guarantying sustainability and ownership.

Community- Based Organizations are expected to play a vital role in their communities by contributing their quota towards the socio-economic progress and advancement of their communities. It is a well-known belief that there is no government however benevolent, paternalistic or well meaning, which can boast of the capacity to provide all the multifarious needs of all its citizens. It is obvious therefore, that the best way to enhance sustainable agricultural and rural development that is targeted towards improving agricultural production, living condition of the rural populace and enhanced livelihood, lies in the active participation and commitment of the people.

Akinloye *et al.* (2011) classify Community-Based Organization in Nigeria into twelve (12) twelve. They are categorized according to their compositions and functions. They include community development associations (CDAs), cooperative societies, town/village

improvement/development unions, occupation/professional association, age grade groups/association, youth association, trade and commercial associations, religious organizations, gender groups, indigene, clubs/societies, tribal or ethnic groups/association and other local groups. These local groups are involved in such activities as agricultural extension services, crop/livestock production and processing, marketing, commerce, arts and small-scale industries, vocational and trade skills, rural transportation and other rural economic activities. Community-Based Organizations have in many communities contributed positively to various levels of development in the communities. Some of the contributions include acting as change agent or medium, mostly when it comes to spreading agricultural information among farmers in the rural communities, mutual aid for members, financial assistance to members. They collaborate in joint production endeavour such as contributing in cash, labour and materials to aid development project being undertaken in the community. Generally, the prospect of Community-Based Organization revolves around the improvement of the condition of living and livelihood of community members.

The International Fund for Agricultural Development Community Based Agriculture and Rural Development Programme (IFAD–CBARDP) was formulated in February 2001, negotiated in September, 2001 and approved for a loan of $ 29.9 million (₦ 3,289) on September 13, 2001. The programme loan agreement was signed on December 11, 2001. The programme was initially declared effective on January 31, 2003 conducted midterm review in April, 2007 and had March 31, 2010 and September 30, 2010 as completion and closing dates respectively. The programme was approved a three-year extension with effect from April 1, 2010. The extension completion and closing dates were March 31, 2013 and September 30, 2013 respectively. The disbursement effectiveness date was December 13, 2010 (IFAD – CBARDP, 2011). The programme was jointly funded by international fund

for Agricultural Development (IFAD) Federal Government of Nigeria, and seven (7) participating states of Borno, Jigawa, Katsina, Kebbi, Yobe, Sokoto and Zamfara, sixty nine (69) local government area councils (within 7 states) comprising two hundred and seven (207) Community Rural Village Area Councils. The predominant occupation within the programme area is peasant/small scale Agriculture of mainly crops and Livestock. The purpose of this Programme is to harness the resources contributed by the stakeholders and channel such resources to the target beneficiaries (in the communities) in order to: -

- Empower poor rural women and men (including youth, disabled and the old) so as to examine and analyze their constraints, prospects and support requirements to effectively and efficiently manage their own development in a sustainable manner.

- Promoting institutionalization of Programme policies and processes on one hand and the creation of awareness and developing capacity of public and private sector service providers to become more relevant and responsive to the needs and requirements of the rural poor women and men on the other hand and

- Supporting balanced and sustainable social, agricultural and economic development interventions for women and men mainly on groups, based on guiding principles of the Programme.

The programme has a target beneficiary of four hundred thousand (400,000) rural households (about three million individual beneficiaries) and about twelve million people in the long run. However, with expansion, the programme is estimated to directly benefit seven hundred and twenty thousand (720,000) rural household (about 5.5m individual beneficiaries) and will impact on about eighteen million people in the long run. There is

hundred percent programme approach buying by Kebbi and Zamfara States, directly financing the remaining local government and village areas. State like Sokoto, has some local government areas buying in and or expanding the participating village areas. At the National level, there is a National programme for Agriculture and Food Security Programme Support Office (NAPFS – PSO) situated in Katsina, Katsina state and headed by a national programme coordinator. The national programme coordinator coordinates the overall implementation of the programme across the participating states. The federal government borrower is the Federal Ministry of Finance (FMF) while the lead implementation agency is the Federal Ministry of Agriculture and Rural Development (FMARD). At the state level, there is the State Support Office (SSO) with similar components found at the National Programme for agriculture and food security programme support office and headed by a state programme officer. At the local government level, there is a planning and evaluation unit (PEU), headed by a planning officer under the local government chairperson for coordinating the programme activities at the local government area and community level within the targeted village areas.

Project implementation at the community level is guided by the specialized extension agents, the Community-Driven Development Team (CDDT) members and Rural Enterprise Development and Financial Linkage Services (REDFLS) Agents. The programme consists of three main components, namely, programme management and coordination, the Awareness and Capacity Building (ACB) and Community Development Fund (CDF). There were eight sub-components amongst these components namely: - Sustainable Agriculture Development (SAD), Rural Enterprise Development and Financial Linkage Services (REDFLS), Community Infrastructure (CI), Rural Community Development/Community-Driven Development (RCD/CDD), Gender and Vulnerable

Group Development (GVGD), Capacity Building Management and Training (CBM&T), Monitoring and Evaluation (M&E) and Finance.

The Federal Government and International Fund for Agricultural Development (IFAD) have great concern about the depth and severity of poverty in northern Nigeria and have placed strong emphasis on poverty reduction through directing attention and resources to the needy categories of the population. Poverty is particularly wide spread in rural areas. Rural population has limited access to the basic social services, to safe water, to all year passable roads, to electricity and good health delivery services. Amoako (2003) posited that over the last fourteen years, the number of people in Africa living below the poverty line has increased by 50%. The majority of Africans still face widespread rural poverty, worsening food insecurity, and degradation of the resources on which their farming systems depend.

Conway et *al.* (2003) stated that today, half the population of Africa – 340 million people, live on less than a dollar per day, 60% of people over the age of 15 are illiterate and 42% of the population lack access to safe water, 31% percent of the population (194 million people), most of them women and children, are undernourished. These conditions are linked to a mortality rate in children less than 5 years of age of 140 per 1000, and life expectancy at birth of only 54 years. Ekpo (2008) posited that poverty exists in multidimensional scales in rural communities in Nigeria. Many households can hardly afford three square meals; so many children of school age are not in school but are out in the street hawking. To so many communities, portable drinking water is still lacking; other social overhead amenities like electricity, good roads, good communication network, etc are lacking; employable youths are jobless and crimes often find their idle hands useful; housing to many Nigerians means dilapidated, thatched roofs where squalor knows no

bounds. Poverty is a condition of living that is characterized with lack of the basic necessities of life. Specifically, poverty is "a state of being poor. Aigbokhan 2000, cited in Ekpo (2008) defined poverty as "the inability to achieve certain minimal standard of living". In view of the above, the idea of intervention with funds and capacity building of the communities came up, hence the Community Driven Development (CDD) approach.

2.3 Community Based Agriculture and Rural Development Project Activities in Nigeria

The Community-based Agricultural and Rural Development Project used agricultural extension as the main vehicle for realizing its main goals. This usually centers on improving agricultural production, improving living standard of the rural people and enhancing livelihood and rural development. To achieve this, the project developed the following activities.

2.3.1 Formation of community groups

One of the most crucial elements in group work process is the formation of the group itself. Community group is a social group formed by a group of people in the community to share certain values and norms and identify with each other more than with those outside the group. "Social group" refers to aggregate or categories of persons who have a consciousness of belonging or membership and interaction. The word "aggregate" refers to a number of people held together in some physical sense but not interacting with each other (Ekong, 2003). Community groups are appropriately formed along common economic and community benefits. The groups cover all the wards of a participating village area (VA) and economic activities with emphasis on small-scale enterprises and community development activities. Each group operates its own account in an accepted Bank, being run and managed by the elected officials of the group. Each community group

keeps basic files where copies of all information and records of groups' activities are kept. This could be at the village office or in a secure place at a member's home.

In order to harmonize the activities and management of groups, a Community Development Association (CDA) is formed. It is basically made up of an elected representative of each of the groups formed. To operate a decentralized and participatory management of the community activities/projects, implementation committees are usually formed directly from the Community Development Association (CDA) members only in a balanced manner taking into consideration experience/relevance, wards/groups representation, trade and gender. In this way, members are expected to always report back, consult and forward feedbacks of the groups they are representing on the Community Development Association activities. Committees are to always present reports of their activities, next plan and support (financial, administrative and policy) requirements at Community Development Association meetings for collective decision or approval. Officials for development implementation committees are elected from the Community Development Association members, and usually they are to serve for two years. To ensure effective transparency and accountability as well as sustainability, new officials are elected. There should also be an advisory body chaired by the village head comprising wards heads, religious and community leaders. The main function of this body is to advise and support the activities of the Community Development Association

2.3.2 Sustainable agricultural development

Sustainable development provides a framework under which communities can use resources efficiently, create efficient infrastructures, protect and enhance quality of life, and create new businesses to strengthen their economies. It can help us create healthy communities that can sustain our generation, as well as those that follow ours. Sustainable

development therefore must meet the needs of the present without compromising the ability of future generations to meet their own needs (Solomon, 2009). The sustainable Agricultural Development Services assist group of farm household to investigate, develop and adopt locally appropriate land husbandry practices within their individual farm holdings (both upland and wetland), communal grazing and woodland areas and settlement areas. Following participatory assessment of community land management problems and farm production, including those aimed at:

i. Crop development, improved animal husbandry, bee keeping and fishing;
ii. Improved soil, land and water management practice; and
iii. Conflict resolution between farmers and pastoralist.

The Farmer Field School (FFS) was a major activity of sustainable agricultural development in most of the states. The farmer field school was developed by FAO project in South East Asia as a way for small-scale rice farmers to investigate, and learn, for themselves the skills required for, and benefits to be obtained from adopting farm practices in their paddy fields. The term "farmers' field school" comes from the Indonesian word "Sekolah lampagan" meaning "field school". The first field schools were established in 1989 in Central Java during the pilot phase of the FAO – assisted National IPM programme. Food and Agricultural Organization (FAO, 2008) described farmer field school (FFS) as a platform and "school without walls" of farming communities and simulating local innovation for sustainable agriculture. It is a participatory approach to extension where farmers are given opportunity to make a choice in the method of production through discovery based approach. A field school is a group extension method based on adult education methods. It is a "school without wall" that teaches basic agro-ecology and management skills that make farmers experts in their own farms. The major concept behind the farmer field school is that, it is the farmer who undertakes activities to

convince oneself about the relevance of particular technologies with extension workers acting as facilitators who only take part in discussion amongst farmers in order to arrive at a particular consensus. Subject matter specialist/scientist is an adviser or colleague of the farmers. This implies that the activities are always consistent with learner's conditions and that learning materials are learner generated (Khisa, 2004).

The programme aimed at increasing the capacity of group of farmers to test new technologies in their own fields, assessing results and their relevance to their particular circumstances and interacting on a more demand driven basis with the researchers and extensionists considering these for help where they are unable to solve a specific problem among themselves. In summary, therefore, a farmer field school (FFS) is a forum where farmers and trainers debate observations, apply their previous experiences and present new information from outside the community. The result of the meetings is management decisions on what action to take. Thus farmer field school, as an extension methodology is a dynamic process that is practiced and controlled by the farmers and is designed to transform their observation and to create a more scientific understanding of the crop/livestock agro-eco system. The broad objectives of the farmer field school are to bring farmers together to carry out collective and collaborative inquiry for the purpose of initiating community action to solve community problems. Khisa (2004) stated that the specific objectives of the farmer field school include: -

i. empowering famers with knowledge and skills to make them experts in their own fields.

ii. sharpening the farmer's ability to make critical and informed decisions that render their farming profitable and sustainable.

iii. sensitizing farmers in new ways of thinking and problem solving.

iv. helping farmers learn how to organise themselves and their communities.

Daudu (2009) noted that the curriculum of the farmer field school is holistic and considers all issues that affect community livelihood – crops, livestock, economics, social etc. The farmer field school has the following key components:

i. **Organization**: This refers to a group of about 25 – 30 volunteer persons and is organized with rules and responsibilities etc.

ii. **Land**: This is visible and accessible.

iii. **Process**: It refers to the people involved i.e. farmers, facilitators usually National Agricultural Research Institute, ADP and NGO's resource persons etc.

iv. **Farmer Field School Learning**: This consists of a programme, agro-ecosystem, system analysis, experimental design and layout.

In Katsina state, the field school has instituted one community nursery and ewe management at Bindawa Local Government Area. In Zamfara state, the farmer field school has empowered the community members with special techniques and practices that they otherwise not have been exposed to. Some of the practices include land reclamation, planting of Gamba grass used for feeding livestock, raising of tree seedlings of mango, cashew, guava, citrus and neem etc. In Sokoto state, Training of farmers through the FFS has empowered the community members to carry out budding and grafting and nursery practices on their own. In Jigawa state, the community has been sensitized in the aspect of soil management and conservation. Also, the farmers were engaged in compost making

and the use of farm yard manure. The farmer field school training has been on cowpea production and tree nursery practices.

Generally, the Sustainable Agriculture Development through the farmer field school provides the participating farmers with the following:

i. Technical guidance on crops, livestock, small ruminant production and management of organic manure.

ii. Facilitate farmers on the use of cost-effective combination of organic and inorganic fertilizers

iii. Facilitate the farmers on the need assessment for corrective measure on soil related problem.

iv. Evolve measures to minimize farmer's pastoralist's conflicts.

v. Facilitate farmers to participate in monitoring and evaluation on the impact of sustainable crops, livestock and tree management practice.

2.3.3 Rural enterprises development and financial linkage support

This component usually mobilizes communities to form income generating rural enterprise groups. In all the participating states, majority of the associations have been registered and linked to financial service providers. In Katsina State for instance, a total of four hundred and twenty eight (428) associations have been linked to credit sources. The total amount of savings mobilized by participating communities was ₦ 4,378,902.28 Out of these total males saved ₦ 2,842,304.00 and the females saved ₦ 1,437,598.28. A total of ₦ 1, 454,206.00 credits has been received through informal sources (IFAD 2011). In Zamfara State, a total of one hundred and sixty eight (168) groups have been linked to financial

service providers. The total amount of savings mobilized by participating communities is ₦ 1,071,801.00 out of which ₦ 586,001 were saved by males and ₦ 485,800 saved by females. In Sokoto State, over two hundred and fifty five (255) income generating enterprises have been registered. A total of 3780 participants (2370 males and 1410 females) were trained in productive skills. A total of ₦ 3,140,000.00 was received as loan by the communities of which, ₦ 2,930,000.00 was received by the male participants while the female received ₦ 210,000.00 (IFAD 2011). In Kebbi State, over four hundred and eighteen (418) income generating enterprises were established and registered. They were adequately linked with financial service providers. A total of 7765 participants were trained in productive skills, (5072 males and 2693 females). A total amount of ₦ 1391,944.00 has been mobilized in savings within the communities. Out of this figure ₦ 937,890 was saved by the males while ₦ 454,054 was saved by the females. In Jigawa State, some of associations have been registered and linked to financial services providers. A total amount of eighty five thousand naira (₦ 85,000) was saved by two participating communities (IFAD 2011). Daki-Daka community saved forty thousand naira (₦ 40,000.00) while Auyakayi community saved forty five thousand naira (₦ 45,000.00). In Yobe State, a total of four hundred and eighteen income generating rural enterprise groups were formed and linked to credit institutions. A total savings of ₦ 2,197,000.00 was made by these groups (₦ 1,212,000.00 by males and ₦ 0.905, 000.00 by the females) (IFAD 2011).

Generally, the Rural Enterprise Development and Financial Support perform the following functions:

i. Conducting participatory appraisal of the constraints and needs of the community in terms of micro enterprises and finance association.

ii. Identifying and establishing a close contact with existing and potential micro-enterprise and micro finance association in the participating village areas.

iii. Coordinate and facilitate basic training, including the organization of small scale testing and demonstration of new technologies to micro enterprises.

iv. Assist in the establishment and operation of the micro enterprises skill development centers.

v. Prepare in conjunction with the Community Driven Development members the village Annual Work Plan and Budget for rural enterprise activities.

vi. Monitor and evaluate rural enterprise activities in the Local Government Area.

vii. Submitting monthly report to planning officer.

2.3.4 Gender and vulnerable group support

The International Fund for agriculture and Rural Development Project (2011) reported that in all the participating states, the gender and vulnerable groups were formed. In Katsina state, the vulnerable groups were formed based on disabilities in Jargaba but all of them were put together as a group in Tsabe. The vulnerable have received support in form of seed, capital, work materials for processing, skill acquisition, establishment of skills development centers etc. Women received training in soap making, nutrition and improved practices of traditional birth attendant (TBA). Equally, the cripples were trained in soap making and carpet weaving. They were also, given locally made tricycles that made their movement easier. In Zamfara State, the vulnerable groups consist of the widows, the unemployed youths, disabled people, aged people and those with leprosy. Gender sensitivity is high in the communities and at the programme levels. Women are elected into leadership position in the community development associations. The support given to the

groups included small ruminant, donkey, working materials for processing, milling machines, wheel barrows, traditional birth attendant kits for the traditional birth attendants. (IFAD- CBARDP, 2011).

2.3.5 Community infrastructure

Rural infrastructure in Nigeria has long been neglected. Investments in health, education and water supply have been focused largely on the cities. As a result, the rural population has extremely limited access to services such as schools and health centers, and about half of the population lacks access to safe drinking water. Neglect of rural infrastructure affects the profitability of agricultural production. The lack of rural roads impedes the marketing of agricultural commodities, prevents farmers from selling their produce at reasonable prices, and leads to spoilage. Limited accessibility cuts small-scale farmers off from sources of inputs, equipment and new technology and this keeps yields low (IFAD, 2011).

Ekong (2003) referred to infrastructure as those underlying as basic physical, social and institutional terms of capital which ensure rural dwellers' production, distribution and consumption activities and ultimately the quality of their lives. Often these include structures which cannot be practically provided and so called for large capital investment on the part of government. The community infrastructure implementation of the IFAD-Community Based Agriculture and Rural Development Project was designed in line with the community Demand Driven (CDD) approach popularly known as the bottom-top approach (IFAD-CARDP, 2009). It follows a number of processes of development which ensures full community participation. Communities members are allowed to identify, decide and execute and sustain their development projects but with relevant stakeholders providing guidance. The programme staff of the community driven development team (CDDT) usually sit down with the community and work-out a design, financial

involvement and simple work plan called programme chart for execution of such projects. The programme is more of a participatory type involving communities, government and private sectors in the project development and good coordination and monitoring arrangements during implementation. The community infrastructure component of the Community Based Agricultural and Rural Development Project gives support for the rural poor opportunity to suitable social and economic infrastructure. Works carried out under community infrastructure include:

(i) Rural water supply

Here, emphasis is placed on the improvement of both rural and portable water supplies and animal watering which should include wells and boreholes, hand pumps, solar pumps and motor pumps. Adequate facilities are provided or made available to make sure that the water is always kept clean. Such facilities include: washing facilities, improved water gutters and fencing, adequate storage of water, improved facility layout to ensure environmental sanitation and ensuring suitable preventive maintenance methods for the pumps.

(ii) Rural Health Facilities

Facilities such as Dispensaries and Primary Health Centers are provided in the communities. The Community Development Team usually coordinates and facilitates health intervention strategies and activities to address health related problems of poor families. It also organizes awareness creation sessions or visits in related health activities with emphasis on adolescent proactive health, HIV/AIDS and malaria control immunization plus and any harmful traditional practices. (IFAD- CBARDP, 2011). In addition, it organizes and conducts regular sensitization on child survival strategies such as prenatal and postnatal care immunizations plus control preventable diseases and also

general health and nutrition education. It also promotes regular environment health service and sanitary collection and disposal of waste/refuge, personal and food hygiene and safe water utilization to minimize water borne diseases.

2.4 International Fund for Agricultural Development (IFAD)

The International Fund for Agricultural Development is a specialized agency of the United Nations established as an international financial institution in 1977 as one of the major outcomes of the 1974 World Food Conference. The Conference was organized in response to the food crises of the early 1970s that primarily affected the Sahelian countries of Africa (IFAD, 2010). The conference resolved that "an International Fund for Agricultural Development should be established immediately to finance agricultural development projects primarily for food production in the developing countries". One of the most important insights emerging from the conference was that the causes of food insecurity and famine were not so much failures in food production, but structural problems relating to poverty and to the fact that the majority of the developing world's poor populations were concentrated in rural areas. The International Fund for Agricultural Development (IFAD) is dedicated to eradicating rural poverty in developing countries. The international Fund for Agricultural Development (IFAD) mission is to overcome rural poverty by working with poor rural people, governments, donors, non-governmental organizations and many other partners (IFAD, 2010). The International Fund for Agricultural Development (IFAD) focuses on country-specific solutions, which can involve increasing poor rural peoples' access to financial services, markets, technology, land and other natural resources. The International Fund for Agricultural Development goal is to empower poor rural women and men in developing countries to achieve higher incomes and improved food security. The

International Fund for Agricultural Development objective is to ensure that poor rural people have better access to, and the skills and organization they need to take advantage of:

i. Natural resources, especially secure access to land and water, and improved natural resource management and conservation practices.
ii. Improved agricultural technologies and effective production services.
iii. A broad range of financial services
iv. Transparent and competitive markets for agricultural inputs and produce
v. Opportunities for rural off-farm employment and enterprise development
vi. Local and national policy and programming processes

All of IFAD's decisions - on regional, country and thematic strategies, poverty reduction strategies, policy dialogue and development partners - are made with these principles and objectives in mind. As reflected in the strategic framework, IFAD is committed to achieving the Millennium Development Goals, in particular the target to halve the proportion of hungry and extremely poor people by 2015 (IFAD, 2010).

The organization works with governments to develop and finance programmes and projects that enable rural poor people to overcome poverty themselves. Since starting operations in 1978, IFAD has invested US$13.1 billion in 899 projects and programmes that have reached some 400 million poor rural people. Governments and other financing sources in recipient countries, including project participants, contributed US$11.7 billion, and multilateral, bilateral and other donors provided approximately another US$9.3 billion in co financing. This represents a total investment of about US$21.0 billion. The International Fund for Agricultural Development (IFAD) tackles poverty not only as a lender, but also as an advocate for rural poor people. Its multilateral base provides a natural global platform to discuss important policy issues that influence the lives of rural

poor people, as well as to draw attention to the centrality of rural development to meeting the Millennium Development Goals. The international fund for Agricultural Development (IFAD) is mandated to combat hunger and rural poverty and to improve the livelihoods of rural poor people on a sustainable basis (IFAD, 2010). It engages consistently at grassroots level with micro-level issues of immediate importance to the livelihood systems of rural poor people, such as access to land and water management and irrigation (mainly small scale); rural financial services; rural micro enterprises; storage/processing of agricultural produce, marketing and access to markets; research, extension and training; small-scale rural capacity building for groups and organizations of poor and marginalized men and women, enabling them to take advantage of all the above. The approach used by the organization is the people centered and bottom-up, based on the establishment or strengthening of participatory and inclusive community institutions that could decide on the nature of activities and carry out their implementation. The International Fund for Agriculture and Rural Development Project has financed nine programmes and projects in Nigeria since 1985, with a total loan commitment of US $187.5 million. The country currently attracts over 40 percent of the financial resources that IFAD allocates to Western and Central Africa (IFAD 2009). All programmes and projects have addressed the livelihood needs of poor rural people, including small holders, women, small-business owners, poor fishing communities, young people and landless people. Operations have contributed to:

i. Generating and disseminating technology to increase incomes and family food security, while also introducing approaches for effective soil and water conservation and environmental management.
ii. Fostering demand–driven and participatory approaches to agricultural and rural support services.

iii. Strengthening capacity–building and institutional capacities to ensure the sustainability of successful development approaches.

The Programme support to the Nigerian government's poverty reduction programme in rural areas target numbers of smallholders farmers and is essentially people – centered. It supports programmes and projects that work with community – based interventions that provide technical and financial support along several value chains such as livestock products, rice and other cereals, tubers, vegetables and agro forestry products. The objectives are to empower poor rural people, especially women, by increasing access to resources, infrastructure and services and to promote the management of land, water and common property by local communities to help overcome environment degradation. It also supported programmes and projects to address issues such as erosion and the loss of soil fertility, as well as coastal zone natural resource management. The Programme directs its assistance towards;

i. Empowering small-scale farmers, landless people and women to generate sustainable incomes from farming and other activities.
ii. Supporting pro-poor reforms and local governance to expand access to information, effective transport systems, village infrastructures and technologies.
iii. Improving access by poor rural communities to financial services and social services.

2.5 International Fund for Agricultural Development Programmes in Nigeria

The International Fund for Agricultural Development **(**IFAD) programmes implemented in Nigeria to improve the incomes and living conditions of the rural poor include:

2.5.1 Rural micro-enterprise development programme (RUMEDP)

The overall objective of the Rural Microenterprise Development Programme is to improve the incomes, food security and livelihoods of poor rural households, especially those with

limited or no access to agricultural land (IFAD, 2011). The programme will increase the on-farm and off-farm incomes of poor rural people engaged in micro-businesses, particularly women and other vulnerable groups, in the targeted local government areas. Its specific objectives are to contribute to the creation of:

• Profitable rural microenterprises;

• Sustained business-development support capacity and implementation in rural areas.

The programme is expected to provide a model for the establishment and development of rural microenterprises in other parts of Nigeria, particularly in states covered by the four major IFAD-supported programmes (the Roots and Tubers Expansion Programme, the Community-Based Agricultural and Rural Development Programme, the Community-Based Natural Resource Management Programme - Niger Delta, and the Rural Finance Institution-Building Programme) and other rural-based initiatives (IFAD, 2011).

2.5.2 Rural finance institution-building programme (RUFIN)

The Rural Finance Institution Building Programme (RUFIN) is a project established largely through a Loan from the International Fund for Agricultural Development (IFAD) to the Federal Government of Nigeria and small percentage counterpart contributions by participating states, the Central Bank of Nigeria (CBN) and other Development partners (IFAD 2011). The central objective of the programme was to develop and strengthen the capacities of Micro finance Banks (MFBs) and other Non-Bank Micro Finance Institutions (MFIs), and to enhance the access of the rural poor to sustainable financial services in order to expand and improve agricultural productivity and other non-agricultural micro and small enterprises. The goal was to reduce the level of poverty among the rural people with particular focus on women, youth and the physically challenged.

The programme was being implemented along with four (4) participating institutions namely; the Central Bank of Nigeria (CBN), the National Poverty Eradication Programme (NAPEP), Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) now Bank of Agriculture (BOA) and the Federal Department of Cooperatives (FDC) (IFAD, 2011). Under the programme, Microfinance Banks and Non-Bank Micro Finance Institutions (i.e. Cooperative Societies, Unions and Cooperative Finance Agencies (CFAs), and Informal Savings and Credit Groups) were being supported through Capacity Building, Technical Assistance, appropriate linkages to refinancing facilities and by strengthening the institutional environment for microfinance development. It lays the foundation for the long-term development of a sustainable rural financial system that will eventually operate throughout the country. By reaching out to poor rural people, the programme ensures that they gain access to financial services and can invest in and improve productivity in agriculture and small businesses. Marginalized groups, such as women, young people and those with physical disabilities, are particularly targeted by the programme (IFAD, 2011). The programme supports the development of target-group organizations into rural finance institutions that improve poor rural people's access to low-cost credit. It assists microfinance institutions, including the Nigerian Agricultural Cooperative and Rural Development Bank (NACRB), the National Poverty Alleviation Programme, and microfinance banks and NGO-microfinance institutions operating in rural areas. It helps them strengthen their rural outreach and improve their services to the most vulnerable groups, particularly households headed by women. The programme works to develop new alternative financial products, promote an improved legal, policy and regulatory framework, and establish linkages between the financial system and the rural production system.

2.5.3 Community-based natural resource management programme

In the nine Niger Delta states of Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers, poverty is severe and widespread despite the area's wealth of natural resources. Poverty is especially prevalent among small-scale farmers cultivating food crops and among fishing communities using only rudimentary equipment (IFAD, 2011). These groups lack food security and are highly vulnerable to environmental shocks. The programme has made a community development fund available to support community initiatives in sustainable livelihood improvement, natural resource management and the provision of small-scale community infrastructure. The goal of the programme is to improve the standards of living and quality of life of poor rural people in the Niger Delta, with a special focus on women and young people. A major concern is to reduce current tensions and conflict by improving employment opportunities for young people and channeling their energies into the development of sustainable livelihoods and natural resource management activities (IFAD, 2011). The programme encourages these groups to participate in development activities. It also builds capacity at different levels of government institutions to meet the development needs of the groups, and consolidates partnerships among donors, NGOs and other agencies.

2.5.4 Community-based agricultural and rural development programme (CBARDP)

This programme was launched in eight northern states where poverty is widespread: Jigawa, Kano, Katsina, Kebbi, Sokoto and Zamfara in the north-west, and Borno and Yobe in the north-east. It builds on IFAD's previous experience of implementing community-based projects in the northern states of Sokoto and Katsina, and its objective is to help the most vulnerable groups improve their incomes and living conditions (IFAD, 2011). The programme targets a large section of the rural population, especially women, landless people, nomadic pastoralists and small-scale farmers, and those with only marginal lands.

It is designed to empower these groups to participate in development activities. Specifically the programme works to:

- promote awareness and build capacity of public and private sector service providers to respond to the needs of poor rural women and men;
- empower poor communities to manage their own development and support vulnerable groups;
- improve agricultural practices, resolve conflicts between farmers and pastoralists and intensify crop and livestock production and
- develop or upgrade safe water supplies, environmental sanitation, irrigation, and health and education facilities.

2.5.5 Roots and tubers expansion programme (RTEP)

Population pressure on the land has significantly reduced soil fertility in many parts of the country. For poor farmers coping with declining soil fertility and crop yields, fertilizers are expensive and frequently unavailable (IFAD, 2011). Shifting to cassava production is often the best option for them. Cassava grows better than yam in low fertility conditions and in the poorest communities, roots and tubers make up a high proportion of the family diet (IFAD, 2011). The long-term objective of the programme is to commercialize root and tuber production to improve the living conditions, income, food security and nutritional health of the poorest smallholder households in the programme area. It particularly targets small-scale farmers with less than 2 hectares of land per household. The programme uses the existing extension service system to introduce improved varieties of roots and tubers and better cultivation techniques (IFAD, 2011). Since women play a major role in cassava and other food crop production, processing and marketing, the programme encourages them to participate in research trials and demonstrations. Specific programme objectives include:

- developing improved root and tuber production technologies to increase productivity;
- multiplying improved planting material;
- developing processing techniques and marketing activities and
- collaborating with NGOs to provide training to farmers.

The programme has improved the availability and access to new varieties of planting materials, and has enhanced the processing and marketing of products. It introduces trade policies to expand the breadth of demand for root and tuber products particularly cassava. It also helps targeted communities purchase equipment for processing (IFAD, 2011).

2.6 Socio-economic Characteristics of Farmers

Agbelemoge *et al.* (2001) found that some socio-economic characteristics such as age, household size, literacy level, farming experience, size of farm holding etc have a significant effect on the perception, view interest and acceptance and use of recommended farm practices. Also, in a study conducted by Maiangwa (2006) on the socio-economic factors associated with adoption of Agro-forestry in the North-West Zone of Nigeria found that socio-economic factors were associated with adoption of agro-forestry practices in the area. The socio-economic characteristics of farmers therefore have been found to have an influence on their level of participation in agricultural development programmes (Olufemi *et al.*, 2006). Similarly, in a study of Indian farm households conducted by Sharma *et al.* (2003) shows that, all the households were headed by males with an average age of above 40 years old. Oyedele and Yahaya (2007) posits that majority of the smallholder farmers in Nigeria are males. Onuk (2008) in a study conducted on meeting the challenges of rice demand through children and youth in agriculture, found that males constitute the majority in rice production. This is because females are mostly involved in domestic work. Similarly, Nkoye *et al*. (2008) reported that large proportions of small-scale farmers in

Nigeria are male and married. Agbamu *et al.* (1996) also found that married farmers adopt new varieties of maize and cassava more than farmers that are single.

2.7 Some empirical findings on the Impact of Rural and Agricultural Development Projects on Participants

For decades, developed countries, international organizations such as the World Bank, Food and Agricultural Organization (FAO), United Nations Development Project (UNDP) and a host of non-governmental organizations have been fighting ceaselessly to contribute to the development of rural areas via actions and interventions implemented through rural development projects (Jacob *et al.,* 2009). Such projects according to them have often been designed, planned and implemented to help the rural people to develop their agricultural and to have better access to farm inputs to increase their income. In addition, most projects tend to strengthen the capacities of rural farmers through education, training and institutional support.

The International Food Policy Research Institute (IFPRI, 2001) reported that the project "Improving Food Security in Bangladesh" implemented since the 1980s resulted in a significantly increased availability of an access to food in rural areas of Bangladesh. Similarly, the International Development Research Centre (IDRC, 2003) found that projects implemented in Ethiopia that focused on agriculture and water management saved more than twenty-five per cent of rural communities from starvation, malnutrition, diseases and death. Jacob *et al.* (2009) found that enhanced capacity building resulting from training and group formation did strengthen the managerial capacities of producers. The International Livestock Research Institute (ILRI, 2010) reported that Agricultural Development Projects that seek to increase the asset holding of the poor not only contribute to sustainable poverty reduction, but also help promote socially desirable and

empowering behaviuor. Jacob *et al.* (2009) found in a study he conducted on the impact of rural development projects on agricultural productivity that the projects had positive impact on productivity. He further stated that the projects indeed popularized and diffused modern production techniques, which allowed farmer beneficiaries, involved in the projects to significantly improve their productivity.

2.8 Constraints to the Implementation of Agricultural and Rural Development Projects

Muhammad *et al*. (2010) stated that Non-Governmental Organization (NGO) problems in executing programmes include lack of coordination and over dependence on foreign donors, limited community participation and lack of proper documentation of activities. Joseph (2012) noted that between 1995 and 1999, upon the withdrawal of World Bank assistance, most of the ADPs in Nigeria had funding from the International Fund for Agricultural Development (IFAD), fourty four per cent, Federal government of Nigeria, thirteen per cent State government and fourty three per cent Local Government Council. However, from the year 2001 to 2004, it has been relatively difficult to meet the budget needs of the Agricultural Development Projects in the country. This situation has seriously affected the implementation of planned programmes of the ADPs. Akpabio (2007) in his study, women NGOs and rural women empowerment activities in the Niger Delta, Nigeria, highlighted some constraint affecting beneficiaries' participation in women Non-Governmental Organization (NGO) to include: inadequate credit facilities and poor utilization of credit advances, resulting in poor loan repayment.

The framework for energy planning and rural development (2012) highlighted the followings as some of the constraints to the implementation of Agricultural and Rural Development Projects as: lack of mechanism at local levels to carry out effective planning and assessment with the involvement of the potential beneficiaries; lack of coordination

between development programmes and input suppliers; absence of coordination in the rural and development and technology development efforts with operational programmes; lack of trained manpower; lack of coordination between planning, project formulation and implementation, lack of people's participation and lack of adequate involvement of financial institution in developing countries to meet the needs and aspirations of the rural beneficiaries, especially the rural poor.

CHAPTER THREE

THEORETICAL FRAMEWORK

Ekong (2003) defined theoretical framework as a broad system of explanation that is founded not so much on prior research findings but largely on interest and perhaps improvable assumptions. Theory construction in social sciences has several objectives. Viz (i) it provides conceptual framework to facilitate the accurate observation and reliable description of social event, (ii) it formulates laws and theories by which social phenomena can be explained (iii) it establishes a foundation of knowledge and methodology that under certain conditions makes possible the control of social affairs (Shrag, 1967). The social change theory and the concepts of participation, empowerment, impact assessment and livelihood were adopted in this study.

3.1 Theory of social change

Social change is the process by which alteration occurs in the structure and functions of social system. Rogers (1995), Moore (1985) saw social change as a significant alteration of social structure (i.e. pattern of social action and interaction), including sequences and manifestations of such structure embodied in norms, values and cultural practices and symbols. Social change is the change that occurs in human societies i.e. the social system that may be a social group, community, a town, city or even a nation. As such, a change in values, ideas/mores, roles, habits of people and culture is considered as social change. Changes can be planned or unplanned, planned changes involved direct human intervention in directing the changes towards predefined goals. Example is government policy like land reform. Unplanned change on the other hand includes accidental changes that happen suddenly and are beyond human control e.g. earthquakes; flood (Ekong, 2003). According to Moore (1985) social change takes the following forms:

i. Modification in human attitude and behavioural pattern as a result of education,

ii. Alteration in social condition as a result of changes in policies of a social organization,

iii. Effecting reforms in major legal and functional system of a society e.g. land use decree or fertilizer distribution policy and,

iv. Change in material culture.

The social change theory will provide a framework for the understanding of the social changes that has taken place in the study area as a result of the introduction of the IFAD – Community Based Agriculture and Rural Development Project. It will provide guide in analyzing the way rural poor farming communities use the project package to reduce poverty and hunger by half, improving education, health, gender equality and environmental sustainability by the year 2015.

3.2 Concept of Participation

Participation may be viewed as both an end in itself and a means of accomplishing other goals. Participation with regard to rural development include peoples involvement in decision making process in implementing programmes, their sharing in the benefits of development programmes and their involvement in the effort to evaluate such programmes. Essentially, participation is all about involving a significant number of rural people (project beneficiaries) in one way or the other or actions which enhance their well being (Oakely, 2002). The rural poor must participate in designing and operating a programme, which involves them. The importance of ensuring effective participation of the target groups lies, similarly in ensuring that rural development/ community - based initiatives are responsive to the priorities and needs of the local communities and beneficiaries (Nwosu, 2007). The International Fund for Agricultural Development Project (IFAD, 2001) stated

that the Rural Development Strategy gives special attention to poverty reduction and its thrust is to encourage more participation in rural development programmes and thereby building a greater sense of ownership among the poor in the community. Participation in extension is the process of communication among farmers and extension workers, during which the farmers take the leading role to analyze their situation to plan, implement and evaluate development activities. It is a way of helping the less privilege to gain access and control over resources or services such as training of farmers, tours, inputs, information among others needed to sustain and improve their livelihood in return for food, cash and materials (Subedi, 2008). Participation is expected to lead to better designed projects, better targeted groups or beneficiaries, more cost-effective and timely delivery of project inputs, more equitably distributed project benefits with less corruption and other rent seeking activity (Cleaver, 2009). Farmers' participation issues are the areas of concern at national and local levels (Subedi, 2008). Participation according to Aref *at al.* (2010) is the direct involvement of marginalized groups in a development process, which aims to build people's capabilities to have access to and control of resources, benefits and opportunities towards self-reliance and improved quality of life. Participation empowers beneficiaries to take the leading role to analyze their situations, plan, implement and evaluate development activities; and gain control over resources or services. Adebayo, 2000 in Innih and Dmelu (2013) shows that participation of beneficiaries/farmers in development process particularly in agriculture could be continual, consultative, collaborative and collegiate, interactive, self mobilized, functional, informative, incentive oriented, genuine, symbolic, passive and others. Experience from past development programmes have shown that active participation of target groups is one of the key factors, and determinant of effectiveness of interventions in realizing the set objectives.

Without participation, there are obviously no partnerships, no developments and no programme (Aref *et al*., 2010). Therefore, a lack of participation in the decision to implement an agricultural policy can lead to failure in agricultural development.

Participation taps into the physical, economic and social resources of grassroots populations, even the poor in order to achieve programme objectives (Oakley, 1991). Participation contributes to the process of democratization and collaboration over time, which cause local populations to benefit directly from development initiatives (Oakley, 1991). He further stated that developmental projects that focus on participation may have long impacts on the participants. Oakley (1991) has drawn on the work of a variety of researchers to argue that local participation can have several results, including:

(i) the contribution of new resources such as time, energy and ideas by grassroots groups to programmes and projects;

(ii) the establishment of new organizations of grassroots groups;

(iii) the empowerment of local actors as participants to develop skills which enable them to set goals, diagnose problems and mobilize resources.

World Bank (1994) considered the process of participation to involve many elements such as;

(i) Information sharing mechanism which make information widely available to local stakeholders;

(ii) Consultative mechanisms which provide opportunities for information from stakeholders at different stages;

(iii) Joint assessment which engage stakeholders and beneficiaries in analyzing stakeholders and potential projects;

(iv) Shared decision making which uses participatory planning and public reviews to enable wide spread influence on project designs;

(v) Collaborative mechanisms such as joint committee and task forces which enable stakeholders to play roles in programme activities;

(vi) Empowering mechanisms such as capacity building with stakeholders' organizations which increase their ability to contribute effectively to projects.

Studies have shown that farmers have different reasons for participation in agricultural development programmes. In a study conducted by Edi *et al*. (2007) on factors affecting farmers' participation in Agric environmental measures reported that projects that provided easy access to farming inputs, and are environmentally friendly and provide adequate leisure time encouraged participation. Rogers (1995) stated that the adoption of innovation is related to innovation decision process through which an individual passes from first knowledge of an innovation, to forming an attitude towards the innovation, deciding to adopt or reject the innovation and implementing decision. This implies that new or improved farming practices can only be accepted by rural farmers when they have passed through the innovation to decision process and these farmers have picked interest

concerning this because, when a farmer develop interest, he tends to seek for more information on his own and when this happens adoption can take place.

Feder *et al.* (1985) stated that farmers accept to practice new technologies when they expect a more profitable outcome that is gained from the existing technology. Understanding the concept of participation will help in analyzing the various levels of participation by the participants. It will also show what levels the participants were involved from the project conception to execution and final evaluation.

3.3 Concept of Social Empowerment

Social empowerment refers to the process by which individuals and groups gain power, access to resources and control over their own lives. The term empowerment is a process of transition from a state of powerlessness to a state of relative control over one's life, destiny, and environment. Lee (2001) also noted that social empowerment is a collective social process of creating a community, achieving better control over the environment, and decision making in which groups, organization or communities participate. Social empowerment in this study will help give an insight into this research work, since the community based agricultural and rural development project (CBARDP) was set up to improve the livelihoods and living conditions of mainly the poor members of the benefiting communities (with emphasis on women and other vulnerable groups) by supporting a range of activities that will strengthen their capacity to plan, implement and manage their own development as well as institutionalize policies and process that will make public resources and services providers more relevant and responsive to the poor. Non -governmental organization (NGOs) often advocate the empowerment and participation of the poor as a way to enable these people to gain greater control over their lives and to strengthen the awareness of their own potential power. The principles of the

Community Driven Development (CDD) approach which was adopted by the IFAD – Community Based Agriculture and Rural Development Projects is stated as: -

i. Empowering the participating communities (Institutionalization)

ii. Empowering the Local Government Councils (Institutionalization)

iii. Realigning the control (Decentralization)

iv. Social and Public accountability (Transparency)

v. Learning by doing (Capacity building).

3.4 Concept of Impact Assessment or Evaluation

The terms impact assessment or evaluation are used in different ways by different people. Impact refers to the broad, long-term economic, social and environmental effects resulting from research while assessment or evaluation is judging, appraising or determining the worth, value or quality of research in terms of its relevance, effectiveness, efficiency and impact (IAEG, 1999). (Casley *et al.*, 1987) saw assessment as a periodic evaluation of the relevance, performance, efficiency and impact of the project in the context of its stated objectives. Assessment or evaluation involves longer time span, the use of comparative analytical techniques and a larger group of users.

Mosley (1997) saw impact assessment as the grandchild of welfare economics, by way of social cost-benefit analysis. Mosley argues that there are three questions, which the authors of impact assessment need to answer:

i. What was the net benefit conferred by the intervention (or project), i.e. the difference between the with-project and without project situation?

ii. How did the benefits divide up between the different parties affected by the intervention?

iii. By what casual process did the benefits and cost revealed by (1) and (2) materialize? What are the lessons for analysis of future interventions of this type?

He uses the terms 'Impact assessment and impact evaluation' interchangeable to mean an attempt to find out the effects of an intervention after it has occurred, and the term appraisal to mean an attempt to predict the effects of an intervention before it occurs. Manyong *et al.* (2001) view impact assessment as a critical component of agricultural research that helps to define priorities of research and facilitate resource allocation among programmes, guide researchers and those involved in technology transfer to have a better understanding of the way new technologies are assimilated and diffused into farming communities, and show evidence that clients benefits from research. Sanginga *et al.* (1999) defined the impact of a social intervention as the output of that organization which is related to the achievement of the programme objective. Impact is synonymous with end result; it is interchangeably used as outcomes or result. Sanginga *et al.* (1999) stated that impact analysis deals with the investigation of the changes that occurred or likely to occur on the people's life as a result of a programme or project. According to them, impact assessment tries to find out how far, the introduction of technology or programme have been successful in meeting the socio economic objectives and how well agricultural technologies have satisfied the needs and priorities of household and other units in the target population. Impact assessment therefore could be considered to be a special form of evaluation that deals with the effects of intervention programme output on the target beneficiaries.

Impact Assessment and Evaluation group (IAEG, 1999) reported that in order to establish whether the programme has impacted on the livelihood of the beneficiaries therefore, assessment of all the goals and objectives should be carried out. The international service

for national research (ISNAR) provides seven alternative standards by which quality and impact may be measured (Farrington *et al.*, 1997); these include:

i. past performance
ii. performance of other systems
iii. desired impact
iv. professional standards
v. survival impact
vi. planned impact
vii. optimal impact

Examinations of these approaches suggest that some standards past quality and quality of other systems may be more suited to external or expose evaluation. Impact assessment of agricultural research is viewed as an important activity to ensure accountability, maintain credibility and improve internal decision making processes and the capability to learn from the past experience (Alene *et al.*, 2006).

3.5 The Concept of Livelihood

Livelihood is mostly used to address the issue of poverty that is people centered non-sectional and grounded in the multi-dimensional reality of daily life. Dekker (2002), Frankenberger and McCaston (1998) considered livelihood as the sustainable access to resources to meet basic needs including adequate access to food, portable water, health facilities, educational opportunities, housing, time for community participation and social integration. According to Chambers *et al.* (1992) livelihood comprised of the capabilities, asset, including both materials and social resources, and activities required to make a living. Livelihoods are based on income (in cash, kind or services) obtained from employment, and from remuneration through assets and entitlements. Different members of a household engage in different types of livelihood activities and each household

member above certain age attempt to procure different sources of food, fuel, animal fodder and cash; these sources are likely to vary according to the year.

Livelihood in short means the standard of living of the farmers. Taimini (2003) reported that majority of the world's population live in rural areas where they are engaged in agriculture. There are clear indications that rural sector is lagging behind in social amenities, and the gap between the rural and urban areas is still widening (Obibuaku, 1983). Nigeria's rural people are about the most deprived of all Nigerians. They have the least access to services such as health and educational facilities. In addition, they have limited access to modern agricultural inputs. In essence, the infrastructural and institutional arrangements are deficient at the local level where most people need them (Voh, 1983). It is usually a measure of the quality and quantity of goods and services consumed by the farmer and his household such as expenditure on consumable goods, fixed asset acquired, children in school and other services such as health care, portable drinking water, good shelter etc. Livelihood studies have concentrated on the actions and strategies of people trying to make a living in adverse circumstances such as economic and political (Dekker, 2002).

However, of recent, the focus of impact assessment of agricultural research was not only for estimating rates of return of research investment and the goals of assessing the increasing food production but, it has also, been the need to assess the potential impacts of agricultural research on poverty alleviation with a view of setting priorities of research (Kerr and Kolavalli, 1999; Alwang and Siegel, 2003). According to Chen *et al.* (2006) assessing development aid effectiveness at project level was difficult and required a long term commitment to collecting high quality longitudinal survey data as well as assessing counter-factual impact (incremental impacts) on top of pre-existing government spending.

Furthermore, impact assessment studied on potential benefit of agricultural technology adoption on beneficiaries income was not always easy to evaluate because of the complexities involved in understanding the link between agricultural technology and rural livelihoods. This was because rural people generally have a lot of coping strategies of combining their assets and agricultural technologies to attain their life goals of food sufficiency and better livelihood. For instance, a beneficiary of a particular technology might be involved in other forms of businesses apart from being employee of agriculture that could improve his/her level of income. As such if an impact study was carried out on such farmer's level of income as a result of the new technology adopted, it might be difficult to isolate the technology impact. In addition, respondents recall ability to subjective-qualitative questions often raised during survey often revealed biased (Chen *et al.,* 2006). Yet, examining the impacts and impacts pathways of different types of agricultural technologies was essential to guide future project in ways that will make the great contribution to poverty reduction (Alene *et al.,* 2006).

Sustainable Rural Livelihood Framework method was primarily a conceptual framework for analyzing the causes of poverty, people's access to resources and their livelihoods activities and the relationships between relevant factors at micro, intermediate and macro levels (Ashley *et al.,* 2000). The Sustainable Rural Livelihood Framework (SRLF) used the holistic framework approach rather than an entirely new set of concepts. Ashley *et al.* (2000) has shown that the framework provided a method for thinking about the multiple and interactive influences of agricultural technology livelihoods without overlooking important explanatory factors. The Sustainable Rural Livelihood Framework (SRLF) method according to them allowed the provision of a "checklist" of issues to be considered in designing research initiatives or program evaluations and since everything on the checklist could not be included in one study prioritization was suggested.

Ashley and Carney (2000) posited that the framework also, has the advantage of allowing researchers to understand the parameters of the "big picture" and then helped to narrow the scope of study to what could have the greatest impact or what was most relevant to the important stakeholders. The framework with which Sustainable Rural Livelihood Framework (SRLF) worked might guide researchers to prioritize less visible factors and local priorities that might not revolved around production and consumption or even physical or financial resources but, could instead relate to education, safety or legal right (Alene *et al.,* 2006). The Sustainable Rural Livelihood Framework (SRLF) brought in many considerations that were often not included in an agricultural technology (Ashley *et al.,* 2000).

Measuring the socio-economic impact of a development project required a multi-dimensional perspective. Nevertheless, the Sustainable Rural Livelihood Framework (SRLF) method has been adopted and used in assessing the impact of new agricultural technologies (Kerr and Kolavalli, 1999). The aspects upon which people built their livelihoods were of particular interest in impact assessment. These included a wider range of assets than usually considered). It was further, stressed that rather than looking only at land or other classic wealth indicators for agricultural technology impact the Sustainable Rural Livelihood Framework (SRLF) suggested consideration of an asset portfolio of five types of assets.

a) Natural capital: land, water, forest, marine resources, air quality, erosion protection, and biodiversity,

b) Physical capital: transportation, roads, buildings, shelter, water supply and sanitation, energy, technology, communications, or other household assets,

c) Financial capital: savings (cash as well as liquid assets), credit (formal and informal), as well as cash inflows (state transfers and remittances).

d) Human capital: education, skills, knowledge, health, nutrition, and labor power,

e) Social capital: networks that increase trust, ability to work together, access to opportunities, reciprocity; informal safety nets; and membership in organization.

Moreover, according to (Alene *et al.,* 2006) farm capital assets included machines, tools, buildings, roads, footpaths, drainage ditches, terraces, irrigation equipment, growing crops, livestock, and stocks of food, seeds, fertilizers and other materials. In general, household capital assets or livelihood resources could be classified into five: human assets (household labor capacity, family and non-family labor); natural assets (e.g., total and cultivated farm land); physical assets (ownership of cattle, bicycles, radios, television sets, etc.,); financial assets (access to cash, credit, and remittances); and institutional/social capital assets (access to social networks and membership of associations). However, the interaction of the above listed assets of rural dwellers' environment with the adoption of agricultural technologies as well as accounting for the role of research for development in shaping policies, institutions and processes would enhance a greater result in evaluating the effect of such interactions of rural dwellers' agricultural productivity, and poverty alleviation (Alene *et al.,* 2006). It was however, suggested that a promising agricultural policy strategy that minimized the influence of unfavorable policies and those institutions should broaden the scope of research to include aspects of development using the technologies as a means (Alene *et al.,* (2006). According to Alene *et al.* (2006), the conceptual framework of Sustainable Rural Livelihood Framework (SRFF) in figure 1 below illustrated the important interaction among technology, assets, policies and institutions, and livelihoods. These interactions have implications for research on the adoption and impact of agricultural technologies. Livelihood assets and agricultural technology were combined to pursue an agricultural production-based livelihood and this yielded several livelihoods outcomes: more income improved gender relations in the household and betters

functioning groups in the community. Assets, technology, and livelihood strategies were conditioned by policies and institution as this influenced the initial endowment of assets, the rate and speed of adoption of technology and the actual livelihood strategy (DFID, 2001). Using the same database, asset was said to have both a direct and indirect impact on livelihood outcomes such as income and food security, which again strengthen existing levels of assets. The direct impact of assets on livelihood outcomes was their mere employment in agricultural production process with more assets leading to more income and food security. The indirect impact of assets was the impact through the adoption of new technology with more asset stock, such as land and livestock, enabling greater adoption of technology and hence leading to more income and food security (Figure 1). The implication of SRLF framework for the impact assessment of agricultural technologies was that researchers must device a means of accounting for initial asset endowments to isolate the impact of new technology on rural livelihood (Alene *et al.,* 2006).

In view of the complexities of the research-poverty linkages and the limited scope for targeting research benefits to the poor, Byerlee (2000), argued that enhancing the efficiency and effectiveness of research system in promoting broad based technical change should be emphasized more than major efforts to targeting poverty directly. The scope for targeting poverty was limited mainly due to the direct effects as well as the indirect effects of agricultural technology on poverty. However, De Janury and Sadoulet (2002), using general equilibrium model, assessed the relative role of the direct and indirect poverty alleviation impacts of agricultural technologies in Asia, Latin America, and Africa, found that in sub-Sahara Africa, the direct alleviation impact of agricultural technology were more than indirect effects. Manyong *et al.* (2001), in their own view argued that impact assessment of agricultural research was a continuous process and being a process was better conceptualized as a cycle involving different types of impact studies at different

stages using "before and after" impact assessment approach. These researchers further stressed that impact studies essentially have the same process as technology development and based on the technology development process. Four stages of impact assessment constituted the impact cycle. These included: impact for priority setting (ex ante impact), on-farm technology evaluation, adoption and ex-post impact.

Ex-ante impact assessment was undertaken before the project or program is initiated i.e. impacts in aid in priority setting, based on potential impacts of alternative research portfolio on aggregate net benefits or on poverty alleviations. Ex-ante impact studies were conducted to estimate the expected returns from future current alternative research efforts (Manyong *et al.,* 2001). Assessment of future impact included measures of productivity impacts, distribution of economic benefits and effect on environmental quality (Alene *et al.,* 2006). However, Kristjanson *et al.* (2002) argued that in practice, ex-ante impact studies have been conducted for just a single technology development program based on information obtained from on-farm trials and thus, have little or no priority setting motivation. In relation to this, Alwang and Siegel (2003) pointed out that greater emphasis has now been given to the assessment of the potential poverty alleviation impact of agricultural research with a view of research priority setting.

The ex-ante impact assessment was followed by the on-farm technology evaluation in which after research priorities have been set, researchers would embark on technology development that would involve the on-station development of new crop varieties or pest management practices (Alene *et al.,* 2006). According to Alene *et al.* (2006) the new technologies would undergo on-farm testing with farmers to ascertain the acceptability and profitability of the technology developed or technologies already available before they were promoted at a larger scale. On-farm testing provides important diagnostic information

about farmers' problems, preferences, and livelihood strategies and this technology generation helped researchers to understand better the early adoption processes involving the integration of farmer's indigenous knowledge into the scientific knowledge of researchers. In adoption studies, the third stage of agricultural technology impact assessment cycle studies were carried out to monitor the level and pathways of adoption and the impact of proven technologies on farm-level productivity during the technology promotion stage.

Moreover, studies on adoption essentials by (IAEG, 1999; Manyong *et al.*, 2001; Bantilan and Dar, 2001) suggested the following areas of evaluation of adoption studies:

(a) Levels and speed of adoption, and reasons for non-adoption of technology;
(b) Farmers' perceptions of desirable traits or features of the technology options;
(c) Farmers' level productivity and income gains due to the alleviation of biotic and abiotic constraints;
(d) Impact on the welfare of the farm household in terms of the intra-household distribution of income, nutrition, and health; and
(e) Infrastructural, institutional and policy hindering technology adoption.

3.6 Conceptual Model

Asika, (2001) defined a model as a construction that shows the relationship existing among variables and most often, these relationship are depicted schematically or mathematically. Modeling therefore, could be seen as an attempt at classifying the major element of an entity or phenomenon with regards to their functions and interrelationship, in order to observe more easily how the elements functions within the entity. Gertler *et al.* (2010) conceived conceptual framework to be a construction that shows the relationship existing among variables and most often is shown in a table, graphically or in a regression.

In conducting impact assessment, researchers use “with” and “without” impact method, while others use the “before” and “after” method. The “with” and “without” approach to impact study involves the study of population, villages or communities that benefited or did not benefit from the execution of a project. On the other hand, the “before” and “after” approach to impact study involves the study of a population, group of people or communities that have benefited from the execution of a project (Mosley 1997). Here, comparison is usually done to determine the conditions of the beneficiaries before the intervention programme and when the programme is on going or after the completion of the programme.

For the purpose of this study, the “with” and “without” method was used. This is because using this approach will likely give much proper assessment of the impact of the programme in the study area. The use of impact assessment concept would therefore help to examine the technological packages introduced by the IFAD- CBARDP programme under the social change theory and their implications on the livelihood of the participating smallholder farmers in the study area. The model developed for this study would observe changes over time among the participating farmers and the non-participating farmers of the project. It is assumed that the project intervention might have brought changes, which would be computed to determine the impact of the project on the farmers in the study area. White (2010) explained that, “the difference in outcomes between the treatment group (the beneficiaries) and the comparison group (non-beneficiaries) was the most common approach to impact analysis particularly where baseline data were not available. This is often referred to as the “Single Difference” method of impact assessment.

The “with” and “without” model of impact methodology was presented in the following form:

Treatment group (T) = Y_1^T

Control group (C) = Y_0^C

Difference = $Y_1^T - Y_0^C$

Where:

Y_1^T = Farmers with intervention (Participating Farmers)

Y_0^C = Farmers without intervention (Non-participating Farmers)

Difference = $Y_1^T - Y_0^C$ (Participating Farmer's yield - Non-participating Farmer's yield)

CHAPTER FOUR

METHODOLOGY

4.1 Study Area

This study was conducted in Katsina State, one of the 36 States in Nigeria. It was created on 23rd September, 1987. The State lies between latitude 11^0 7' and 13^0 22' North and longitude 6^0 52' and 9^0 2'East of the Equator. It is situated within the Sahel-Sudan agro ecological zone of Nigeria, and borders Zamfara State in the western part, Kaduna State in the southern part, Kano and Jigawa State in the east and Niger Republic in the northern part (Figure 4.1).

The State is made up of thirty-four Local Government Areas. Katsina State is one of the seven States that constitute the North- West geo-political Zone in the country. It is located in the Sudan Savanna ecological vegetation. It has a total available farmland area of 1.64 million hectares; total identified fadama area is 36,139ha with irrigable fadama area of 25,000ha. Average farm holdings were found to be 2.5ha. Rainfall in Katsina State ranges from 400 – 800mm in the northern and southern parts respectively (FOS, 2006). The National population census of 2006 put Katsina State at 5,792,579 people. At 2.8% growth rate projection, by 2013 when data were collected, Katsina State's population was expected to have increased to about 7,027,870 people. The number of farmer's families is 883,000 constituting 12.22% of the total population (NPC, 2006). Katsina State is known for the cultivation of the following crops; Millet, Sorghum, maize, rice, sugarcane, irrigated wheat, cowpea, groundnut, cotton and vegetables. The most prominent cropping pattern under rain fed is mixed cropping, where two to four crops are grown on the same farm. Each of the crops is also grown as a sole-crop. The major livestock produced in the state include cattle, sheep, goat, poultry, horses, donkey and camel. The State experiences its

lowest temperature during harmattan between November and February during which dry wind blows with heavy dust (FOS, 2006).

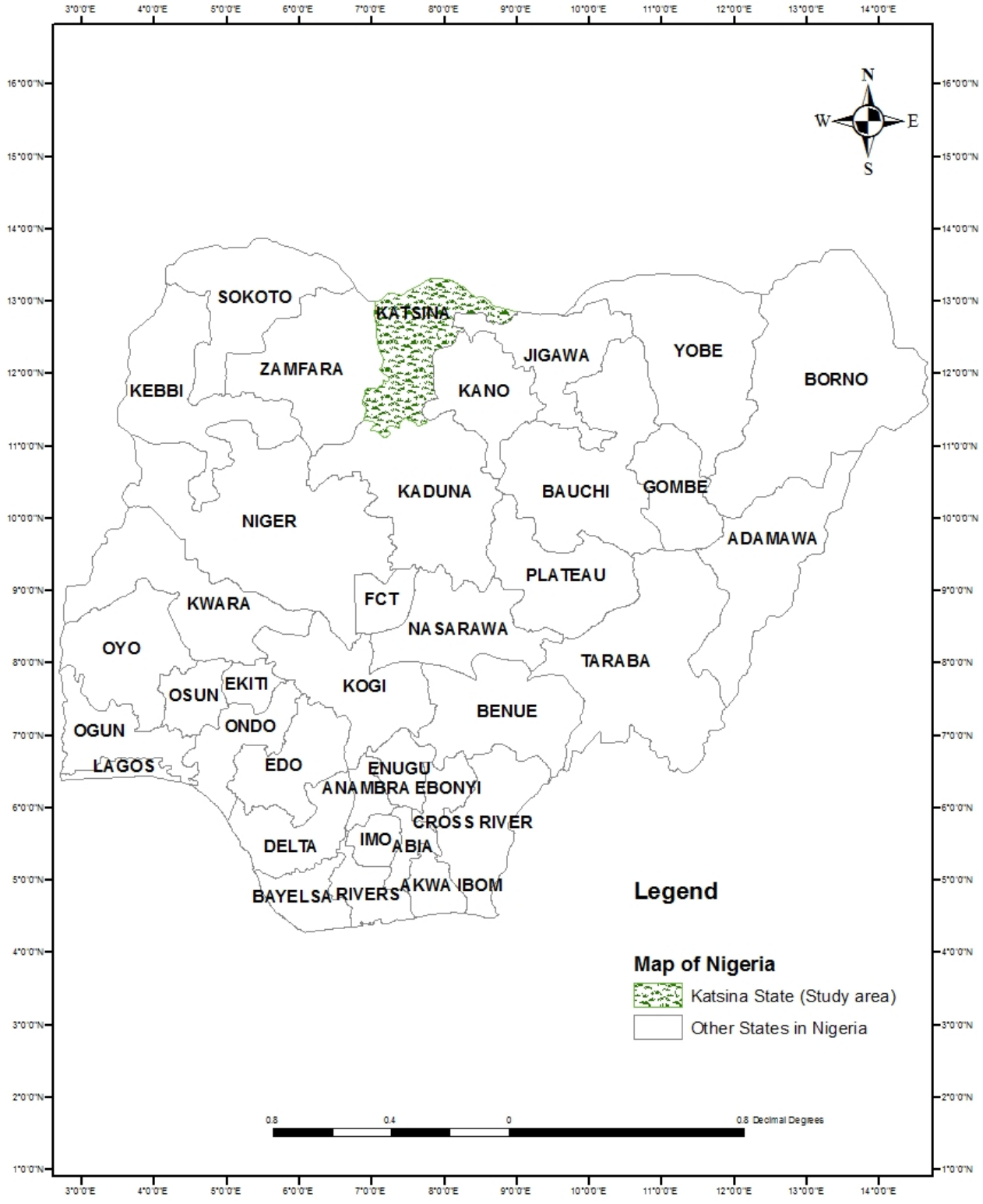


Figure 4.1: Map of Nigeria showing the study area (Katsina State).

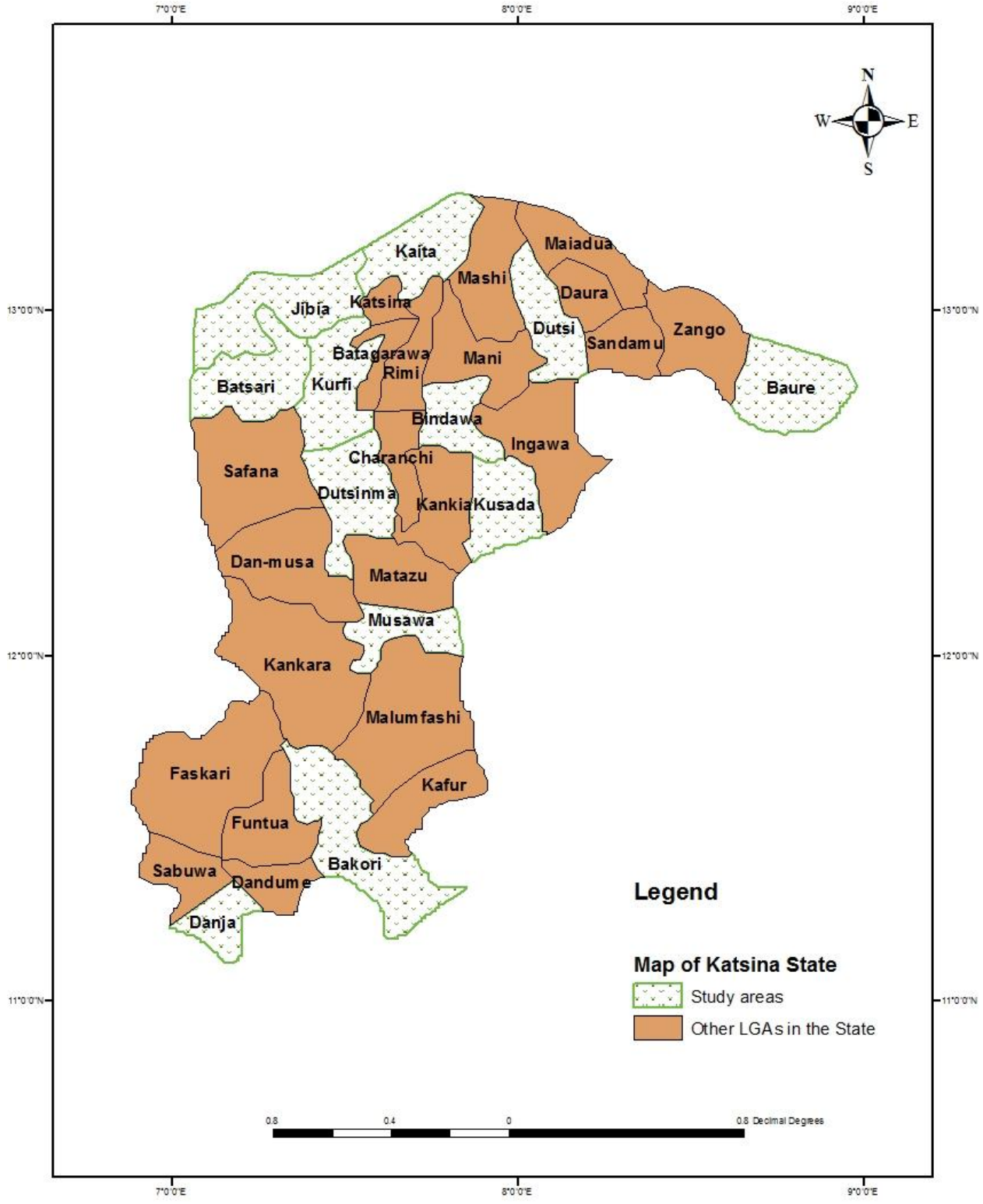


Figure 4.2: Map of Katsina State showing the LGAs studied.

4.2 Sampling Procedure and Sample Size

In order to examine the impact of IFAD- Community Based Agriculture and Rural Development Project on the livelihood of smallholder farmers in the study area, a multistage sampling technique was employed to get the respondents. The first stage involved a purposive selection of the twelve participating LGAs; the second stage involved purposive sampling of one village that had the highest participating farmers out of the three participating villages in each Local Government Area. The third stage involved the use of systematic random sampling technique to select twelve per cent (12%) of the population from the list of the participating farmers obtained from the extension agent of each of the selected villages. This gave a total of three hundred and fourty nine (349) participating farmers from the twelve participating village areas. Also three hundred and fourty nine (349) non-participating farmers were selected from neighbouring communities using systematic random sampling. This gave a total of three hundred and fourty nine (349) non-participating farmers from the twelve village areas. In all, a total of six hundred and ninety eight (698) respondents were used for the study. In addition, three (3) IFAD-CBARDP officials from each of the twelve (12) participating LGAs were randomly selected, this gave a total of thirty six (36) institutional questionnaire used for this study.

Table 4.1: Sampling design

LGA	PARTICIPANTS			NON-PARTICIPANTS		
	Purposively selected Participating Villages	**Population size of Participating Farmers in the Villages**	**Randomly selected Participating farmers (12%)**	**Purposively Selected non-Participating Villages**	**Population size of non-Participating Farmers in the Villages**	**Randomly drawn Corresponding sample for the Non-Participating farmers**
Danja	Kahutu	492	59	Dabai	552	59
Kurfi	Rawayau	280	33	Gwanzo	378	33
Musawa	Tsabe	220	26	Jikamshi	380	26
Bakori	Jargaba	180	22	Makera	447	22
Baure	Hurtumi	135	16	Kawari	219	16
Bindawa	Yangora	171	21	Doro	320	21
Dutsi	Karawa	172	21	Danaunai	264	21
Jibia	Daga	125	15	Bugaje	218	15
Kaita	Baawa	415	49	Yandaki	643	49
Batsari	Yauyau	293	35	Madaddabi	432	35
Dutsinma	Yanshantuna	165	20	Karofi	241	20
Kusada	Kofa	246	30	Dan gamau	534	30
Total		**2894**	**349**		**4628**	**349**

Source: Reconnaissance Survey 2013

4.3 Data Collection

Primary data were collected and used for this study. The data were collected from both the participating and non–participating farmers as well as IFAD-CBARDP officials using questionnaire instruments administered to 349 participating farmers in the selected village areas and 349 non-participating farmers in the neighbouring communities. In addition, thirty six (36) institutional questionnaire were administered to the IFAD-CBARDP officials in the study areas. Information collected were on socio-economic characteristics of the participating and non-participating farmers, level of project implementation and involvement of target beneficiaries, factors influencing participation, level of adoption of recommended practices, constraints to the effective implementation and participation in the

project by farmers and types of crops grown, yield per hectare, total yield obtained by the respondents for 2012 was collected. However, there were a few missing data because of the in ability of the respondents to provide answers to some questions.

4.4 Analytical Techniques

Frequencies distribution, percentages and means were used to summarize, classify and tabulate data to achieve objectives (1) socio-economic characteristics of the participating and non-participating farmers, (2) level of project implementation and involvement of target beneficiaries, (4) level of adoption of IFAD-CBARDP recommended practices and (6) constraints to the effective implementation and participation in the project. Logistic Regression analysis was used to achieve objective 3 i.e. to determine the socio-economic factors influencing participation in the programme.

Logit Model Specification

Participation in IFAD-CBARDP was the dependent variable and represented in the model by binary variable taking the value of 1 if the farmer had participated and 0 if otherwise. The cumulative logistic probability function is specified as:

$$P_i = F(Z_i) = F[\alpha + \sum_{i=1}^{n} \beta_i X_i] = \left[\frac{1}{1+e^{-(\alpha+\sum \beta_i X_i)}}\right] \quad \text{..... (1)}$$

Where, Pi represents that the probability that i^{th} farmer being participating given Xi, Xi represents the i*th* farmer's explanatory variables, i = 1, 2, 3. . , n; Zi a linear function of n explanatory variables (Xi), e represents the base of natural logarithms; α and β_i are regression parameters to be estimated in the model, where α the intercept and $\beta_1, \beta_2 \ldots \beta n$ are slope coefficient of the equation.

The model can also be written in terms of the log of the odds ratio (the probability that the farmer is participating (Pi)) to the probability that is non-participants (1-Pi) (Gujrati, 2004).

The probability that is non-participating (1-Pi) is defined by:

$$(1 - P_i) = \frac{1}{1+e^{z_i}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Using equation (1) and (2), the odds ratio becomes

$$\left(\frac{P_i}{1-P_i}\right) = \left[\frac{1+e^{z_i}}{1+e^{-z_i}}\right] = e^{z_i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Alternatively,

$$\left(\frac{P_i}{1-P_i}\right) = \left[\frac{1+e^{z_i}}{1+e^{-z_i}}\right] = e^{(\alpha+\sum \beta_i X_i)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Taking the natural logarithms of odds ratio of equation (4) it results as,

$$Z_i = \ln\left[\frac{P_i}{1-P_i}\right] = \ln e^{[\alpha+\sum \beta_i X_i]} = \alpha + \beta_1 X_1 + \beta_2 X_2 \ldots \beta_n X_n + U \ldots\ldots\ldots (5)$$

If the disturbance term (Ui) is introduced to the model, the logit model becomes

$$Z_i = \alpha + \beta_1 X_1 + \beta_2 X_2 \ldots \beta_n X_n + \mu_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

The logit model is specified as:

$$Log = \left(\frac{P}{R-P}\right) =$$

Linearizing

$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + - - - - b_8 x_8 + u$ …… (7)

Where:

Y = Participation $\left(\sum_{0=No=not\ Participating}^{1=yes=Participating} \right)$

X_1 = Age (in years)

X_2 = Level of education (years)

X_3 = Household size (number of persons)

X_4 = Farm size (ha)

X_5 = Sex (male = 1; female = 2)

X_6 = Membership of co-operative (member; non member)

X_7 = Extension contact (no. of visit; weekly, monthly, seasonally or annually)

X_8 = Amount of credit used (₦) (accessible; not accessible)

a = Constant

b_1 ------- b_8 = Regression co-efficient of x_1 ---------- x_8 to be estimated

u = Error term.

Chow test statistics supported by Z-test were used to examine the impact of the project on the yield, income and level of living of the participating farmers (objective 5). According to Dougherty (2002), Chow test statistics is often used in programme evaluation to determine whether the programme has impact on the participating and the non–participating farmers. Also, in programme evaluation, the chow test is often used to determine whether the independent variables have different impacts on different sub-groups of the population. The chow test is an application of the F-distribution test; it requires the sum of squared errors from each of the sample group and from the pooled data. If F-chow is greater than F-table, then there was project impact on beneficiaries otherwise no impact. This was used to test the hypotheses on project impact on crop yield, income and level of living of the participants.

The model is specified as follows:

$$F^{*}chow = \frac{(Rss_3 - (Rss_1 + Rss_2)/k}{\frac{Rss_1 + Rss_2}{n_1 + n_2 - 2k}} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (8)$$

Where:

F* is the test statistic

RSS_3 = residual sum of squares for the third regression (pooled data)

RSS_1 = residual sum of squares for the 1st regression (participants)

RSS_2 = residual sum of squares for the 2nd regression (non-participants)

K = the total number of regression estimate (including the intercept term) for the sub-sample regression

2K = the total number of regression estimate (for the pooled data)

n_1n_2 = number of observations of the 1st and 2nd regressions (participating and non-participating farmers respectively).

To further achieve objective 5, Z – test statistics was used to assess the impact of the project on income of the participating farmers in the study area. The model was used to compare the mean values of the income of the participating and non-participating farmers. The comparison provided a statistic for evaluating whether the difference between two mean is statistically significant or not, using the "with and without" concept and at the same time tested the hypothesis that the Project has no significant impact on the yield, income and level of living of the participating and the non-participating farmers. This was represented by the formular:

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s2_1 + s2_2}{n_1 + n_2}}} \quad \text{..... (9)}$$

Where: Z = z value

$\bar{x}_1$ = the sample mean of the income of the participating farmers in the communities.

$\bar{x}_2$= the sample mean of the income of the non-participating farmers in the communities.

s_1^2 = sample standard deviation for the participating farmer's income in the communities.

s_2^2 = sample standard deviation for the non- participating farmer's income in the communities.

n_1= sample size of participating farmers in the communities.

n_2 = sample size of non-participating farmers in the communities.

4.5 Definition, Operetionalization and Measurements of Variables

For the purpose of obtaining primary data from the respondents, some characteristics of the farmers were selected as variables.

4.5.1 Measurement of dependent variable (Y)

The dependent variable in this study was participation in IFAD-CBARDP. Participation referred to the direct involvement of marginalized groups in a development process, which aims to build people's capabilities to have access to and control of resources, benefits and opportunities towards self-reliance and improved quality of life. It is expected that farmer's participation in the programme would increase their yield, income and level of living. This was measured as either participants or non-participants and was scored 1 for participants and 0 for non-participants. In order to examine the impact of participation in the project on the livelihood of participating farmers, the "with" and "without" method was used. The indicators of livelihood impact for this study were yield, income and level of living.

4.5.1.1 Yield

It is referred to as the total amount of the farm produce in kilograms accruing to the participating and non-participating farmers during the season divided by the total

hectarages. Yield is expected to increase significantly for the participating farmers. It was measured in kilograms per hectare.

4.5.1.2 Income

It is referred to as the proceeds, returns or earnings generated by the farmer per annum as a result of participation in IFAD-CBARDP. Income is expected to increase significantly for the participating farmers. It was measured in naira.

4.5.1.3 Level of living

It is referred to as the standard of living of the participating farmers and that of the non-participating farmers. It is considered to be the quantity of goods and services consumed by the farmer and his household such as expenditure on consumable goods; fixed asset acquired; children in schools and services such as health care. It is assumed that the level of living of the participating farmers will be higher than that of the non-participating farmers due to exposure and adoption of the recommended agronomical practices by the participating farmers. Level of living index was measured by the total household expenditure divided by the total income and expressed in percentage. Those between 0-49% were judged to have low standard of living while those having 50% and above were judged to have better standard of living. The IFAD-CBARDP progrmme is expected to improve the livelihood of the participating farmers.

4.5.2 Measurement of independent variables

The independent variables for this study were the socio-economic characteristics of both participating and non-participating farmers.

4.5.2.1 Age (X_1)

It referred to the actual number of years an individual has spent on earth from birth to the study period. It is assumed that younger people will have stronger interest in participating in the IFAD-CBARDP agricultural project than the older people. It was measured in years.

4.5.2.2 Educational level (X_2)

This simply referred to the number of years the respondent spent in formal institution of learning. It is assumed that the higher the number of years of education of farmers the more their likelihood of understanding and participation in IFAD-CBARDP. It was measured on the scale scored from 0 – 4. Thus, farmers with no formal education were scored 0, farmers with Arabic and or Adult education were scored 1, farmers with primary education were scored 2, and farmers with secondary education were scored 3 and farmers with tertiary education were scored 4. The role of education is usually considered very important in the adoption of new farm practices or technologies introduced by the IFAD-CBARDP.

4.5.2.3 Household size (X_3)

This referred to the number of individuals in the household, which includes the wives, children and dependants who reside within the same house and eat from "the same pot". In this study, it is assumed that larger households will adopt IFAD-CBARDP practices more than the smaller ones because of extra demand for food and income to sustained the members of the household. It was measured in number of persons under one household unit and scored on a scale 1 – 4. The household unit with 1 – 5 members was scored 1, household with 6 – 10 members was scored 2, while household with 11 – 15 members was scored 3 and household with 16 members and above was scored 4.

4.5.2.4 Farm size (X_4)

This referred to the total amount of land area under cultivation by the respondents. It is assumed that farmers with larger farm size will adopt IFAD-CBARDP practices more than farmers with smaller farm size. This is because farmers with large farm size can sacrifice parts of their farmlands for the trials of improved practices. This was measured in hectares.

4.5.2.5 Sex (X_5)

This referred to the sex status of the respondent in terms of being male or female. It is assumed in this study that the composition of household members in terms of sex will determine the participation in IFAD-CBARDP and the subsequent adoption of their recommended farming practices since agricultural activities are mainly practiced by men. This was measured as either male or female and was scored 1 for male and 2 for female.

4.5.2.6 Membership of cooperative (X_6)

This referred to the social groups a farmer belonged. It usually influences the attitude of members towards community development projects. It is assumed that the more the number of social organizations a respondent belongs to, the more he/she is exposed to knowledge in different subjects; hence, the more he/she is likely to participate and adopt the IFAD-CBARDP recommended practices. It was measured based on whether the farmer belong to (assigned 1 score) or do not belong to (assigned 0 score).

4.5.2.7 Extension contact (X_7)

This referred to the number of times the extension agent visited the farmer. It is assumed in this study that farmers with more extension contact will adopt the IFAD-CBARDP recommended farming practices more than those farmers with less extension contact. It was measured on a scale of 0 – 6, farmers with no contact were scored 0, those with

weekly contacts were scored 1, those with fortnightly contacts were scored 2, those with monthly contacts were scored 3, those with bi-monthly contacts were scored 4, those with yearly contacts were scored 5 and those with occasional contacts were scored 6.

4.5.2.8 Amount of credit accessed (X_8)

This referred to the amount of money borrowed from conventional lending agencies such as banks, government and non-governmental organisations and the non-conventional sources such as moneylenders, friends or relatives by the farmer in order to sustain and improve management of his farm through the purchase of improved farm inputs and for the payment of wages. It is assumed in this study that farmers that have more access to agricultural credit are likely to participate and adopt the IFAD-CBARDP recommended practices more than the farmers that have less access to agricultural credit. It was measured on a scale of 1 – 2. Farmers that borrowed were scored 1 and those that did not borrowed were scored 2.

CHAPTER FIVE

RESULTS AND DISCUSSION

5.1 Socio-economic Characteristics of Participating and Non-participating Farmers

Results on socio-economic characteristics of the participating and non-participating farmers of IFAD-Community Based Agricultural and Rural Development Project in Katsina State are presented. These characteristics are age, sex, marital status, level of education, household size, membership of associations, farming experience, farm size, access to credit and extension contact (Table 5.1). However, due to some poorly filled questionnaire as a result of the in ability of the respondents to provide answers to some questions, 343 responses were obtained as against 349.

5.1.1 Distribution of respondents according to age, sex and marital

The study shows that 79 (23%) of the participating farmers were between the ages of 46-50 years, while the same age bracket was 64 (19%) for the non-participating farmers. The mean age of the participating farmers was 46 years while that of the non-participating farmers was 48 years. The result implies that most of the respondents were of middle age; signifying that both the categories of the respondents were within the agricultural productive age range of 30-50 years quoted by Food and Agriculture Organization (FAO, 1997; 2005). Also having a population that is middle aged implies that the understanding and utilization of the IFAD-CBARDP recommended agricultural production practices would be easier since middle aged people are expected to have acquired the least minimum level of formal education and are likely to be more inquisitive in finding more result oriented techniques of improving agricultural productivity. The implication of this finding means that people in the study area can actively participate in development activities since they had one form of formal education or the other. Studies have shown that education enhances people's ability to think rationally and make informed judgment (Ekon, 2003)

Table 5.1: Distribution of respondents based on age, sex and marital status

Participants				Non-participants		
Variables	**Frequency**	**Percentage**	**Mean**	**Frequency**	**Percentage**	**Mean**
Age						
21 – 25	08	2.3		11	3.2	
26 – 30	22	6.4		30	8.8	
31 – 35	27	7.9		34	10.0	
36 – 40	62	18.1	46	50	15.0	48
41 – 45	58	16.9		51	15.0	
46 – 50	79	23.0		64	19.0	
51– 55	87	25.4		100	29.0	
Sex						
Male	312	91.0		337	99.0	
Female	31	9.0		03	1.0	
Marital status						
Married	326	95.0		325	96.0	
Single	17	5.0		15	4.0	

The result also revealed that 91% and 9.0% of the participating farmers were males and females respectively, while 99.0% and 1.0% of the non-participants were males and females respectively. This implies that majority of the respondents were males which could be attributed to the current practice of purdah (women in seclusion) as the people in the area are predominantly Muslims. Women in seclusion do not engage in direct agricultural production in the area, particularly because of traditional gender bias against women. The

dominance of males in farming agrees with Oyedele and Yahaya (2007) who posits that majority of the smallholder farmers in Nigeria are males. It also confirms the findings of Onuk (2008) who found that males constitute the majority in rice production because females are mostly involved in domestic work. It also corroborated the findings of Nkoye *et al*. (2008) who reported that large proportions of small-scale farmers in Nigeria are male and married. However, the finding revealed that there were more females among the participants than with the non-participants, implying that the project encourages women participation.

The study further revealed that 95% and 5% of the participating farmers were married and single respectively while 96.0% and 4.0% of the non-participating farmers were also married and single respectively. This could be attributed to the culture of the people in the area, which encourages early marriage. This is in agreement with the findings of Agbamu *et al*. (1996) who found that married farmers adopt new varieties of maize and cassava more than farmers that are single. The result also tallied with that of Nkoye *et al*. (2008) who found that large proportion of small-scale farmers in Nigeria are male and married. The implication of this is that majority of the respondents can make use of members of the household to provide labour on the farm to increase production.

5.1.2 Level of education

Result in Table 5.2 revealed that 23.7% of the participating farmers had secondary education while the non-participating farmers who had secondary education were 17.1%. Also 5.8% of the participating farmers had tertiary education while only 4.7% of the non-participating had tertiary education. This implies that there were more educated farmers among the participating farmers and were aware of the importance of improved-inputs for increased agricultural productivity, which would facilitate the adoption of technologies

promoted by the IFAD-CBARDP. Farinde *et al.* (2005) had identified literacy among other factors as a variable that positively influenced the use of improved agricultural inputs by farmers. Also Agbamu *et al.* (1996) and Njoku (1991) in studies conducted separately found that formal education has a positive influence on adoption of innovation. It also supported the findings of Akpoko (2001) who analysed the factors associated with adoption of recommended poultry management practices; and found that majority of the respondents were literate. The study by Setotaw and cuvillier (2006) has affirmed that education is important for easy understanding of improved methods of agricultural production and makes farmers more receptive to advice from extension agency or be able to deal with technical recommendations that require a certain level of numeracy and literacy. This implied that, farmers that are more educated know the value of innovation and respond to extension information quickly.

Table 5.2: Distribution of respondents based on educational level

	Participants		**Non-participants**	
Variables	**Frequency**	**Percentage**	**Frequency**	**Percentage**
No formal educ.	10	2.9	04	1.2
Qur'anic educ.	167	49.0	147	43.2
Adult educ.	17	5.0	49	14.4
Primary educ.	48	14.0	66	19.4
Secondary educ.	81	23.7	58	17.1
Tertiary educ.	20	5.8	16	4.7

5.1.3 Household size

The result shows that majority (91%) of the participating farmers had a household type that was headed by male while it was 98.2% for the non-participants. This implied that there were more female household head among the participants than with the non-participants. The result further shows that the mean household size for the participating and non-participating farmers was 10 and 12years respectively. This implies that the respondents had a relatively large household size, which has an implication for labour availability for farm work. The result also implies that more hands were available to carry out necessary practices introduced to the participating farmers. The result agrees with the findings of Chianu and Tsuji (2004) who reported that farmers with large household size are more likely to adopt some soil improvement technology due to sufficient labour. The findings also tallied with the findings of the International Fund for Agricultural Development (IFAD) conducted in the area (2001) that majority of the farmers in the area have large household size. It implies that the farmers in the study area have large house holdings. This also suggests that the respondent had adequate family labour to cultivate large farms.

Table 5.3: Distribution of respondents based on household type and household size

	Participants			Non-participants		
Items	**Frequency**	**Percentage**	**Mean**	**Frequency**	**Percentage**	**Mean**
Household type						
Male headed	312	91.0		334	98.2	
Female Headed	31	9.0		06	1.8	
Household size						
1 – 5	110	32.1		65	19.1	
6 – 10	113	33.9		107	31.5	
11 – 15	56	16.3		86	25.3	
16 – 20	40	11.7	10	34	10.0	12
21 – 25	17	5.0		16	4.7	
26 – 30	06	1.7		06	1.8	
31>	01	0.3		26	7.6	

5.1.4 Membership of cooperatives societies

Cooperatives groups are an autonomous association of people who voluntarily cooperate for their mutual social, economic, and cultural benefit. It also aimed at promoting social change such as self-help, social participation, education and ownership. They are primarily social groups with economic attachments particularly to marketing and credit organizations. The findings on membership of cooperatives reveal that 85.7% of the participating farmers belong to cooperative associations while 68.5% constitute the numbers of the non-participating famers that belong to cooperative association. The maximum number of years spent as members of cooperative society was 10 years and a

minimum of 1 year for the participating farmers. Respondents with 1-3years of membership duration constitute 62.0%, those with 4-6 years of membership were 25.0% while those with 7-10 years of membership were 13.0%. This implies that most of the participating farmers have had long duration of experience as members of cooperative association, which certainly can facilitate understanding of the programme activities due to interaction among members. The result further shows that 53% and 97% of the participating and non-participating farmers respectively belong to 1-2 associations while 36% and 02% of the same categories belong to 3-4 associations. This implies that the farmers under the project were properly organized for easy access to subsidy and credit facilities. This is an indication that the more farmers participate in cooperative societies, the better the idea, knowledge and benefits derived from among members. This agrees with Clerk *et al.* (1968) whose findings revealed that farmers' membership of associations provide both information and credit to the farmers and encouraged adoption of recommended farm practices. It also supported the findings of Geotz (2003) in a study of the human resource-capacities of agricultural cooperatives, who found that cooperatives are the best-suited institutions for economic and rural development.

Table 5.4: Distribution of respondent based on membership of cooperative, years in the cooperative and number of cooperatives

	Participants			Non-participants		
Membership	**Frequency**	**Percentage**	**Mean**	**Frequency**	**Percentage**	**Mean**
Member	294	85.7		233	68.5	
Non-member	49	14.3		107	31.5	
Years of Membership of cooperatives (n= 294)						
1 – 3	182	61.90		161	69.1	
4 – 6	73	24.83	6	59	25.3	4
7 – 9	39	13.27		13	5.6	
Number of associations a farmer belong						
1– 2	177	53		317	97	
3– 4	120	36		08	02	
5– 6	37	11		02	01	

5.1.5 Years of farming experience

The result in Table 5.5 revealed that 98 (28.6%) of the participating farmers had between 10-19 years of faming experience while 77 (22.6%) of the non-participating farmers had same years of farming experience. This implies that the participating farmers had more years of farming experience than the non-participating farmers. Therefore, with more experience in farming, farmers are less likely to oppose the adoption of new technologies. A farmer's experience can also generate more confidence, thus, farming experience can have positive or negative effect on a farmer's decision. This result supported the findings of Amaza *et al.* (2009) who found that farming experience is an important factor

determining both productivity and production level in farming. It was assumed that the higher the experience of the farmer the better would be his productive capacity.

Table 5.5: Distribution of respondents based on their farming experience

	Participants			Non-participants		
Range	**Frequency**	**Percentage %**	**Mean**	**Frequency**	**Percentage %**	**Mean**
1 – 10	152	43.3		122	35.9	
11 – 20	98	28.6		77	22.6	
21 – 30	61	17.8	14	47	13.8	16
31 – 40	16	4.7		47	13.8	
41 – 50	16	4.7		47	13.8	

5.1.6 Farm size

The result in Table 5.6 revealed that the average farm size for the participating farmers was found to be 3.21 hectares while that of the non-participating farmers was 1.57 hectares. The result implies that the farmers fall within the range of smallholder farmers. Size of farmland is expected to aid the adoption of new technologies by farmers because farmers that lack enough farmland cannot sacrifice their land for trials of new technology. This supported the findings of Salau *et al.* (2013) in a study of Agricultural Information needs of smallholder farmers in Central Agricultural Zones of Nasarawa State which revealed that majority (68%) of the respondents had farm sizes ranging between 1- 5ha.

Table 5.6: Distribution of respondents based on their farm size

	Participants			Non-participants		
Farm size (ha)	**Frequency**	**Percentage %**	**Mean**	**Frequency**	**Percentage %**	**Mean**
0.5-1.0	121	35.6		201	59.1	
1.1-1.5	13	3.8		16	4.7	
1.6-2.0	103	30.3	3.21	71	20.9	1.57
2.1-2.5	6	1.8		16	4.7	
2.6-3.0	4	1.2		13	3.9	
3.1-3.5	48	13.2		12	3.5	
3.6-4.0	48	14.1		11	3.2	

5.1.7 Credit received

The result in Table 5.7 revealed that 238 (69.4%) of the participants had access to credit while only 105 (30.9%) of the non-participant had access to credit. This showed that the participating farmers had more access to credit than the non-participating farmers did. This implies that most of the participating farmers got credit facilities which they used in financing their agricultural activities. This agrees with Ekon (2003) whose report revealed that credit is a very strong important factor that is required for the development of farm enterprise. The availability and accessibility could largely determine the extent of production capacity of a farmer. Nwaru (2004) asserted that the performance of an enterprise such as agriculture in Nigeria could be greatly influenced by credit accessibility. It was observed that most (52%) of the participating farmers obtained their credit from IFAD-CBARDP, 19% from Bank of Agriculture and 15.6% from cooperative associations. IFA-CBARDP seldom grants financial credit to participants. However, the project trained participant in entrepreneurial development.

Table 5.7: Distribution of respondents based on their accessibility to credit and sources of credit

	Participants		Non-participants	
Items	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Accessibility to credit				
Accessible	238	69.4	105	30.9
Not Accessible	105	30.6	235	69.1
sources of credit (n = 238)			(n = 105)	
Conventional sources of credit				
Bank of Agriculture	46	19.0	38	36.9
Commercial Banks	03	2.5	33	32.0
IFAD-CBARDP	12	52.0	00	00.0
Non-conventional sources of Credit				
Cooperative	38	15.6	15	14.6
Friends& relatives	26	10.9	17	16.5

5.1.8 Extension contact

Finding in Table 5.8 shows that 56.3% of the participating farmers had monthly extension contact while only 24.6% of the non-participating farmers had same contact. The result further shows that 97% and 86% of the participating and non-participating farmers respectively were satisfy with the extension visit while only 3% and 14% of the same categories not satisfy with the extension visit. The implication of the result is that the participating farmers had more contact with extension agents and were more satisfied with the visit. This could be attributed to the extension activities provided by the IFAD-CRDP

in the study area. This coincides with the general opinion that when farmers have extension opportunities open to them, they are better placed to actively participate in seeking such service. The IFAD-CBARDP worked with trained ADP staff as facilitators in all the communities covered by the project. Contact with extension agents enable farmers to obtain information on improved agricultural technology. The extension agent serve as facilitator in the project to teach farmers in the project on how to rise their standard of living by their own efforts, using their own resources or human and materials with the minimum assistance from government. Nwuzor (2000) and Pedro *et al.* (2008) cited in Isa *et al.* (2013) observed that areas served by extension received highest yields in grape production. The finding is in line with Agbelemoge *et al.* (2001) who confirmed the important role of extension agent in the diffusion and adoption of an innovation.

The result also tallied with the findings of Isa *et al.* (2013) who found that agricultural extension services helped famers to adopt innovations related to crop practices, better nutrition, improved health practices and better home living. The few non-participating farmers that had contact with extension agent reported that the visit came from the public extension agent. The result corroborate the findings of Arokoyo (1998) who posits that the importance of agricultural extension lies in the teaching of farmers how to raise their standard of living by adopting innovations and proven technologies in their farming practices. This is usually accompanied by technical information with which the farmers are assisted to understand the potentials of the technologies and acquire the needed skills for their implementation. However the finding is in contrast with that of Idrisa *et al.* (2008) in a study of analysis of farmers' access to and perception of extension service delivery revealed that more than eighty (80%) percent of the respondents had access to public extension service while less than half (43.8%) had access to private extension service.

Table 5.8: Distribution of respondents based on their extension contact, frequency of visit and satisfaction with visit

Items	Participants		Non-participants	
	Frequency	Percentage	Frequency	Percentage
Extension contact				
Contact	283	82.5	134	39.4
No-contact	61	17.5	206	60.6
Frequency of extension contact (n= 283)				
Weekly	25	7.3	00	00.0
Bi-weekly	10	2.9	00	00.0
Monthly	193	56.3	33	24.6
Bi-monthly	73	21.3	17	12.7
Yearly	32	9.3	12	9.0
Occasional	10	2.9	72	53.7
Farmers Satisfaction with Extension Contact				
Yes	323	97	114	86.0
No	11	3	20	14.0

5.2 Level of Project Implementation and Involvement of Target Beneficiaries

The level of implementation of project activities as well as the level of involvement of the target beneficiaries in the project are discussed as follows:

5.2.1 Level of implementation of project activities

The result in Table 5.9 revealed that 84.6% of the respondents' benefited from the capacity building programme of the project. This according to the respondent had developed their capacity in various aspects of production. Equally, the respondents received trainings on group development and leadership responsibilities. This according to them had served as a motivating factor for participation in the programme. The result shows that 83.1% of the respondents had access to farm inputs. The IFAD-Community Based Agricultural and Rural Development Project assisted its participants with various farm inputs such as seeds, seed dressing chemicals, fertilizers and insecticides at subsidized rates. Most of the

respondents 77.6% reported that they had access to portable drinking water, which was provided by the project through the drilling of boreholes in all the participating communities. The study further shows that, 76.5% of the respondents had group meetings with the extension agents regularly. This according to the respondents had encouraged their participation in the programme. Meetings are techniques of bringing a group or team together to work for common purpose. Effective meetings are an important aspect of making a group successful. In fact, meetings allow the group to perform beyond the potentials of each individual member. The result further revealed that 72.4% of the respondent took part in the various sensitization workshops organized and conducted by the project. It was reported by the respondents that for any new programme or activity, to be embarked on by the project, a sensitization workshop must be organized and conducted. The findings of the study indicated that 71.2% of the respondents got livestock drugs from the veterinary clinics at a subsidized price. This has served as motivation and encouragement to the beneficiaries to participate in the project.

The study further indicated that 70.3% of the participating farmers benefited from livestock extension services of the IFAD-Community Based Agricultural and Rural Development Project. This in particular had encouraged women participation in the programme. Some of the women participants were into rearing and domestication of sheep and goats in the community. According to them, they received free consultant services from the veterinarians and pay little for the drugs prescribed for their animals. The study further revealed that 66.6% of the respondents benefited from electricity, which was provided by the project through solar electricity. The result revealed that 66% of the respondents family members benefited from the health facilities provided in the communities by the project. It was also found that 65.1% of the respondents in the various communities were the project was operated benefitted from access roads. This had

contributed a lot in enabling the community's members to have ease of transportation thereby enhancing or facilitating outlets for marketing their harvested farm produce. This according to the respondents had contributed a lot in motivating them to participate in the project. It was also found that 61.6% of the respondents benefited from the storage and processing facilities of the project. According to the respondent, various trainings were organized and conducted on methods of crop preservation, which include the use of storage chemicals, using of polythene and reduced moisture content of the grains. This implies that there was high level of project implementation in the study area.

Table 5.9: Level of implementation of project activities (n = 349)

Activities	**Frequency**	**Percentage**	**Ranking**
Capacity building	291	84.6	1st
Farm inputs supply	286	83.1	2nd
Portables water supply	267	77.6	3rd
Meetings	263	76.5	4th
Sensitization (workshop)	249	72.4	5th
L/stock drugs	245	71.2	6th
L/stock extension services	242	70.3	7th
Electricity	229	66.6	8th
Health clinics	227	66.0	9th
Provision of access roads	224	65.1	10th
Storage/processing facilities	212	61.6	11th

5.2.2 Level of participation in IFAD-CBARDP activities and types of participation

The data in Table 5.10 revealed that the beneficiaries collaborated in the following activities: participation in the development of local plan, (9%), conducting need

assessment (15%), identification of priority public infrastructures subproject to be funded and executed (19.21%), determination of site of public infrastructure to be funded and executed (17.93%), developing monitoring and evaluation plan (10.13%) and implementation of community based infrastructure and assets acquisition activities (9.75%). This clearly shows that participation of the beneficiaries in (6 out of 7 areas) of the project was collaborative. The implication of this finding is that neither the IFAD-CBARDP officials nor the farmer takes decision in the above-mentioned areas in isolation. However, developing list of constraints to be addressed through advisory services with respect to IFAD-CBARDP enterprise production (18.98%) was found to be consultative. Conclusively, beneficiaries participated actively in all the process and were not just passive recipients of information. This finding confirmed the findings of (Oakley, 2002) who asserted that the rural poor must participate in designing and operating a programme, which involves them. It also corroborated the findings of (Cleaver, 2009) who posited that participation is expected to lead to better designed project, better target groups or beneficiaries, more cost effective and timely delivery of project inputs, more equitably distributed project benefits with less corruption. This further revealed that the IFAD-CBARDP used the participatory demand driven agricultural extension approach in the implementation of the project activities in the study area. The result of this study agrees with the findings Chabeuf, Toledano, Bourfa and Neighbor (2004) in Innih and Dimelu (2013) who asserted that if the beneficiaries of development interventions are empowered to the point that virtually all responsibility for sub-project selection, implementation and supervision is transferred to them; the beneficiaries gain discretion over their development decision. This according to them apparently gives the hope for sustainability of the project.

Table 5.10: Level of participation in IFAD-CBARDP activities and types of participation

Activities	Frequency	Percentage	Type of participation
Participation in the development of Local plan	120	9.00	Collaborative
Conducting need assessment	200	15.00	Collaborative
Developing list of constraints to be addressed through advisory services with respect to IFAD-CBARDP enterprise production	253	18.98	Consultative
Identification of important public infrastructure to be funded and executed	256	19.21	Collaborative
Determination of appropriate site for the public infrastructure	239	17.93	Collaborative
Developing monitoring and evaluation plan	135	10.13	Collaborative
Implementation of community based infrastructure and asset acquisition activities	130	9.75	Collaborative

5.2.3 Level of involvement of target beneficiaries by IFAD-CABARDP

The project was aimed at the improvement of the livelihoods and living conditions of the rural poor with emphasis on women and other vulnerable groups such as children, unemployed youth, widows, young couples, women headed households, physically challenged, the sick and the aged. Findings in Table 5.11 revealed that out of the 3,165-targeted youth in the study area, 2,315 representing 73% was achieved and out of 4,790-targeted unemployed youths, 2,960 representing 62% was achieved. The result also revealed that out of 5,539-targeted widows, 2,854 representing 52% was achieved. It further revealed that out of 588 targeted young couples, 1,975 representing 336% achievement was recorded in the study area. This could be attributed to the desire of the

young couples to be engaged in productive ventures to sustain the family. The result also indicated that out of the 818-targeted women headed household, 339 (41%) was achieved, and out of the 688 targeted physically challenged 483 (72%) was achieved. The result further indicated that out of the 1,179 targeted sick persons in the study area, only 398 (34%) was achieved while only 18% which represented 576 aged persons as against the 3,165 targeted was achieved. The overall result showed high level of achievement by the project as regard to the involvement of the vulnerable groups in the study area.

Table 5.11: Level of involvement of target beneficiaries by IFAD-CABARDP

Vulnerable groups	Targeted	Achieved	% Achieved	Cumulative Level Achievement
Children	3,165	2,315	73	11
Unemployed Youth	4,790	2,960	62	9
Widows	5,539	2,854	52	7
Young Couples	588	1,975	336	49
Women Headed household	818	339	41	6
Physically Challenged	668	483	72	11
The Sick	1,179	398	34	5
The Aged	3,165	576	18	3

Note: Multiple responses was allowed

5.3 Factors Influencing Farmers Participation in IFAD-CBARDP

The result of logit regression, as presented in Table 5.12, showed that level of education had a negative coefficient (-0.309) and significant at 1 percent level of probability. This implies that the higher the level of education of the respondents, the less the probability of farmers participating in IFAD Community Based Agriculture and Rural Development Project. Farmer's literacy levels usually influences the decision-making and the adoption

of innovation by farmers, which may bring about increase in productivity. Household size was also found to have a negative coefficient (-0.041) and significant at 1% level of probability. The implication of this result is that the higher the number of people in a household the less the probability of farmers participation in the project. This implies that household size has less influence on farmer's participation in the project. Farm size had a positive coefficient (0.801) and was significant at 1% level of probability. The positive and significant influence of farm size implies that farmers with large farms size are likely to participate more in the project than farmers with small farm holdings. This indicated that farms size was an important factor that influenced farmer's participation in the IFAD-Community Based Agricultural and Rural Development Project in the study area. It was expected that owners of large farms usually have more resources than those with small farms. This confirms the findings of Maiangwa (2006) who found farm size to be positively related to adoption of agro-forestry in Kano and Ajiwa, and negative in Danbata and Funtua, in North West geo-political zone of Nigeria. This result also is in agreement with the findings of Yahaya *et al.* (2013) who found farm size of the participating farmers to be highly significant at 1% level of probability.

Sex was found to have a negative coefficient value (-0.283) and was statistically significant at 1% level of probability. Although, sex was inversely related to participation, however had significant influence on participation in the project. Membership of cooperative had a positive coefficient (0.547) and was statistically significant at 1% level of probability. This implies that the more the farmers are involved in social organizations, the more the likelihood of participation in the IFAD-Community Based Agricultural and Rural Development Project. Access to credit also had a positive coefficient (1.213) and was statistically significant at 1% level of probability. This implies that the more the farmers had access to agricultural credit, the more likely they are to participate in the project. In

other words, it implies that access to credit of the individual's increases their probability of participation in the project. This finding is line with those of Olufemi *et al.* (2006) and Edi *et al.* (2007) who noted that social participation, access to credit, farm size and contact with extension influence participation. Extension contact had a positive coefficient (0.283) and was statistically significant at 1% level of probability. This implies that the higher the number or frequency of the visit of extension agent to the farmers, the higher the probability of participation and the adoption of recommended practices. This confirmed the findings Olufemi *et al.* (2006) who found that extension contact have an influence on farmer's level of participation in agricultural development programmes. However, age was inversely related to participation (-0.077) but not statistically significant at either 1% or 5% level of probability. It implies that the age of the farmer has no significant influence on farmer's participation in the project activities. This finding is in agreement with that of Abdullahi *et al.* (2014) which noted that age of the farmer was inversely related to participation. The Pseudo R^2 value of 4.880 at 1% level of probability (P=0.002) shows the overall contribution for the predicted variables to the variation of farmers participation in the project. This implies that 48% variation in participation in the IFAD-CBARDP was as a result of the contribution made by the independent variables.

It was hypothesized that farmers' socio-economic factors have no influence on project participation. The finding showed that most 7out of 8 factors had significantly influenced farmers' participation at 1% level of probability. It is therefore concluded that farmers' socio-economic factors have influence on farmers' participation in the project; hence, the null hypothesis is hereby rejected.

Table 5.12: Logit regression result of socio-economic factors influencing farmers participation in IFAD-CBARDP

Variables	Coefficient	Standard Error	Valid Statistic	P value
Constant	-1.535	0.173	-8.870	0.000
Age	-0.068	0.042	-1.608	0.085
Level of education	-0.309	0.051	-6.110	0.000*
Household size	-0.041	0.013	-3.223	0.000*
Farm size	0.801	0.254	3.151	0.000*
Sex	-0.283	0.120	-2.371	0.001*
Membership of coop.	0.545	0.130	4.197	0.000*
Access to credit	1.213	0.397	3.059	0.000*
Extension contact	0.583	0.252	2.309	0.001*

Pearson Chi-square Statistic: 4.880 (P=0.002)
Likelihood Ratio Test Statistic: 943.117 (P = <0.001)

* P<0.01

5.4 Level of Adoption of IFAD-CBARDP Recommended Practices by the Participating Farmers

The research findings (figure 5.1), show the level of adoption of IFAD-Community Based Agricultural and Rural Development recommended practices among the participating farmers. The result showed that 75.97% of the respondents adopted the use of improved seed varieties, 82.75% adopted the use of seed dressing chemicals, 83.91% adopted the use of seed rate, 85.37% adopted the use of adequate plant spacing and 88.66% adopted the use of recommended fertilizer. Other recommendations adopted by the participating farmers include method and dosage of fertilizer application (83%), timely planting (85%), use of herbicides (87.21%), timely harvesting (89.92%) and proper storage (88.18%). Generally, there was high level of adoption of the recommended production practices introduced to the farmers as shown below in figure 2: This high level of adoption supported Ganpat and Seepersad (1996) whose report shows that for a successful adoption of new technology,

farmers must not only know about it, but must be able to follow the recommendations given. This implies that the farmer must have the knowledge before putting the recommendations into practice. The result also affirm the findings of Abdullahi *et al.* (2011) whose findings showed that farmers adoption of technologies was impressive, with up to 76% and 58% for double and triple bagging respectively. Generally, there was a high level of adoption of the recommended farming practices among the participating farmers in the study area.

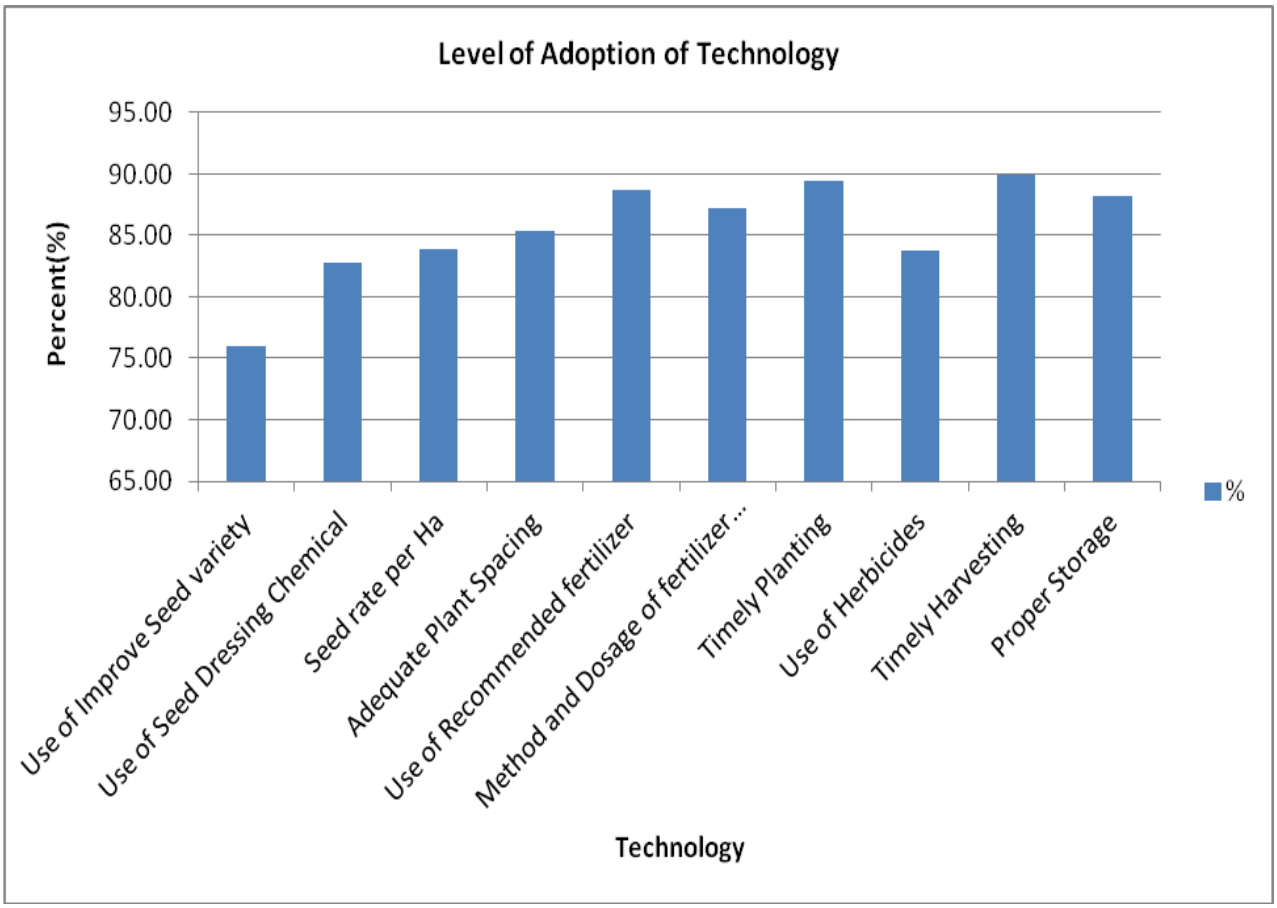


Fig. 5.1: Level of adoption of IFAD-CBARDP recommended practices

5.5 Impact of the Programme Activities on Yield, Income and Level of living

The results of chow-test analyses on the impact of IFAD-CBARDP recommended practices on yield, income and level of living are given as follows:

5.5.1 Impact on yield of participating farmers

The study revealed that the total farm area under cultivation in the study area by the participating farmers was 1,093 hectares and the non-participating farmers cultivated 533 hectares. Further analyses using the Chow-test to determine the impact of IFAD-CBARDP recommended practices on yield is as shown in Table 5.13.

Result in Table 5.13 showed that F-chow (21.66) is greater than the F-table (9.89); implying that the IFAD-CBARDP recommended practices had positive impact on the participating farmers in terms of their yield. This finding is in agreement with the report of the International Food Policy Research Institute (IFRRI, 2001) which shows that there was an increase availability of an access to food in rural areas of Bangladesh as a result of the intervention in the area. The result also corroborated the findings of Jacob *et al.* (2009) in a study conducted on the impact of rural development projects on agricultural productivity, which stated that the projects had positive impact on productivity.

It was hypothesized that the IFAD-CBARDP has no significant impact on the yield of participating farmers in the study area. Therefore, using a degree of freedom (P=0.01), the result of the chow-test in Table 5.13 shows that F-calculated (21.66) is greater than the F-table (9.89); hence the null hypothesis is hereby rejected, i.e. there is significant difference between the yield of participating farmers and the non-participating farmers in the study area with a yield differential of 86.44%. This was attributed to the high-level of adoption of recommended practices by the participating farmers. The finding implied that the IFAD-CBARDP activities in the study area had increased the yield of the participants.

Table 5.13: Chow- test result on the impact of IFAD-CBARDP on yield of participating farmers

Group/Model	Regression	Residual	n_1+n_2	K	F- cal	F-table
Pooled	852091.81	2161546542.00	683	3	21.66	9.89
Participants	2703208.98	1868517967.00				
Non- Participants	380955.85	234366351.80				

5.5.2 Impact on income of participating farmers

The study found that the average income for the participating farmers was ₦ 368,430.88 while that for the non-participating farmers was ₦ 340,874.66 Further analyses using the chow test to determine the impact of IFAD-CBARDP recommended practices/activities on income of the participating farmers is as shown in Table 5.14.

Analyses show that F-chow is greater than the F-table. This indicated that IFAD-CBARDP practices had impact on participant's income. This findings agrees with the findings of the international livestock research institute (ILRI, 2010) which reported that agricultural development project that seek to increase the assert holding of the poor not only contribute to sustainable poverty reduction, but also help to promote socially desirable and empowering behaviour. Also, the null hypothesis tested in this research states that, there is no significant difference between the income of the IFAD-CBARDP participants and the non-participants. The decision rule state that if F-calculated (13.62) is greater than the F-table (9.89) then there was project impacts on the beneficiaries otherwise no impact. As such, the null hypothesis is hereby rejected. It is therefore concluded that there is a significant difference between the income of the IFAD-CBARDP participants and non-participants.

Table 5.14: Chow- test result on the impact of IFAD-CBARDP on income of participating farmers

Group/Model	Regression	Residual	n_1+n_2	K	F- cal	F-table
Pooled	235546.93	1558208158.00	683	3	13.62	9.89
Participants	489101.14	872065497.00				
Non- Participants	433803.32	626788232.80				

5.5.3 Impact on level of living

Findings in Table 5.15 revealed that both the participating and the non-participating farmers used the proceeds from the sale of their crop yield and money generated from non-farm activities to improve their level of living. The mean money spent by the participating farmers to improve their level of living was ₦ 368,430.88 while the non-participating farmers used ₦ 340,874.66 as the mean money to improve their level of living. The difference in the mean average between the participants and the non-participants revealed large margin of ₦ 27,556.22. Further analysis using Chow-test to determine the impact of the IFAD-CBARDP practices on the level of living as regards to the properties acquired by the participants is shown in Table 5.15.

Analysis showed that F-chow calculated is greater than the F-table; this clearly indicated that the IFAD-CBARDP activities in the study area have greatly impacted on the level of living of the participating farmers. This significant impact could be attributed to the adoption of the recommend practices by the farmers. This result agrees with the findings of the international development research centre (IDRC, 2003) whose findings revealed that projects implemented in Ethiopia that focused on agriculture and water management saved more than 25% of rural communities from starvation, malnutrition, diseases and death. The null hypothesis tested in this research states that there is no significant difference between the level of living of IFAD-CBARDP participants and the non-participants. The decision rule states that if F-calculated is greater than F-table, then there was project impact on the

participants otherwise no impact. Using a degree of freedom (P=0.01); the result of Chow-test (148.09) is greater than F-table (9.89); therefore the null hypothesis is hereby rejected. It is therefore concluded that there is significant difference between the level of living of the IFAD-CBARDP participating farmers and the non-participating farmers in favour of the participants.

Table 5.15 : Chow- test result on the impact of IFAD-CBARDP on level of living of participating farmers

Group/Model	Regression	Residual	n_1+n_2	K	F- cal	F-table
Pooled	255140.00	18956143.52	683	3	148.09	9.89
Participants	224294.28	17269677.55				
Non-Participants	104643.54	1385938815.78				

5.5.4 Z - test analysis of income of participating and non-participating farmers

To further, determine whether there were any significant difference in terms of income between the participating and the non-participating farmers, the income of the farmers were estimated using Z-test analysis. The result shows that the calculated Z - value (25.78) is greater than the table Z - value of 1.64 at one tail and significant at 5% level of probability. This further confirmed that there is significant difference between the income of IFAD-CBARDP participating farmers and the non-participating farmers.

Table 5.16: Z – test result of the income of IFAD-CBARDP participating and non-participating farmers

Variables	Participants income	Non-participants income
Mean	368430.88	340874.64
Known Variance	27556.3	11370.9
Observations	347	347
Hypothesized mean diff.	0.00	
Z	25.78	
P (Z < = z) one-tail	2.2	
Z Critical one-tail	1.64	

5.6 Constraints to the effective implementation and participation in IFAD-CBARDP

The major constraints to the effective implementation of IFAD-CBARDP activities by the project authorities, as well as the effective participation of farmers in the project are discussed as follows:

5.6.1 Major constraints to the effective implementation of IFAD-CBARDP

The result in Table 5.17 shows that 16.9% of the respondents (IFAD-CBARDP**)** officials indicated low counterpart funding from the State and LGAs as the major problem constraining the implementation of the project. This has seriously affected the implementation of the programme in the sense that it caused delays in carrying out of some projects. This agreed with the findings of Abubakar (2011) who reported constraint to extension services of the ADPs was poor funding. Fund allocation from State government was found to be grossly inadequate and often disburse late. This low funding that the key in addition to other factors led to the ADPs inability to meet their required logistics for attending REFILS workshop on annual basis. Similarly, 15.2% of the respondent revealed that untimely disbursement of funds by the State and Local Government Areas constrained

the effective implementation of the project in the study area. Agricultural activities are time bound and therefore require prompt disbursement of funds. This is corroborated by the findings of Bello and Salau (2009); Ajieh *et al*., 2008; Chukwuone *et al.* 2006; and Farrington 1994 in Umar *et al.* (2013) which noted that recent developments especially in issues of funding call for a rethinking about the future of agricultural extension services in Nigeria. It also confirmed the findings of Inni and Dimetu (2013) who found untimely release of counterpart funds to be major constraints to participation in the Fadama III project. The result also supported the findings of Muhammad *et al*. (2010) and Joseph (2012) who noted that the major problems in the execution of programmes by the Non-Governmental Organization (NGO) include lack of coordination and over dependence on foreign donors, limited community participation and lack of proper documentation of activities. Other factors that constrained the effective implementation of the programme in the state included inadequate mobility among the extension personnel with 14.6%, untimely distribution/high cost of inputs 13.2% and weak extension contact 12.7%. This finding also tallied with the findings of Joseph (2011) who identified inadequacy and instability of funding, poor logistic support for field staff, use of poorly trained personnel at the local level, ineffective agricultural research extension linkages, insufficient and inappropriate agro technologies for farmers, disproportionate extension agent to farm family ratio, dilution of extension agent's specific responsibility, lack of clientele participation in programme development, failure of input suppliers to ensure effective and timely distribution to farmers, irregular evaluation of extension programme and policy and institutional and progrmme instabilities of national agricultural extension systems to be the major problems of agricultural extension services in developing countries.

Table 5.17: Major constraints to implementation of IFAD-CBARDP (n = 36)

Major constraints	*Frequency	%	Rank
Low counterpart funding	36	16.9	1st
Untimely disbursement of funds	32	15.2	2nd
Inadequate mobility of extension Personnel	31	14.6	3rd
Untimely distribution/high cost of inputs	28	13.2	4th
Weak extension contact	27	12.7	5th

***Multiple responses was allowed**

5.6.2 Major constraint to effective participation in IFAD-CABARDP by the farmers

The result of the analysis of the major constraint to participation in the project revealed that inadequate capital 97.4%, inadequate agricultural credits 97.0%, inadequate storage facilities 95.0%, limited access to market information 93.1%, inadequate agricultural insurance 64.4%, poor leadership 34.0% and socio-cultural barrier 21.0% as the factors affecting the effective participation in IFAD-CBARDP in the study area. This supported the findings of Akpabio (2007) in his study, women NGOs and rural women empowerment activities in the Niger Delta, Nigeria, who found inadequate credit facilities and poor utilization of credit advances as factors constraining effective beneficiaries' participation in women Non-Governmental Organizations (NGOs). These factors are critical to production activities of the participating farmers. For instance, inadequate capital, inadequate credit facilities, poor extension agent output impedes participation and consequently dampens the confidence of the farmers in the implementing agencies. The reported socio-cultural barrier that constrained participation was attributed to the fact that majority of the respondents were males with only a few females' participants. Women participation in some agricultural activities is limited due to socio-cultural practices.

Table 5.18: Major constraints to effective participation in IFAD-CABARDP by the farmers

Variables	***Frequency (n=349)**	**%**	**Rank**
Inadequate capital	340	97.4	1st
Inadequate agricultural credit	337	97.0	2nd
Inadequate storage facilities	330	95.0	3rd
Limited market information	325	93.1	4th
Inadequate agric insurance	225	64.4	5th
Poor leadership	117	34.0	6th
Socio-cultural barrier	73	21.0	7th

***Multiple responses was allowed here**

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

The study assessed the impact of IFAD-Community Based Agricultural and Rural Development Project on the livelihood of smallholder crop farmers in Katsina State, Nigeria. A total of 698 respondents were used for the study. Multi-stage purposive and simple random sampling was used in getting the respondents. Descriptive statistical tools such as mean, percentages, frequency distribution and inferential statistic such as Logistic regression analysis, Chow test and Z-test were used for data analysis. The result obtained revealed that 23% of the participating farmers were between the ages of 46-50 years, while the same age bracket was 18% for the non-participating farmers. The mean age for the participants and non-participants was 46 and 48years respectively.

The findings further revealed that 23.7% of the participating farmers had secondary education while the non-participating farmers where 17.1%. Also, 5.8% of the participating farmers had tertiary education while 4.7% of the non-participating had tertiary education. It was also found that 84.6% of the respondents' benefited from the capacity building programme of the project, 83.1% of the respondents had access to farm inputs and 77.6% reported that they had access to portable drinking water. The finding also showed that the beneficiaries participated in the following activities: participation in the development of local plan, (9%), conducting need assessment (15%), identification of important public infrastructure to be funded and executed (19.21%), determination of appropriate site for the public infrastructure (17.93%), developing monitoring and evaluation plan (10.13%) and implementation of community based infrastructure and assets acquisition activities (9.75%). This clearly shows that the beneficiaries participated

actively in all the activities of the project and were not just passive recipients of information. The findings further revealed that 73%, 62% and 52% of the targeted youth, unemployed youths and widows respectively in the study area were achieved. The overall result shows high level of achievement by the projects as regard the involvement of the vulnerable groups in the study area. It was also found that level of education (-0.309), sex (-0.283) and household size (-0.041) had a negative coefficient and were significant at 1% level of probability while farm size (0.801), membership of cooperative (0.547) and extension contact (0.583) had a positive coefficient and were significant at 1% level of probability. However, age was inversely related to participation since the value of its coefficient was found to be negative (-0.077) and was not statistically significant at either 1% or 5% level of probability. Among the recommended farming practices, use of seed dressing chemicals (82.75%), seed rate (81.5%), adequate plant spacing (82%), use of recommended fertilizer (87.2%), method and dosage of fertilizer application (83%), timely harvesting (88.4%) and proper storage (85.0%) were the most adopted recommended farming practices by the farmers. The high level of adoption of the recommended agricultural practices was attributed to the participatory and demand driven extension approach used by the project.

Furthermore, analyses of F-chow revealed that the IFAD-CBARDP activities in the study area had impacted positively on the yield, income and level of living of the participating farmers. The finding also revealed that low counterpart funding (16.9%), untimely disbursement of funds (15.2%) and inadequate mobility of extension personnel (14.6%) to be the most constraining factors to implementation of the project in the study area. It was also found that inadequate capital (97.4%), inadequate agricultural credit (97.0%), inadequate storage facilities (95.0%) and limited market information (93.1%) were the major constraining factors to participation in the project.

6.2 Conclusion

The result of the socio-economic characteristics of the respondents showed that there were more educated farmers among the participating farmers and were aware of the importance of improved-inputs for increased agricultural productivity, which facilitated the adoption of improved technologies promoted by The IFAD-Community Based Agricultural and Rural Development Project in the study area. The finding also showed that majority of the respondents belong to cooperatives associations and have spent many years in the cooperatives which indicated that most of the farmers in the study area had long duration of experience as members of cooperatives associations which facilitated their understanding of the programme activities due to interaction among members. Result showed that the participating farmers have benefited from the various activities that were carried out in the communities by the IFAD-CBARDP. Such activities include capacity building, access to farm inputs, access to drinking water, regular extension contact, access to livestock drugs and livestock extension services. The result also showed that the farmers collaborated in the development of local plan, conducting need assessment, identification of priority public infrastructures subproject to be funded and executed, determination of site of public infrastructure to be funded and executed, developing monitoring and evaluation plan and implementation of community based infrastructure and assets acquisition activities of the project. This indicated that the farmers were carried along in decision making in carrying out any project activity that concerned them. It also showed that there was a high level of achievement by the project as regard the involvement of the target beneficiaries in the study area. The combined influence of socio-economic variables (level of education, household size, farm size, sex, membership of cooperative, access to credit and extension contact) have made positive and significant contributions to farmers participation in IFAD-CBARD activities at 1% level of probability. It was concluded based on the findings that the adoption of IFAD-Community Based Agricultural and Rural

Development project recommended agricultural practices had increased the yield, income and level of living of the participating farmers in the study areas. This is evident considering the percentage difference in yield between the participating and the non-participating farmers, which was 86.44%. This was attributed to the high level of adoption of the recommended practices in the study area.

6.3 Recommendations

Based on the findings of the study, the following recommendations are made in order to improve farmers' participation in the project in Katsina State:

i. Only 18%, 34% and 41% of the targeted aged person, sick person and women household respectively was achieved hence there was a low-level achievement in these areas. The IFAD-CBARDP should concentrate more on identifying these vulnerable groups within the study area and encourage them to participate in the programme for their own benefits.

ii. Level of education was found to have a negative coefficient (-0.309) and statistically influenced participation at 1% level of probability. Therefore, it is recommended that IFAD-CBARDP stakeholders should focus on establishing more schools with needed teaching facilities so that farmers and their children can have easy access to formal and qualitative education.

iii. Low counterpart funding and untimely disbursement of funds by the state and LGAs were found to be the major factors constraining the implementations of IFAD-CBARDP project in the study area. It is therefore recommended that the funding of the project should be centrally coordinated, with contributions made by all the three tiers of government.

iv. Based on the success of this project in the study area, it should be scaled-out, that is replicated in the neighbouring villages in the study area and beyond by the stakeholders.

v. That rural development experts and policy makers should adopt this approach of community-based development approach in order to carry the beneficiaries along in the planning, implementation and evaluation of any project that concerns the community.

6.4 Contributions to Knowledge

The study has come up with the following contributions to the existing knowledge:

i. The level of involvement of the targeted youth in the program was73%, targeted unemployed youth was 62% and targeted widows was 52%.

ii. The adoption level of improved seed variety was 75.97%, recommended fertilizer was 88.66% and timely planting was 89.44%.

iii. Participation in the IFAD-CBARDP had positively impacted on the participating farmers with a yield differential of 84.44% over that of the non-participating farmers.

iv. Also, participation in the IFAD-CBARDP had positively impacted on the participating farmer's income with a mean income differential of ₦27,556.22 over that of the non-participating farmers.

v. Implementation of the project was constrained by low counterpart funding (16.9%), untimely disbursement of funds (15.2%) and inadequate mobility of extension personnel (14.6%).

vi. Farmer's participation in the project was constrained by inadequate capital (97.4%), inadequate agricultural credit (97.0%), inadequate storage facilities (95.0%) and limited market information (93.1%).

6.5 Suggestions for Further Study

From the findings and conclusion of this study, the following suggestions for further study are made:

i. There is need to conduct impact assessment study of IFAD-Community Based Agriculture and Rural Development Project Activities among Women Cooperatives in Katsina State.

ii. There is need to conduct assessment study of Youth Involvement in IFAD-Community Based Agriculture and Rural Development Project Poverty Alleviation Schemes in Katsina State.

iii. There is need to conduct study on the effect of IFAD-Community Based Agriculture and Rural Development Project Intervention on Irrigated Farming among Vegetable Farmers in Jibia and Dutsin-ma LGAs of Katsina State.

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APPENDIX I: FARMERS QUESTIONNAIRE

DEPARTMENT OF AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY
FACULTY OF AGRICULTURE
AHMADU BELLO UNIVERSITY, ZARIA

Impact of IFAD – Community Based Agricultural and Rural Development Project on the Livelihood of Smallholder Crop Farmers in Katsina State

Farmers Questionnaire: Project Participant [ ] or Non-Project Participant [ ]
Instructions: This questionnaire is for research purpose only. Kindly tick or fill in the appropriate Spaces Provided.

SECTION A: Background Information

i. Name of respondent _____

ii. Village of respondent _____

iii. Local Government Area _____

SECTION B: Socio-economic Characteristics of Respondent

1. Age _____
2. Sex (a) Male [ ] (b) Female [ ]
3. Marital Status (a) Single [ ] (b) Married [ ]
4. Highest educational attainment of respondent
   - (a) No education - [ ]
   - (b) Quaranic education [ ]
   - (c) Adult education [ ] _____ years
   - (d) Primary education [ ] _____ years
   - (e) Secondary education [ ] _____ years
   - (f) Tertiary education [ ] _____ years
5. Do you consider your education to have influenced your participation in the project?
   (a) Yes [ ] (b) No [ ]
6. In which of the following activities does your education helps you in carrying out your farming activities?

(a) Getting extension information [ ]

(b) Reading pamphlets/handbills/posters/fliers [ ]

(c) Reading news papers/magazines/periodicals [ ]

(d) Watching television Programmes on IFAD-CBARDP [ ]

(e) Others (specify) _____
_____
_____
_____

(f) None [ ]

7. Household size: _____people

(a) No of wives _____

(b) No of children: M_____ F_____

8. What type of head of household do you have?

(a) Male headed [ ] (b) Female headed [ ]

9. Do you belong to any cooperative associations or social organizations?

(a) Yes [ ] (b) No [ ]

10. If yes, how long have you been a member of the cooperative association(s)_____

11. If yes, how many cooperative associations do you now belong? _____

12. Give types and benefits you have derived as applicable to you below:

S/NO	TYPES	TICK	BENEFITS APPLICABLE	TICK
i.	Cooperative associations		a) Credit b) Training c) Market information d) Assistance during social function	

13. If no in 9, state reason(s) _____
_____
_____

14. How long have you been farming? _____

15. How long have you been a participant of the IFAD-CBARDP?

16. Which non-farm activities do you engage in?

(a) Trading [ ]
(b) Tailoring [ ]
(c) Craft work [ ]
(d) Blacksmithing [ ]
(e) Repair Services [ ]
(f) Government work [ ]
(g) Others (Specify): i) _____
ii) _____
iii) _____

17. Estimate how much you earn annually from these other sources of income?

_____

18. Give estimates of your total farm size: _____ ha

19. Do you have any contact with extension agents/staff?

(a) Yes [ ] (b) No [ ]

20. If yes in 19, how often do you have such contact?

(a) Weekly [ ]

(b) Bi-weekly [ ]

(c) Monthly [ ]

(d) Bi monthly [ ]

(e) Seasonally [ ]

(f) Yearly [ ]

(g) Occasionally [ ]

21. Are you satisfied with the frequency of the contact?

(a) Yes [ ] (b) No [ ]

22. If yes in 21, in what ways?

(a) _____
(b) _____
(c) _____
(d) _____

23. If no in 21, why?

(g) _____
(h) _____
(i) _____
(j) _____

24. Have you obtained any cash credit?

(a) Yes [ ] (b) No [ ]

25. If yes, what were your sources of such cash credit?

(a) Commercial banks [ ]

(b) IFAD-CBARDP [ ]

(c) Cooperative societies [ ]

(d) Friends and relatives [ ]

(e) Agricultural banks [ ]

(f) Money lenders [ ]

(g) Others (specify): _____
_____

26. Was interest charged on any of the loan?

(a) Yes [ ] (b) No [ ]

If yes, which of the loan and how much? ₦ _____

27. Identify the problems associated with loan acquisition.

Tick as appropriate.

(a) The amount is small [ ]

(b) High interest rate [ ]

(c) Late disbursement [ ]

(d) Attitude of the officials [ ]

(e) Others(specify):_____

_____

_____

C. Level of target beneficiaries' involvement in project activities.
(For IFAD-CBARDP Participants only)

28. How long have you been a participant in the IFAD-CBARDP Programme?

_____ years.

29. Have you attended any project meetings and trainings organized by IFAD-CBARDP?

a. Yes [ ] b. No [ ]

30. If Yes, state the types of project trainings attended _____

Project training _____
_____
_____

31. How many times have you attended such trainings? _____

32. Did you benefit from the training?

(a) Yes [ ] (b) No [ ]

33. Do you hold any group or committee position?

a. Yes [ ] b. No [ ]

34. If yes, what position? _____

35. Which of the following IFAD-CBARDP Services have you or any of your household members benefited/participated from? (Tick)

Services	**Tick**
Farm inputs (e.g. fertilizer, Herbicides, improved seeds etc)	
Storage/Processing facilities	
Access roads	
Electricity	
Livestock extension services	
Livestock drugs	
Health Clinics	
Capacity building (Trainings)	
Meetings	
Portable water	
Sensitization (workshop)	
Others (specify)	

36. Were you involved in any decision making process of the project?

a. Yes [ ] b. No [ ]

37 If yes, tick the type of activities and participation you were involved in

S/NO	TYPES OF ACTIVITIES	TICK	TYPES OF PARTICIPATION	TICK
I.	Development Local Plan		a) Consultative	
2.	Conducting Need Assessment		b) Collaborative	
3.	Developing List of Constraints		c) Collegiate	
4.	Identifying priority public infrastructures		d) Interactive	
5	Determination of site for the infrastructures		e) Informative	
6..	Developing monitoring and evaluation plan		f) Passive	
7.	Implementation of community based infrastructure and asset acquisition activities			

(NB Question 38 for all Respondents)

38. How did you obtain your farmland?

(a) Inheritance [ ]

(b) Purchase [ ]

(c) Rent [ ]

(d) Lease [ ]

(e) Government allocation [ ]

(f) Gift [ ]

(g) Others specify: I) _____
ii) _____
iii) _____

D. ADOPTION OF RECOMMENDED PRACTICES
(NB Question 39 for participating farmers only)

39. **Give your response to the following questions as per extent of your adopting the IFAD- CBARDP technologies/recommendations.**

S/No	Technologies/Recommended Practices	Adoption		If yes, state the extent of adoption		
				Rarely	Occasionally	Frequently
		Yes	No			
1.	Use of improved seed varieties					
2.	Use of seed dressing chemicals					
3.	Seed rate					
4.	Adequate plant spacing					
5.	Use of recommended fertilizers					
6.	Methods and dosage of fertilizer application					
7.	Timely planting					
8.	Use of herbicides					
9.	Timely harvesting					
10.	Proper storage					

E. OUTPUT INFORMATION:
(NB Questions 40- 41 for all Respondents)

40. What were your outputs for the following crops during the last cropping season (2013) in kg?

Crops	Total Output/harvest	Land Area Cropped(ha)
Maize		
Millet		
G/corn		
G/nut		
Cotton		
Cowpea		
Rice		
Sugarcane		
Sesame		
Pepper		

Soya beans		
Others(specify): _____ _____ _____		

41. Please, indicate your average farm income.

₦ _____
_____

(NB: Questions 42-44 for IFAD-CBARDP Participants only)

42. What Problems do you encounter in acquiring and using IFAD-CBARDP facilities (fertilizer, loan, agro-Chemicals etc)?

i) _____
ii) _____
iii) _____
iv) _____
v) _____
vi) _____
vii) _____
viii) _____
ix) _____
Others specify (i) _____
(ii)_____
(iii)_____

43. Is IFAD-CBARDP beneficial to you?

(a) Yes [ ] (b) No [ ]

44. If yes, in what way(s)?

(a) I was able to access and use improved technology [ ]

(b) I was able to obtain loan [ ]

(c) I was able to increase my farm size [ ]

(d) I was able to increase my farm output [ ]

(e) Others (specify) _____
_____
_____

(NB Questions 45-46 for all respondents)

45. If question 43 is no, indicate reasons for your answer.

(a) _____
(b) _____
(c) _____
(d) _____
(e) _____

46. Household Assets owned

Assets	Number	Estimated value (₦)
Land		
House(s)		
Mobile Phone		
Radio		
Television		
DVD		
Fridge(s)		
Stove(s)		
Pressing iron(s)		
Motor cycle		
Bicycle		
Motor car		
Bus/lorry		
Tricycle		
Wheel barrows		
Work bull		
Ox-drawn implements		
Tractor		
Sprayer		
Hoes		
Axes		
Shovel/Spade		
Others (specify) _____ _____		

(NB: Questions 47-57 for IFAD-CBARDP Participants only)

47. Do your household often experience food deficit?

(a) Yes [ ] (b) No [ ]

48. If yes, give months in the year and reasons for the food deficit

Month (Tick)	Reasons for food deficit
Jan.	
Feb.	
March	
April	
May	
June	
July	
Aug.	
Sept.	
Oct.	
Nov.	
Dec.	

49. If no, give reasons _____

_____
_____

F: Challenges with the effective implementation and participation in the programme by the target beneficiaries

50. Was any of your farming practices or activities altered as a result of the IFAD-CBARDP activities in your village?

(a) Yes [ ] (b) No [ ]

51. If yes, what practices or activities were altered?

_____
_____
_____
_____

52. Have you been affected by any social or environmental problems as a result of the IFAD-CBARDP activities in your village?

(a) Yes [ ] (b) No [ ]

53. If yes, in what ways?

(a) Soil erosion

(b) Deforestation

(c) Desert encroachment

(d) Flooding

(e) Fragmentation of land

(f) Others (specify) _____

54. Have you encountered any problems as a result of participating in the IFAD-CBARDP?

(a) Yes [ ] (b) No [ ]

55. If yes, (specify) _____
_____
_____

G: Constraints of the respondent as regards to participation in the IFAD-CBARDP:

56. What are your needs? List them _____

_____

_____

57. What general suggestions can you give to improve the IFAD-CBARDP implementation in Katsina State?

_____
_____
_____

APPENDIX II: QUESTIONNAIRE FOR IFAD-CBARDP OFFICIALS

IMPACT OF IFAD-CBARDP ON THE LIVELIHOOD OF SMALLHOLDER CROP FARMERS IN KATSINA STATE

IDENTIFICATION

a) Name of LGA: _____
b) Name of officer (optional) _____
c) Designation (optional) _____

OPERATIONS

1. Input Delivery (fertilizer)

   (a) What was the total amount of fertilizer disbursed in your LGA by IFAD-CBARDP

   (b) How many farmers benefited from the fertilizers sold in the project area?

   (c) Did you give them on credit Yes _____ No _____

   (d) Did you specify the maximum number of bags per farmer Yes _____ No _____

   (e) If yes, how many bags? _____

   (f) If No, why not? _____

   (g) What are the problems you face in the distribution and sale of fertilizer? (be specific):
   _____
   _____

   _____

   _____

   (h) What do you think are the solutions to the problems?

   _____
   _____
   _____
   _____

2. Chemicals, Pesticides, Herbicides, etc**.**

   (a) How many farmers bought chemicals during the last farming season?

_____

(b) Did you teach them how to use the inputs Yes _____ No _____

(c) What has been their major problems in terms of usage of these

Inputs _____

3. Extension services

(a) Please state the number of farmers that benefited from your extension services.

_____

(b) How many times do you visit farmers on the average per month?

_____

(c) State the recommended farm practices/technologies you have introduced to the farmers:

1) _____
2) _____
3) _____
4) _____
5) _____

(d) Do you demonstrate the recommended farm practices/technologies to the

farmers? Yes_____ No_____

(e) Do you have demonstration farms? Yes_____

No_____

f. Level of project implementation.

S/No	Activities	No. Targeted	No. Achieved
1.	Input Delivery		
	(a) Fertilizer		
	(b) pesticides		
	(c) herbicides		
	(d) storage/processing facilities		
	(e) livestock drugs		
	(f) Others (specify)		
2.	Capacity building		
	(a) pre-season training		
	(b) post-season training		
	(c) green field day		
	(d) brown field day		
	(e) sensitization (workshop)		
	(f) meetings		
	(g) Others (specify)		
3.	Infrastructural development		
	(a) Boreholes		
	(b) feeder roads		
	(c) schools		
	(d) dispensary		
	(e) Others (specify)		

(g). Level of involvement in the project of target beneficiaries.

S/No	Target Beneficiaries	No. Targeted	No. Involved
1.	Children		
2.	Unemployed Youth		
3.	Widows		
4.	Young couples		
5.	Women headed household		
6.	Physically challenged		
7.	The sick		
8.	The aged		
9.	Others (specify)		

(h). Do you have shortage of staff? Yes _____ No _____

4. General:

a) What are the difficulties you face in your operation with farmers?

_____

_____

_____

b) What kind of farmers do you serve most? (tick)

i) Large - scale farmers [ ]

ii) Medium – scale farmers [ ]

iii) Small – scale farmers [ ]

c) Do you attach any condition(s) before rendering services to farmers?

(a) Yes [ ] (b) No [ ]

If yes, state the conditions

i) _____

ii) _____

iii) _____

iv)_____

d) Do you think the IFAD-CBARDP is achieving its objectives? Yes _____

No

e) If yes, explain

_____

_____

f) If No, explain

_____

_____

g) Please, write a brief note on any special features of the IFAD-CBARDP activities:

_____

5. What are the constraints to effective implementation of the IFAD-CBARDP in Katsina?

_____
_____
_____
_____
_____

6. What are your suggested solutions to these constraints?

_____
_____