

**PERCEPTION OF INFLUENCE OF FADAMA I PROJECT ON THE SOCIO-ECONOMIC
STATUS OF FARMERS IN KEBBI AND SOKOTO STATES, NIGERIA**

BY

Nuhu Ishaq LAWAL

M.Sc/EDUC/22511/2012-2013

DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

AHMADU BELLO UNIVERSITY, ZARIA

AUGUST, 2015

**PERCEPTION OF INFLUENCE OF FADAMA I PROJECT ON THE SOCIO-ECONOMIC
STATUS OF FARMERS IN KEBBI AND SOKOTO STATES, NIGERIA**

BY

Nuhu Ishaq LAWAL

M.Sc/EDUC/22511/2012-2013

**A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES,
AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA IN PARTIAL FULFILLMENT FOR THE
AWARD OF DEGREE OF MASTERS OF SCIENCE IN AGRICULTURAL EDUCATION
DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION
AHMADU BELLO UNIVERSITY, ZARIA**

AUGUST, 2015

DECLARATION

The Researcher hereby declare that this Dissertation entitled "perception of influence of Fadama I project on the socio-economic status of farmers in Kebbi and Sokoto State" has been written by me in the Vocational and Technical Education, Faculty of Education, Ahmadu Bello University, Zaria. It is a true record of my research work under the supervision of Dr. B.I. Okeh and Dr. C. Uguru. It has not been printed in any form for the award of higher degree in any institution of higher learning. The sources of information derived from the literature have been ^r acknowledged in the text and a list of references provided.

Name of Student

Signature

Date

CERTIFICATION

The research work titled "Perception of Influence of Fadama I project on the socio-economic status of farmers in Kebbi and SokotoState" by Nuhu IshaqLawal has been read and met the requirements and regulations governing the award of the degree of Masters of Science in Agricultural Education of ¹ University, Zaria and is approved for its contribution to knowledge and literacy presentation.

Dr. B.I Okeh
Chairman Supervisory Committee

Date

Dr. C. Uguru
Member Supervisory Committee

Date

Prof. A.A. Udoh
Head of Department

Date

Prof. K. Bala
Dean, School of Post Graduate Studies

Date

DEDICATION

This work is dedicated to my late father Malam Ishaq Awal and mother lovely Malama Hadiza Abubakar for their prayers, love, support and encouragement.

ACKNOWLEDGEMENT

The Researcher humbly acknowledge Allah (S.W.T) the most beneficent the most merciful for without his will, collection and computation of this research work would not have been possible. May all praise be ascribed unto Him. The researcher is sincerely grateful to his accommodating supervisors Dr. B.I Okeh and Dr. C. Uguru who not only patiently read this work several times and gave constructive critiques and suggestions to see the Researcher through the alley ways of this work, in spite their tight schedules, but made this work as theirs. They both stood as iron pillars to the success of this work. They have been source of inspiration to the Researcher and their reactions help the Researcher a lot. They deserve more gratitude more than what the Researcher can truly express. May God Almighty reward them and extend the blessings to their families. The Researcher profound gratitude goes to Dr. I. M. Haruna, Dr. D.O. Oni, Prof. B.N. Ndomi, Dr. S. Ibrahim, Dr. M. Ayorinde, Prof. (Mrs) A.Z. Mohammed, Prof. A.A. Udoh, and Dr. L. T. Bamaiyi for their guidance, encouragement and valuable suggestion towards the success of this work.

The Researcher sincerely appreciates and thank his lovely mother Malama Hadiza Abubakar, who always gave him courage, moral support and prayers. To the Researcher's beloved wives and children Hajiya Rukayya and Hajiya Ummul-Khairi, Haulatu, AbdulRahman, Usman, Hadiza (Ameerah), Ahmad (Baffa), Mulaikatu and Amina (Amy), the Researcher is most grateful for their patience, prayers and endurance any time, he was away from home. May Allah shower His blessings on them.

The Researcher is indebted to his friends Alhaji Attahiru Umar Birmin Magaji (Headboy), Abubakar Na-Allah, Nura Abdullahi, Babangida Saidu, Aminu Sa'adu, Rabi Mamman Lafiya, Aminu Suleiman, Abdulmutalib D. Gambo, his brothers Muhammad Awal, Muhammad Gali

and his lovely sister Malama Halima (Baban Kagara) Ishaq. Special greeting goes to Prof. I. Galadima, Dr. Y.M. Kamar, Dr. (Mrs). R. Muhammad, Dr. M.A. Yusha'u of Department of Science and Vocational Education, Usmanu Danfodiyo University, Sokoto for their encouragement and moral support. The Researcher acknowledged the authors of Books, Journals, for the references that appeared in the references of data.

The Researcher thanks the four (4) trained research assistants and the respondents to this study for their cooperation and information supplied for the study and also appreciates the good work of Malam S.I. Babangida and Malam Aminu Suleiman the statisticians who assisted in the analysis of the data. Special thanks go to Malam Ahmad who took pains of typing and effecting correction on this work May God bless you all. Finally, to all whose names cannot be mentioned here the Researcher appreciates your enormous contributions and support throughout the period of this study.

| TABLE OF CONTENTS | Pages |
|------------------------------|-------|
| Title page- - - - - | i |
| Declaration- - - - - | ii |
| Certification- - - - - | iii |
| Dedication - - - - - | iv |
| Acknowledgement- - - - - | v |
| Abstract - - - - - | vi |
| Table of contents - - - - - | vii |
| List of Tables - - - - - | viii |
| List of Appendices - - - - - | ix |

CHAPTER ONE:

INTRODUCTION

| | |
|---|---|
| 1.1 Background to the study - - - - - | 1 |
| 1.2 Statement of the Problem -- - - - - | 4 |
| 1.3 Objectives of the study - - - - - | 5 |
| 1.4 Research Questions .- - - - - | 5 |
| 1.5 Research Hypothesis - - - - - | 6 |
| 1.6 Significance of the study - -- - - - | 6 |
| 1.7 Basic assumption for the study - - - - - | 7 |
| 1.8 Scope and Delimitation of the study - - - - - | 7 |

CHAPTER TWO:

REVIEW OF RELATED LITERATURE

| | |
|---|----|
| 2.1 Theoretical Framework | 8 |
| 2.2 Conceptual Framework | 18 |
| 2.3 Agricultural Development Programme in Nigeria | 19 |
| 2.4 Fadama Development Programme in Nigeria | 20 |
| 2.5 Factors affecting the adoption of Agricultural Development in Nigeria | 22 |
| 2.6 Socio-Economic Characteristics of Farmers | 25 |
| 2.7 Measure of Farmer's Yield and Standard of Living of Farmer | 26 |
| 2.8 Empirical Studies | 27 |
| 2.9 Summary | 33 |

CHAPTER THREE:

RESEARCH DESIGN AND METHODOLOGY

| | |
|------------------------------------|----|
| 3.0 Study Areas | 35 |
| 3.1 Research Design | 36 |
| 3.2 Population for the Study | 36 |
| 3.3 Sampling Procedure | 37 |
| 3.4 Instrument for Data Collection | 37 |
| 3.4.1 Validity of Instrument | 37 |
| 3.4.2 Pilot Study | 38 |

| | | |
|-------------------------------------|-----------|----|
| 3.4.3 Reliability of the Instrument | - - - - - | 38 |
| 3.5 Procedure for Data Collection | - - - - - | 38 |
| 3.6 Procedure for Data Analysis | - - - - - | 39 |

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION OF RESULTS

| | | |
|--|-------------|----|
| 4.1 Analysis of Demographic Characteristics of the Respondents | - - - - - | 40 |
| 4.2 Results and discussions | - - - - - | 40 |
| 4.3 Testing of Null Hypotheses | -- - - - | 48 |
| 4.4 Major findings | -- --- ---- | 51 |
| 4.5 Discussion- | - - - - - | 51 |

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

| | | |
|-------------------------------------|-----------|----|
| 5.1 Summary | -- - - - | 55 |
| 5.2 Conclusion | -- - - - | 56 |
| 5.3 Recommendations | - - - - - | 56 |
| 5.4 Limitation of the Study- | - - - - - | 57 |
| 5.5 Suggestions for Further Studies | -- - - - | 57 |
| REFERENCES | - - - - - | 58 |
| APPENDICES | - - - - - | 68 |

LIST OF TABLES

| | |
|---|----|
| Table for the population of the study - - - - - | 36 |
| Table 4.1.1 Distribution of respondents demographic characteristics - - - - | 41 |
| Table 4.1.2 Distribution of respondents by participation in cooperative society and land acquisition | 43 |
| Table 4.1.3 Distribution of respondents by land ownership before and after programme intervention | 44 |
| Table 4.1.4 Frequency distribution of respondents by crops grown before and after programme - | 46 |
| Table 4.1.5 Frequency distribution of farmers income/ season when a bag of unshelled rice was - | 47 |
| Table 4.1.6. Relationship testing between farmers demographic characteristics, technology provided and land cultivated before and after project take off. ----- | 48 |
| Table 4.3.1: effect of fadama I project on the socio-economic status of the participating farmer ----- | 49 |
| Table 4.3.2: effect of fadamal project on the technologies provided and project participation status - - - - - | 49 |
| Table 4.3.3 presents regression analysis of the influence of Fadama I project on the land cultivated before and after programme take-off ----- | 50 |
| Table 4.3.4 presents regression analysis of fadama I project on the standard of living of the participating far --- | 50 |

LIST OF APPENDICES

1. Participating Farmer Questionnaires - - - - - 68
2. List of distribution of Population of Respondents --- - - - - 69
3. Introduction letter from the Department ----- -- - - - - 70

OPERATIONAL DEFINITION OF TERMS

For the purpose of this study, the following operational definitions were put forward

1. Influence Impact or Strong effect
2. Fadama: a floodable plain or Depression or River bank (an area liable to flood along river bank)
3. Adoption: A mental process which an individual passes through in deciding to use an innovation.
4. Standard of living: The material and impersonal resources which individuals possess for their comfort.
5. Socio-economic: Social and economic stands of an individual in the society.

ABSTRACT

Fadama I project in Nigeria has attracted assistance (funds) from the World Bank. Kebbi and Sokoto states are two of the beneficiaries of the funds. This study therefore, assessed the Influence of Fadama I Project on socio-economic status of farmers in Kebbi and Sokoto states, Nigeria. Specific objectives included: assess the influence of Fadama I project on the overall farm yield of participating farmers and to assess the influence of Fadama I project on the socio-economic status of participating farmers. A proportionate random sampling procedure was used to select 400 respondents from 14,600 participating farmers. Structured questionnaire was used to elicit information from respondents. Descriptive statistics such as frequency counts and percentages were used for bio-data analysis while regression analysis was used for analyzing the null hypothesis at $P \sim 0.05$ level of significance. Fadama I project has led to an increment in the overall farm yield of the participating farmers in Kebbi and Sokoto states, High cost of farm inputs such as improved seeds, improved breeds of animals, herbicides, pesticides, inorganic fertilizer have affected the general adoption of Fadama I project, There is significant influence of Fadama I project on the socio-economic status of farmers in the study areas. Therefore, the entire null hypothesis was rejected, since all the R Values were positive and the alternative hypothesis was accepted. This shows that there was significant influence of Fadama I project on the socio economic status of the participants'. The study therefore concluded that the influence of Fadama I project on the socio-economic status of the participant is positive, hence improvement on the living standard of the participating farmers in Kebbi and Sokoto states. It therefore, recommended that more Fadama lands should be acquired by Kebbi and Sokoto states government and leased them among small scale farmers to enable farmers have access to more lands for higher farm productivity.

CHAPTER: ONE

INTRODUCTION

1.1 Background to the study

Nigeria is blessed with potentially good land and water resources required for sustainable agricultural development. Most government agricultural development programmes in Nigeria have not had lasting impact on agricultural development and have not yielded the expected results in sustainable increase in food production (Singh, 1995). The National Fadama Development Project (NFDP) in Nigeria is one of such programmes.

The ultimate goal of Nigerian agricultural policy is the attainment of self-sustaining growth in all sub-sectors of agriculture as well as the realization of the structural transformation necessary for the overall socio-economic development of the rural areas. As part of these measures, government has continued to accord high priority to irrigated agriculture since the Third National Development Plan 1976-1980 (Umaru, 1994). The previous irrigation projects in Nigeria had been largely attributed with top-down bureaucratic approach that resulted to failures of such programmes. This led to the development of fadama irrigation development programme in 1990s which involved farmers in identifying their agricultural needs and problems on which policy formulations were based. The concept of irrigation connotes the science of economical utilization of water to supplement natural rainfall for the production of crop (Douthwaite, 2001).

Essenjo, (1991) also defines irrigation as the application of water to the soil for any number of the following eight purposes: adding water to soil to supply the essentials for plant growth; provide crop insurance against short duration droughts; cool the soil and atmosphere, thereby making more favorable environment for plant growth; reduce the hazard of frost; wash out or dilute salts in the soil; reducing the hazards of soil piping; soften tillage pans and clods

and to delay bud formation by evaporating cooling. In recognition of the continuing limitation posed to expansion of agricultural production by a poor development of irrigation facilities, and the need for the sector to grow substantially, the federal government initiated the establishment of the National Fadama Development Project (NFDP).

In an attempt to boost the traditional irrigation system, the Federal Government of Nigeria has contracted a loan of US\$67.9 million from the World Bank to finance the development of the fadama land under the National Fadama Development Project (NFDP). The pioneer beneficiaries included Bauchi, Jigawa, Sokoto and Kebbi States. (Bawa, Ani, & Nuhu, 2010). The First National Fadama Development project (Fadama I programme) involved assisting farmers on how to implement recommended practices, motivate them to adopt some technologies and evaluate production constraints and also advice farmers on how to overcome such problems.

The National Fadama Development Project (NFDP) is a project of the federal government of Nigeria through the pooled World Bank loan established to finance the development of fadama lands by introducing small-scale irrigation in states with fadama development potentials. The projects aimed at boosting incremental food production and raise the standard of living of beneficiaries. Fadama are low laying lands subject to seasonal flooding or water logging along the banks of streams or depressions. It is a Hausa word meaning, the seasonally flooded or floodable plains along major savannah rivers and or depressions or adjacent to seasonally or perennially flowing streams and rivers. Fadama lands have high potentials and agricultural values several times more than the adjacent upland. Fadama development is a typical form of small scale irrigation practice characterized by flexibility of farming operations, low inputs requirement, high economic values, and minimum social and

environmental impact and hence conforms to the general criteria for sustainable development (Rank, 2010).

The National Fadama Development Programme (NFDP) was established consequent to the failure of large scale irrigated schemes, which the country has pursued for the last two decades to yield the anticipated increase in food production. Presently, the NFDP is widely being implemented in all the 36 states of the federation and the Federal Capital Territory (FCT), which have been categorized into the core states and the facility states. The core states include Bauchi, Gombe, Jigawa, Kano, Kebbi, Sokoto and Zamfara, while the remaining states and the FCT constitute the facility states. Abiola, (2007) and Agbamu, (2005) reported that age, farm size, family size, cost of adoption, extension contact, access to government loan are positively related to adoption of tube-well technology. Farming skills and farmer's experience, socio-economic status, mass media exposure, source of needed agricultural information, income level and farm size are positively related to adoption of innovation. First National Fadama programme encompasses a wider range of communication and learning experiences organized for rural people by professionals from different field of Agriculture. It is an assistance given to the farmer and his families through educational processes on new farming methods and techniques in order to improve their production efficiency and income to improve their living standard and uplifting the education and social standard of the farmers (Iorbee, 2009).

One vital unit of Agricultural sector is the effective information flow through extension services network; which is responsible for taking out research findings in the different field of Agriculture from research stations to millions of peasants farmers located in the rural areas that form the bulk of the country's farming population. Modernization of the rural life in the process of long chain in social, economic, political and cultural change includes not only improved Agricultural

practices but also industrial development. The Nigeria economy may experience considerable difficulty in promoting rapid industrial growth techniques (Owens, Hoddinot and Kinsey, 2001). There is need for using appropriate enlightenment methods in dissemination of new trends in Agriculture through effective communication devices. Ineffective methods of information transfer were the major constraints to the programmes of Agricultural sector of the economic (Ega, 1988).

Part of the problem of low productivity in Agricultural sector could be attributed to increasing population pressure on the limited cultivated land and dwindling of uncertain oil revenue. The staff motivation problem, effective and prompt delivery of Agricultural inputs, linkage between research station and extension services and establishment of research station and extension services among farm families remained unresolved (Akinbode 1981).

1.2 Statement of the Problem

Self-sufficiency in food production based only on rain-fed agriculture is difficult to achieve. This is particularly true for Nigeria. So, for self-sufficiency in food production, there is need to extend the farming season beyond the rainy season through irrigated agriculture (Rank, 2010). To ensure that this laudable objective of self-sufficiency in food production is achieved, the Federal Government approved the implementation of the National Fadama Development Project (Bello, 2000). Traditional irrigation farming through the shadoof and calabash/bucket methods have been practiced for several decades in Nigeria, but no remarkable change in terms of low agricultural production, which in turn is to affect the living standard (family health, clothing, nutrition and household materials such as, electricity, television, radio, motorcycle etc), farm output, farm size and income per capita of participating farmers. The fadama I Project was

also launched in early 1990s no remarkable change seen in terms of life style of farmers in the study areas. In view of the vital roles of fadama I project as one of the solutions of meeting the national food needs, it becomes imperative to evaluate the effects of the fadama I project on the farmers of the of Kebbi and Sokoto states.

1.3 Objectives of the study

The main objective of this study was to determine the influence of Fadama I Project on the ssocio-economic status of farmers in Kebbi and Sokoto states, while the specific objectives were to:

1. Describe the socio-economic characteristics of the fadama I participating farmers.
2. Assess the socio-economic benefits of fadama I programme.
3. Examine the improved technology provided to the participating farmers.
4. Determine the influence of Fadama I project on the standard of living of participating farmers in Kebbi and Sokoto states.

1.4 Research Questions.

This study is setup to provide answers to the following questions.

1. What are the socio- economic characteristics of fadama I participating farmers in Kebbi and Sokoto States?
2. What are the socio- economic benefits derived by participating farmers from fadama I programme in Kebbi and Sokoto States?

3. What are the improved technologies provided to the participating farmers of fadama I programme in Kebbi and Sokoto States?
4. What is the effect of Fadama I project on the standard of living of participating farmers in Kebbi and Sokoto states.

1.5 Research Hypothesis

The following null hypotheses were formulated to guide the study and be tested using appropriate statistical tools.

1. Fadama I project has no significant influence of on the socio-economic status of Farmers in Kebbi and Sokoto states
2. There is no significant difference in the technologies adopted by Fadama I project participating farmers before and after the project.
3. There is no significant difference between the lands cultivated by Fadama I project participating farmers before and after the project.
- 4/ There is no significant influence of Fadama I project on the standard of living of participating farmers in Kebbi and Sokoto states.

1.6 Significance of the study

The major challenges confronting Fadama I project was determining the influence of fadama I project in effecting desired socio-economic changes. The evaluation of the programme would objectively review comprehensively its influence on the target group as a basis for future policy formulation and programme design. Since there is need for continued public support for agricultural development programmes, it becomes imperative to carefully evaluate such a programme. It is hoped that the findings of the study would give the states and the public in general the privilege of knowing about the activities of the programme and its effects. Beside the

major weak point in the programme implementation would be revealed, these could be used as check and balance for execution of the fadama II and Fadma III in Kebbi and Sokoto states. Finally, the study could serve as a base for further research on the perception of fadama projects beneficiaries about the effect of the programme

The study will also be useful to ministry of agriculture and agro-allied donor agencies for planning agricultural projects and delivery that would be useful to farmers when presented at conferences, seminars and workshops.

1.7 Basic assumption for the study

The study is based on the following assumptions that:

1. Fadama I project has influenced the total farm yield of farmers in Sokoto and Kebbi states.
2. Adoptions of Fadama I project have changed the general lifestyle of farmers in Sokoto and Kebbi states.
3. The Fadama I project has improved the socio-economic status of the farmers and living standard (family health, clothing, nutrition and household materials such as zinc roofing, electricity, television, radio, motorcycle etc), through Fadama I project.

1.8 Scope and Delimitation of the study

The study is delimited to the influence of Fadama I project on the social and economic status of farmers in Kebbi and Sokoto states. The study is also delimited to Fadama I project contact farmers within the selected zones that benefited from the project, it is also to assess the influence of Fadama I project on the socio-economic status of farmers in Kebbi and Sokoto states. The reason for delimiting the study to contact farmers is to ensure easy access to data needed for the study.

CHAPTER TWO:
REVIEW OF RELATED LITERATURES

This chapter reviewed the related literature on the influence of Fadama I project on the socio-economic life of farmer's in Kebbi and Sokoto states under the following sub-headings:

2.1 Theoretical Framework

2.2 Conceptual Frame work

2.3 Agricultural Programme in Nigeria

2.4 Fadama Programme in Nigeria

2.5 Factors affecting the adoption of Agricultural Development in Nigeria

2.6 Socio-Economic Characteristics of Farmers

2.7 Measure of Farmer's Yield and Standard of Living of Farmer

2.8 Empirical Studies

2.9 Summary

2.1 Theoretical Framework

The theoretical background for this study is based on the theories of social change and concept of rural development. The theory of social change postulated by Strauss (1959) stated that the essence of human life is change, development and growth. However, the process of change involves interaction and individuals must be understood based on groups in which they belong or participate. Social change is defined as the change in social structure and social relationships and it involves a change in the structure or function of the societal forms (Rogers and shoe maker 1971). Amoaka, (2003) viewed social change as the interaction of the different elements of social life especially the economic, social and political structure as well as the

believe systems to produce changes within a nation or societal pattern of daily life or structure of its institution.

The theory of social change was used to examine the relationship between participating and non-participating farmers' production levels and to examine the cost and return analysis of participation in the project. The relevant aspect of the social change theory to this study is therefore the planned change an interventionist perspective that seeks to introduce the idea to achieve set goals. The planned change in this study is the introduction of various participatory Fadama users' education to create awareness and adoption of improved farm techniques with the specific objectives to alter the undesirable situation which is low yield of Agricultural outputs and poor standard of living associated with farmers' traditional production practice.

Gefu (1989) opined that all societies were at a particular development stage and were all "traditional" and that traditional societies would experience similar changes as it had happened to societies in developed nations. Some studies emphasized that transformation of culture trend in the traditional society were cultural practices believed to be hindrances to development have to be removed, particularly those cultural practices perceived not to be of benefit to the society. Theoretically, one can hypothesize a relationship between increased production, better farmers' standard of living and certain factors that may determine them. In the context of this study, the Fadama project implementation includes problem identification, participation in the action plan and training on identified solution that have effects on increased agricultural production and better farmer's socio-economic standard of living.

Another theoretical perspective, which guides this study, is the classical adoption-diffusion theory. The classical adoption - diffusion theory is made up of two components namely diffusion process and the adoption process or innovation decision process.

According to Hall and Dijkman, (2006), the four critical elements of diffusion process are (i) the innovation which is an ideal ./practice .or product that is perceived as new by the potential user, (ii) communication through various channels, (iii) over period of time in stages, (iv) among number of a social system. Thus, the process involves the transmission of information about an innovation from an original source through the change agents to potential adopters, the effectiveness of which is seen as a function of the change agent and the inherent characteristics of the adopter, the institutional environment and the technologies attributes. The adoption-diffusion perspective was the theoretical framework used, as the innovation examined was the Fadama I project technologies; the communication system was fadama desk officers and the potential adopters were the participating farmers in Kebbi and Sokoto States.

The adoption process is a socio psychological decision-making process that an individual goes through in accepting or rejecting new practices. It begins as a mental process often reinforced by other emotional or circumstances and it is termed the innovation decision process (Ango, et'al 1999). Adoption is regarded as a decision to make full use of an innovation or technology as the best course of action available. (Hall and Dijkman, 2006). Adoption of innovation is the decision of an individual or group to use or apply an innovation. Adoption of innovation is a very important tool to measure the effectiveness and efficiency of agricultural extension. According to Essenjo (1991), agricultural extension effectiveness can be measured by using the conceptual theme sequence known as Awareness - knowledge - Adoption -productivity (AKAP). (A= farmers awareness K= farmers knowledge through testing and experimenting A= Farmers adoption of technology or practices P= changes in farmers productivity or output).

However it should be noted that knowledge requires awareness, experience, observation and the critical ability to evaluate data and evidence. Knowledge leads to adoption but adoption is not productivity. Productivity depends on adoption of technically efficient, improved technology, and existing support infrastructure of the community and market institution. AKAP sequence is related to a flow of new technological information. Bello and Singh (1998) opined that for a successful adopter of any new technology, farmers must not only know about it but must be able to follow the recommendations given. This means that they must have the knowledge before they can follow the recommendations.

Most farmers are said to go through a logical problem- solving process known as adoption process when considering any new technology or innovation. A farmer's decision about whether to or not adopt a recommended agricultural practices is recognized to occur over a period of time in stages rather than instantaneous.

According to Cook and Kothari (2001), five stages widely accepted in the process of adoption include Awareness, interest, evaluation, trial and adoption (AIETA). Awareness is the first stage and involves the individual learning of the existence of an innovation but has little knowledge of about it. Interest stage is the second stage during which individual develops interest in the innovation and then gets more facts about it. Evaluation of the innovation takes place when the individual mentally tries it, weighs its merits relative to his own situation, and considers its applicability to the solution of his own particular problem. Trial is a stage during which the individual actually applies or practices the innovation on a small scale and deals with the consequent problem of its use. Adoption is the last main stage of the adoption process during which the adoption unit decides to use the innovation continuously, based on positive experience at the trial stage.

However, Rogers and Shoemaker (1971) presented four additional adoption/diffusion theories. These include:

1. Innovation decision process theory, which states that potential adopters of a technology progress over time through five stages in the diffusion process. First, they must learn about the innovation (knowledge); second, they must be persuaded of the value of innovation (persuasion); they then must decide to adopt it (decision); • the innovation must then be implemented (implementation); and finally, the decision must be reaffirmed or rejected (confirmation). The focus is on the user or adopter.
2. Individual innovativeness theory: - It states that individuals who are risk takers or otherwise innovative will adopt an innovation earlier in the continuum of adoption/diffusion.
3. Rate of adoption theory: -It states that diffusion takes place over time with innovations going through a slow, gradual growth period, followed by dramatic and rapid growth, and then gradual stabilization and finally a decline.
4. Perceived attributes theory which states that there are five attributes upon which an innovation is judged: that it can be tried out (trial-ability), that results can be observed (observability) that it has an advantage over other innovations or the present circumstance (relative advantages), that it is not overly complex to learn or use (complexity), that it fits in or is compatible with the circumstances into which it will be adopted (compatibility).

According to Rank (2010), the traditional adoption/diffusion continuum recognizes five categories of participants: 1) innovators who tend to be experimentalists and highly interested .in technology itself; 2) early adopters who may be technically sophisticated and

interested in technology for solving professional and academic problems; 3) early majority who are pragmatists and constitute the first part of the mainstream; 4) late majority who are less comfortable with technology and are the skeptical second half of the mainstream; 5) laggards who may never adopt technology and may be antagonistic and critical of its use by others. The distribution of these groups within an adopter population typically follows the familiar bell-shaped curve. No formal studies according to Ekong (1988) have yet been done in Nigeria to categorize farmers or other adopters on the basis of their innovativeness. It is therefore not certain whether all these types of adopters could be identified and whether they would have identifiable characteristics, he noted.

However, studies have been done in Nigeria to characterize our present farmers in the following: age, level of education, level of social participation, level of income, media exposure and extension contacts Alao, (2003). These studies have shown that there is no association between age and the adoption behaviour of these farmers while there are positive correlations between level of education, income, participation, etc and adoption of agricultural innovation. These agreed with Ajayi, (2008) who in his study revealed that some of the determinants found to influence adoption positively and significantly were income realized from rice, farm size, education and farming experience. Age, gender and marital status were according to him negatively related to adoption. He then suggested that persuasive and advisory transfer of technology and provision of some of the technologies I should be pursued as a strategy to increase adoption. Also, _ in their study, Agbamu (2005) observed that extension agents are the major source of awareness of recommended crop production practices. To them, there is a significant relationship between adoption and source of agricultural information. There is also a significant but negative correlation between age and

adoption and a positive correlation between adoption and household size, farm size and extension contact.

The great constraint to adoption of technologies according to Amogu (2004) is lack of capital, expressed as irrelevance of technology. Zininach, (1997) noted that lack of awareness, lack of input and high cost were the major reasons for the rejection of some livestock innovations. According to them, a multiple regression result showed that old age was a cause for rejecting innovation while income, household size and educational status favour adoption of livestock innovation. Also, Madukwe and Anyanwu, (2000) identified cost of use and lack of funds as the major problems associated with the adoption of the innovations. It is "therefore, according to them, recommended that innovations with low level of adoption be reintroduced and efforts intensified to raise the level of adoption by alleviating most of the problems inhibiting adoption and the use of appropriate methods of communication such as demonstrations so as to achieve high level of adoption.. In essence, all other factors affecting acceptance of change should be put into adequate considerations before effecting the change in order to overcome resistance to change. These factors among others include the role of the change agent, community characteristics, inertia, habit, vested interest, rejection of "outsiders", fear, suspicious and anxiety (Rank, 2010)

Theoretical model

In developing the model for this study, an attempt was made to integrate the theories and findings of various expert such as Wetch, (1970) Rank, (2010), Reinjinties, Harverkort and Water Bayer, (1992), Madukwe, (1993), Ajayi (2008), Bowman, (1996), Hall (2006) and Yahaya and Ango, (2003). Impact is the outcome of an input on the target population. It

reflects a change in the living conditions among project beneficiaries following from and attributable to the project (World Bank, 2004).

The inputs provided in the agricultural extension programme/project bring abstract changes mainly an increase in the income of the participants, better standard of living, literacy and good attitude to farming. These constitute output resulting from the inputs of the programmes measured as impact (Mijindadi and Arokoyo 1984).-Several investigators considered the impact of the Agricultural extension programme as the improvement in food production, farm income and employment in the programme area through effective technology and practices (Mansell, 1996). Hence any evaluation of an agricultural extension programme should answer the fundamental question whether the socio-economic conditions including standard of living of the target group have significantly changed as a result of the project activities (World Bank 1995). According to Mansell, (1996) in Ajayi (2008), the impact of an agricultural extension project on the socio-economic activities of the entire farm families in the project area could be evaluated using the following indicator Project Input (IP), Project Output (PO), Project Effects (PE), Project Impacts (PTM) and Project Beneficiaries (PB).

Mansell's conceptual frame work showed that a base-line survey was carried out to discover the needs of the area and a set of achievable objectives were developed. To achieve these objectives the project management came up with certain inputs. The impact of the project on the beneficiaries was a function of the degree of their participation in the designing and implementation of the project. To measure the impact of the project on the beneficiaries, the socio-economic conditions of the target group before and after the introduction of the project should be compared.

Mansell, (1996) found that one of the major conceptual issues in project evaluation is the comparative measurement of the effect of project as the determination of the cause and effect relations. He assumed a without project groups situation called 'A' with project participant group situation called 'B' and lastly a project Non-participant group called 'C' whose initial characteristics were in all respect similar to the without project group A. Both project participant and non-participant groups are expected to experience increasing output overtime. This could be as a result of factors outside the control of the project e.g. good weather, adoption of better innovation, or introduction of new varieties or inputs in the area. At a point "T" in time the differences in performance between the 3 situations can be determined. As non-participant group level have recorded an increase in output of DF over the without project situation. Similarly the difference of "T" between, the project participant and non-project participant group is measured by EF. The effect attributable to the project can therefore be measured as the difference between DF and DE while the rate of change relative to the non-participant is:

$$\frac{DF-DE}{DF} \times \frac{TOO}{1} = \text{impact of the project on the project area}$$

Furthermore, one way of measuring the 'effectiveness of the project input delivery system is to compare the achievement of the project's input delivery system with the non-project area achievement. If the project area performs better, it is regarded as been more effective than the non-project area and vice versa. Effectiveness index is symbolically given as:

$$\frac{\text{Actual}}{\text{Expected}} \times \frac{100}{1} \quad \text{or} \quad \frac{\text{Achievement}}{\text{Target}} \times \frac{100}{1}$$

More so, in comparison, before and after, participant designed survey model was adopted as this required fewer resources per programme participant. Survey in programme evaluation according to Hall, (2006) may compare extension clientele and non-clientele within higher levels at one point in time the achievement of programme objectives.

According to Feder, Lawrence and Slade (1987) a more simplified and complete approach to studying the effectiveness of agricultural extension programme is the Reflective Evidence to Appraise Programme (REAP). This model is a package mix for harvesting information on the effectiveness of Extension work. It relies on reflective evidence of project results. Reflective evidence means that the project participants estimate or reflect upon the amount of change and pay-off brought about through a project. A major attribute of REAP model is its adaptability to a wide variety of agricultural extension programme. Its focus is on how much participants have learned or gained from their programme participation and how much positive or negative pay-off they have experienced from applying what they have learnt or gained.

For the purpose of this study a combination of project input, output effect, impact; participant and non-participant, before and after models were used to generate a framework. Also the REAP and survey models were used. Generally the framework assumed that before the intervention of Fadama I project on the project area (Kebbi and Sokoto States) a survey to discover the needs and aspirations of the programme participant farmers before and after was carried out. The result of the survey led to the development of achievable objectives by the Fadama I project management unit. The study went ahead to find out the effect the achieved objectives have on the socio-economic status of the farmers in Kebbi and Sokoto States.

The intervention stage started with the project inputs (Fadama I project Technologies), The project inputs generated certain project outputs which were made available to participating farmers. It is assumed that Fadama I project could benefit indirectly from the project output. Effective use of the project output by the fadama I project farmers generated certain project effects. The adoption of the project outputs over time could definitely generate socio-economic impact (outcome of project outputs) on the farmers. To assess the socio-economic influence of Fadama I project on the rural farmers both independent and dependent socio-economic variables of the programme participant before and after the programme were compared. Data for the comparison were harvested using REAP and Survey model. REAP involved the collection of data from the farmers based on what they perceived to be the influence of the Fadama I project. The survey model was used to collect data from the Participating farmers of Fadama I project on the basis of their perceptions or opinion, about the activities and outcome of Fadama I project before and after realized by the participating farmers among the 3 major crops was higher in Gains followed by Tubers (sweet potato and cassava) and low in Vegetables.

2.2 Conceptual framework

Concept of Social change

Social change is defined as the change in social structure and social relationships and it involves a change in the structure or function of the societal forms (Rogers and shoe maker 1971). Amoaka, (2003) viewed social change as the interaction of the different elements of social life especially the economic, social and political structure as well as the believe systems to produce changes within a nation or societal pattern of daily life or structure of its institution.

Concept of Socio-economic status

This is social and economic attainment of an individual in the society. It shows the social and economic status individuals occupied in the society. According to Agada (1998) the role of socio-economic factors in improving farmers' efficiency was widely acknowledged. Farmer's age in correlation with farming experience has significant influence on the decision-making process of the farmers with respect to risk aversion, adoption of new agricultural innovation and other production related decision.

Concept of Standard of living

Standard of living is considered as the material and impersonal resource which individuals possess and use to meet their physical, psychological, social status or needs or possession of durable items such as radio, television bicycles, motor-cycles, cars, concrete houses, zinc roof etc. For livestock farmers their socio-economic status is measured by the herds of cattle, sheep, goat, turkeys, ducks, donkeys, horses, camels etc they possess.

2.3 Agricultural Development Programme in Nigeria

The history of agricultural development and interventions in Nigeria has been a long struggle for establishment, modernization and reforms of various organizations in the hope of improving the welfare of the rural farmers. Agricultural development immediately after independence 1962-1968 development plan was Nigeria first national plan. Among several objectives of the plan was the introduction of modern agricultural methods through farm settlements scheme, co-operative societies, supply of improved seeds and implements through farm settlements scheme, and expansion of extension services (Iobee, 2009). The Nigeria National Agricultural Extension system has evolved over forty years. From a rudimentary export

crop-focused services to what can now be described as professional service, though its effectiveness and efficiency remain just average at the best.

Unique among these groups are SASSAKAWA Global 2000, Fadama I, Fadama II and of recent the Fadama III which used the already established ADPs structures in achieving their goals. These include selected staff that was seconded to the organizations. Although the strategies used by the NGOs were generally more of a participation (Arokoyo, *et al* 2002) in (Iorbee, 2009). This brief history of extension in Nigeria indicated that the agricultural intervention in Nigeria has been characterized by concerted efforts to arrive at more effective farmer adoption approach capable of serving the small scale farmers for better life.

2.4 National Fadama Development Programme in Nigeria

The fact that many government agricultural intervention development programmes in Nigeria have not had lasting impact on agricultural development and that many have not yielded the expected results of sustained increase in food production is well documented (Singh, 1995). The National Fadama Development Project (NFDP) in Nigeria is one of such programmes in states with fadama potentials. Nigeria as a country is blessed with potentially good land and water resources required for sustainable agricultural development.

The National Fadama Development Project (NFDP) is a project of the Federal Government of Nigeria through the assistance of World Bank loan, to finance the development of fadama lands by introducing small-scale irrigation in states with fadama development potentials. The project aims at boosting increased food production and to raise the standard of living of the beneficiaries. Fadama are low lying lands subject to seasonal flooding or water logging along the banks of streams, rivers or depressions. It is a Hausa word meaning the seasonally flooded or floodable plains along major savannah rivers and or depressions or

adjacent to seasonally or perennially flowing streams and rivers. The enormous potentials for irrigated agriculture in the fadama and flood plains cannot be overemphasized. According to Singh (1995), the fadama lands have high potentials and agricultural values several times more than the adjacent upland. Fadama development is a typical form of small scale irrigation practice characterized by flexibility of farming operations, low inputs requirement, high economic values, minimal social and environmental impact and hence conform with the general criteria for sustainable development (Yahaya and Ango, 2006).

According to Yahaya and Ango, (2006) pumping water from wells in fadama helps in controlling the water table and is thus, anti-water logging device. Similarly, pumping out water from the wells increase soil water infiltration, allow air circulation within the root system, prevent leaching of nutrients and harmful salts from the root zone, thereby providing additional basis for sustainable fadama development. The NFDP was established as a result of the failure of large scale irrigated schemes, which the country has pursued for the last 2 decades to yield the anticipated increase in food production despite the huge sums of money (>2.0 billion US\$) spent on it (World Bank, 2004). Presently, the NFDP is widely being implemented in all the 36 states of the federation and the Federal Capital Territory (FCT), which have been categorized into the core states and the facility states. The core states include Bauchi, Gombe, Jigawa, Kano, Kebbi, Zamfara and Sokoto, while the remaining states and the FCT constitute the facility states (Singh, 1995).

The concept of irrigation connotes the science of economical utilization of water to supplement natural rainfall for the production of crop (Douthwaite, 2001). Arokoyo, (2002) also defines irrigation as the application of water to the soil for any number of the following eight purposes: adding water to soil to supply the essentials for plant growth; provide crop insurance

against short duration droughts; cool the soil and atmosphere, thereby making more favorable environment for plant growth; reduce the hazard of frost; wash out or dilute salts in the soil; reducing the hazards of soil piping; soften tillage pans and clods and to delay bud formation by evaporating cooling.

In recognition of the continuing limitation posed to expansion of agricultural production by a poor development of irrigation facilities, and the need for the sector to grow substantially, the Federal Government initiated the establishment of National Fadama Development Project (N.F.D.P). Mansell (1996) reported that, in an attempt to boost the traditional irrigation system, the Federal Government of Nigeria has contracted a loan of US\$67.9 million from the World Bank to finance the development of the fadama land under the National Fadama Development Project (N.F.D.P). According to him, the pioneer beneficiaries included Bauchi, Jigawa, Sokoto and Kebbi States.

2.5 Factors affecting the adoption of Agricultural Development in Nigeria

There are series of factors that inhibit implementation of agricultural programmes in Nigeria. Amalu (1998), classified the problem into four-: (1) institutional development pathways framework, (2) externalities, (3) internal management and (4) field implementation. The institutional framework for research-extension-farmer linkage, high frequency of labour mobility and limited involvement of input agencies in the institutional linkage strategy are also lacking. Alao, (2003), identified institutional problems that included duplication of responsibilities among staff, lack of accountability, lack of information sharing and irregularities and weak financial control and auditing.

The externalities are mainly dwindling funding policies and counterpart funding. Internal management problems include; bureaucratic inertia of civil servants, patrimonialism and

arbitrariness exhibited by management where operational arrangement are overturned without prior notice and resources personalized to the detriment of the organization. Added to these is the miss-use of authority and facilities by the management staff and poor implementations. Problems: this border on continuity and sustainability for instance poor maintenance of vehicles, inadequate incentive structure for adaptive research and extension staff. This situation results in a virtual cessation of field activities

Amalu (1998), further observes that over the period of 1960 - 1995. Many agricultural programmes which differ in nomenclature and perhaps organizational structure and advisory procedures were evolved and established. Surprisingly, up till date despite all these laudable programmes with exciting themes, the country is still striving to stop the widening imbalance and perhaps thereafter to narrow the gap in terms of agricultural development programmes. The persistent failure of agricultural programmes in Nigeria, according to him, is the inability of the several administrations in Nigeria to solve the basic and fundamental problems of agricultural development. However, inadequate programme development and planning according to Cristovao and Portela (1997) are detrimental to the success of programme implantation and achievement of the programme objectives.

Thus, Cristovao and Portela (1997) views that lack of adequate planning and continued evaluation was a major reason for the frequent failure of extension programme or projects. Also, Balogun (1986) attributed the failure and persistent stagnation of agricultural programmes in Nigeria to the characteristic nature of most policies and inherent contradictions between policy formulation and implementation. However necessary assumptions for project success may include the need for output such as the building of relation between project sponsors, establishing or strengthen in the arrangement which are required for wider coalition of support

that would enhance the capacity of primary stakeholders (including women) to participate more effectively (Okeh, 2010).

Madukwe and Anyanwu (2000), observes that agricultural extension in Nigeria has witnessed many challenges such as reorganization of policies and programmes aimed at enhancing, extension performance and improving agricultural production. According to Madukwe (1991), poor and irregular budgetary allocation has been identified as the constraint hindering the effective performance of agricultural extension in Nigeria. This problem is partly due to the fact that the issues of extension finance and budget is relatively less researched and poorly understood in Nigeria. Okeh, (2010) opines that projects that introduce imported technologies in rural communities have high possibility of failure whereas those that build around the knowledge, skills, capacities and techniques already in existence tend to record great success.

Five major reasons according to Umaru (1994) have been responsible for the relative success of small-scale irrigation in the ADP system. They include: the active involvement of farmers in project planning, formulation and implementation, autonomy in the management of pumps, land, simplicity of the technology, low cost of owning and operating increase crop production and high returns. World Bank (1995), impact evaluation of Kano and Sokoto ADPs reported that the success of the programme was attributed to four factors: the existence of a substantial market for the products, the initial incentive for adoption, suitability of the technologies for use by the individual farmers and improvement in the technologies to enhance the attractiveness to farmers. One limitation one foresees is the funding back up. Hence ADPs were advised to explore all possible sources of funds (commercial and development banks, donor agencies, State government and non-governmental organizations).

2.6 Socio-economic characteristics of farmers

National Fadama Development Program delivery system being techno-social science cannot be dismissed from the social-cultural and economic environment that the target audience (recipient or farmer) as well as the providers are operating. According to Agada (1998) the role of socio-economic factors in improving farmers' efficiency was widely acknowledged. Farmers' age in correlation with farming experience has significant influence on the decision-making process of farmers with respect to risk aversion, adoption of new agricultural innovation and other production related decision. Farmer to farmer interaction is reinforced thereby resulting in technology adoption and dissemination among farmers within and outside the community.

Yazid, (1983) stressed that although economics of sub-Saharan Africa were essentially based on agriculture, for over thirty years the region has faced a structural food deficit whereby it could not keep pace with population growth. For farmers one's geographic and socio-economic location determines the particular configuration of hardship to be faced. Traditional mode of production system of rural households were geared for subsistence and were generally sustainable under conditions of low population pressure and isolated markets. However, this balance is increasingly stressed into marginal lands. Expansion into marginal areas brings increased risk of crop failure; environmental degradation and loss of biodiversity, thereby reducing both productivity and sustainability of agricultural system over time (Amoako, 2003). Adesehinwa, Okumola, and Adewumi (2004) remark that, the low percentage of those with little adoption of new innovation may be due to inadequate extension education in the village, which to a great extent could adversely influence the acceptance of new innovation in agricultural production. The technical inefficiency portion of the model showed that male farmers were more technical efficient than the female farmers. The sex as an intervening variable

had a negative coefficient and was significant. The only other significant variable was age which indicates that the older the farmer, the more inefficient he or she will be (Ogundele, 2004). The study considered the relationships of farmers' socio-economic and institutional factors. These independent variables considered are the yield of the farmers, farmers' standard living, adoption of new farm innovation and expansion in the production. The independent variables considered were extension visits, demonstration trials, exposure to media extension programmes, participation in extension activities such as: fortnight evening training, Monthly Technology Review Meeting (MTRM), workshops, symposium and seminars.

2.7 Measure of Farm Yield in Relation to Standard of Living

Influence of Fadama I project on the social and economic status of farmers can be measured in terms of yield, farmers' living standard, adoption of farming innovations expansion in the production, income per capita of farmers etc., in determining the impact of social and economic intervention. Therefore, Linsdaine and Bennett (1975) suggest that goals or objectives of the organization rendering the services should be established. Likewise, Douthwaite, (2001) opined that a programme should be assessed considering the desirability of the goals or outcomes sought and the extent to which the goals are achieved by demonstrable effects.

According to Gefu, (1989) social intervention may be more than just one goal such as primary and secondary goals which may affect the choice of criteria in assessing its impact. Under this circumstance, it is desirable to use more than one outcome as a measure of impact. For instance, the overall aim of agricultural intervention is to increase productivity and income of the farmers. However, more immediate outcome of the programme such as total yield of the farmers, farmer standard of living, adoption of new improved technologies and expansion in the

production are of great area of attention for this study. They are the determinants of the overall results.

2.8 Empirical Studies

The following are some of the research studies carried out by some researchers similar to the present research work.

Ango, Illo and Jibrin (1999) carried out a study titled socio-economic impacts of fadama development programme on participating farmers of the two zones of Kebbi State Agricultural and Rural Development Authority. They sampled 120 participating farmers randomly in the two zones. Descriptive and inferential statistics were used to analyze data. The present study is similar to that of Ango, Illo and Jibrin (1999) in the sense that both studies were on fadama programme. The present study sampled 400 farmers out of 14,600 participating farmers in both Kebbi and Sokoto states. Their study was also on the impact of fadama programme, whereas the present study was on perception of influence of fadama project. Their study also revealed that there are a lot of improvements in terms socio- economic on the part of participating farmers, as their seasonal earnings have improved with about 50% when compared to before the participation. In the present research, it also revealed that participating farmers have acquired more land and earn additional 65% of their annual income.

Owens, Hoddinot and Kinsey (2001) carried out a study titled impact of agricultural extension on farm production in resettlement of Zimbabwe farmers. This study aimed at revisiting the contextual issue of impact of agricultural extension on farm production. Data used for the study were drawn from a sample of household resettled in the three region of Zimbabwe. The initial sampling frame consisted of all resettlement schemes established in the first two years of the programme in the three agro climatic zones. Random selection was employed to select

villages within the schemes and attempt was made to cover all selected households. The instrument for the collection of data was interview and was analyzed using descriptive statistics. Finding showed that there was significant impact of extension services on farm productivity; secondly there may be variation in impact from year to year. From the previous findings, the researcher observed that extension as an intervention played a vital role on increasing farm productivity even though there may be changes from time to time.

The present research is similar to the previous research in that interview was used to collect data from rural farmers. However, they differed in the following ways: Owens, Hoddinot and Kinseys (2001) research was conducted in resettlement areas of Zimbabwe republic in 2001, while the present study was carried out in Kebbi and Sokoto states of Nigeria. His study reveals that as a result of the settlement programme, there were higher returns in terms farm productivity. The present study also reveals that due improved technologies brought by Fadama I project, participating farmers experienced high yield.

Nwalieji, (2005) conducted a study titled evaluation of Fadama phase-one vegetable production project of the Anambra State Agricultural Development Programme. Nwalieji, (2005) used 160 farmers as sample out of 360 target farmers. Nwalieji, (2005) used T-test and chi-square in testing the null hypothesis, while the present study used Regression Analysis to test all the four null hypothesis. Nwalieji, (2005) concluded that fadama phase-one in Anambra state helped in the upliftment of living standard of benefiting farmers when compared to those that have not participated. While the present study is on the perception of Influence of Fadama I Project on the Socio-economic status of Farmers in Kebbi and Sokoto states, Nigeria. And 400 farmers were sampled out of 14,600 with the aim of assessing the effect of the project on benefiting farmers when compared to non-participants.

Ogunwale, Ayoale and Ayansina (2006) carried out a study titled impact of extension service on farmers' production activities in Ogbomoso agricultural zone in Oyo state, Nigeria. The study examined the impact of extension services on the farmers' production activities with a view to assess the extension method used by the village extension workers and to determine their influence on the farmers' production activities. Multistage sampling techniques was used to select 60 farmers at random, while purposive sampling method was used to select 13 extension workers in Ogbomoso Agricultural zone in Oyo state. Interview schedules and structured questionnaires were used to collect data from farmers and extension workers respectively. The data were analyzed with statistical tools such as frequency distribution, percentage and multiple regression analysis.

The present study is similar to that conducted by Ogunwale *etal* (2006) as it attempted to find out the impact of extension service on the farmers' living standard. However, it differed from the present study in the following ways: The present study was carried out in Kebbi and Sokoto states, Nigeria. Ogunwale, *etal* (2006) did not specify the number of target population from which they arrived at getting the samples of 60 and 13 farmers and extension workers randomly selected respectively. Ogunwale, *etal* (2006) used multistage sampling techniques, while the present study used stratified random sampling. The population of the present study is 14,600 participating farmers and 400 were randomly selected as sample and five null hypotheses were formulated. Ogunwale, *etal* (2006) concluded in their study area that intervention from extensionservices has positive effect on the farmers' production activities, Socio-economic and living standard. The present research also focused on perception of influence of fadama I project as intervention on the Socio-economic status of farmers in Kebbi and Sokoto states. Ogunwale, results revealed that there were higher returns in terms farm productivity. The present study also

reveals that due improved technologies brought by Fadama I project, and more lands cultivated by participating farmers, the farmers experienced high yield.

Adebo and Ewuoba (2006) conducted another study titled effect of training on Adoption of improved farm practices by farmers in Ondo State, Nigeria. The study aimed to analyze and describe the socio-economic characteristics of the farmers and also find out the effect of training on adoption of improved farm technology and productivity. Data used in the study were primary data collected by means of structured interview schedule from a sample of 200 farmers in Ondo states. Descriptive statistics was used to analyze the demographic characteristics of the respondents, while Pearson product moment correlation was used to examine the relationship between training and adoption of innovation. The result showed that trainings received and their adoption of new innovation increased their overall output of maize, rice and cassava.

The present study is related to Adebo and Ewuoba (2006) research in the sense that the present study used regression analysis to test the hypothesis. Adebo and Ewuoba (2006) used a total of 200 farmer targeted population as his sample, while the present study used 400 sampled out from 14,600 target population as participating farmers. Adebo and Ewuoba's (2006) result showed that training received through extension services had led to the increase in their farm output. The present research results finds out that Fadama I project had led to the increase in their farm output of the participating farmers in Kebbi and Sokoto states.

Lawal, Torimiro and Makanjuola (2008) conducted a study titled Impact of Agricultural Extension Practices on the Nigeria Poultry Farmers' standard of living: A perceptual analysis of Ogun state. The study assessed the impact of agricultural extension practices on the living standard of poultry farmers in Ogun state, Nigeria. Specifically, the study aimed at identifying the practices extended to poultry farmers by the extension outfit as external intervention in the

state and adoption of the extended practices and its impact. It also identified the challenges of poultry farmers in the study area.

The target population of the study was of poultry farmers in Ogun state. A structured interview schedule was used to gather data from one hundred and twenty (120) poultry farmers who were selected using multistage random sampling technique from Demo division of the state. Data were analyzed using descriptive statistics such as frequency distribution and percentage. Chi-square (χ^2) was used to determine the relationship between level of adoption of new innovations and perception of impact of the adopted practices on the standard of living of poultry farmers at 0.05 level of significance. Pearson product moment correlation was used to determine the relationship between adoption and some selected characteristics of the farmers. The result showed that farmers adopted most of the practices and there were considerable farmers' improvement in the socio-economic status of the poultry farmers. Majority of the farmers (80%) had positive perception of the impact of the C

The present study is similar to that of Lawal, Torimiro and Makanjuola (2008) research in that their study attempted to find out impact of agricultural extension practices as intervention on the standard of living of poultry farmers. Structured interview guide was used. However, there was also an improvement in terms of living standard. Items such as brick houses, bicycles, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school.

Simonyan, (2009) conducted a study titled an impact assessment of Fadama II project on income and productivity of beneficiary farmers in Kaduna state, Nigeria. Simonyan, (2009) used 420 farmers as sample for her study; he did not specify from which population he arrived at 420 farmers as sample. The present study is similar to that of Simonyan, (2009) study as both studies

are on the influence of fadama project on the socio-economic status of fadama farmers. Simonyan, (2009) concluded that fadama II in Kaduna state helped in improving the living standard of benefiting farmers when compared to non-participants. While the present study was conducted on the Influence of Fadama I Project on the Socio-economic status of Farmers in Kebbi and Sokoto states, Nigeria. Her findings show improvements in living standard of fadama farmers in Kaduna State as the farmers have access to items such as brick houses, bicycles, motorcycles, cars, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school. The findings of the present research also revealed that Fadama I project farmers' living standard has improved as they possessed items such as brick and roof houses, bicycles, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school.

Haruna (2010) conducted a study titled Role of Fadama II Project in Improving Rural Livelihood in Niger state, Nigeria. Haruna (2010) used 150 farmers as sample for his study; he did not specify from which population he arrived at 150 farmers as sample. The present study is similar to that of Haruna, (2010) study as both studies are on the influence of fadama programme on the socio-economic status of fadama farmers. Haruna, (2010) concluded that fadama II in Niger state helped in the upliftment of living standard of benefiting farmers when compared to non-participants as they possessed house hold equipment such as electricity, tape recorder, brick houses, bicycles, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school.

. While the present study is on the Influence of Fadama I Project on the Socio-economic status of Farmers in Kebbi and Sokoto states, Nigeria. The results of the finding have shown a tremendous improvement in terms of standard of living of fadama farmers in Kebbi and Sokoto

States since they were able to possess some items such as brick houses with zinc roofing, bicycles, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school.

Mahmud, (2011) conducted a study on impact of farmer education on the standard of living of farmers in Bauchi state, Nigeria. He sampled 377 contact farmers out of 21,600 population and 186 out of 377 extension workers. The present study is similar to that of Mahmud (2011) as they both seek to find out the effects of different variables but on the living standard of farmers. Mahmud's (2010) research was on effect extension education on the living standard of farmers in Bauchi and the present study was on influence of First National Fadama Programme (Fadama I Programme) on the socio-economic status of farmers in Kebbi and Sokoto States. His findings revealed that educating farmers on new technologies has led to improved living standard, as farmers now have house hold equipment such as electricity, tape recorder, brick houses, bicycles, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school. Likewise, the present study's findings show that Fadama I project farmers standard of living had improved. They now possessed items such as house hold equipment such as electricity, tape recorder, brick houses, bicycles, televisions and good nutrition are now found among fadama farmers, and can even afford to send their children to a better school.

2.9 Summary

In a nutshell, attempts have been made to highlight and analyze the work of some authors under the major sub-topics used. The review of related literatures generally signified that through intervention such as fadama I project, can be of immense important on the new farming practices that could improve their socio-economic status. The evidence of influence of innovations given

to farmers in terms of farm inputs, training on their productivity and technological adoption was generally positive. It was also shown that ability of the farmer to improve on his output may be determined by his physical and mental well-being, exposure and access to external assistance for inputs. It was revealed that in recent years, there have been changes in term of adoption, total farm output and socio-economic status of farmers as a result of introduction of many new improved seed varieties, animal breeds, better use of fertilizer, better control of pests and diseases, chemical weed control etc.

The farmers income and the socio-economic status of farmers' families are also intimately related that they worth joining for consideration. Socio-economic status was considered as the material and impersonal resource which individuals possess and use to meet their physical, psychological, social status or needs or possession of durable items such as radio, television bicycles, motor-cycles, cars, concrete houses, zinc roof etc. For livestock farmers their socio-economic status is measured by the herds of cattle, sheep, goat, turkeys, ducks, donkeys, horses, camels etc they possess. Finally, empirical studies related to the study were reviewed to guide the researcher.

CHAPTER THREE RESEARCH METHODOLOGY

This chapter will describe the methodology to be used for the conduct of this study under the following sub-headings:-

Study Areas

3.1 Research Design

3.2 Population for the Study

3.3 Sample Size and Sampling Procedure

3.4 Instrument for Data Collection

3.4.1 Validity of the Instrument

3.4.2 Pilot Study

3.4.3 Reliability of the Instrument

3.5 Procedure for Data Collection

3.6 Procedure for Data Analysis

Study Areas

Kebbi and Sokoto States were carved out of North-west province in 1972 and they lie between latitude 10° and 13.3° N and longitude 3.3° E and 6.13° E. They share a common boundary with two of Nigerians neighbouring countries, Benin Republic and Republic of Niger to the west and North.

Within the country, they border Zamfara State to the east. The climate of the areas is generally characterized by high temperatures ranging between March and May, with annual temperatures varying between 38° C to 42° C and the areas experience harmattan wind between

late November to early February, with temperatures as low as 23⁰C. They are located in the sudano-sahelian ecological zone and experiences serious moisture deficiency for greater part of the year (Singh, 1995). Rainfall usually begins in early May, while heavy fall is experienced between July and October with mean annual rainfall varying between 500mm to 800mm. The climate of the study areas encourages the production of crops and animals both during rainy and dry seasons of the year, which makes majority of the inhabitants to choose farming as an occupation (Ango, Illo&Jibrin 1999). As for alternative sources of water, this covers mainly River Niger and Sokoto River with many of their important tributaries, which continue to supply the areas with underground and surface water.

Kebbi State has four (4) Agricultural Development Project Zones, while Sokoto State has two (2) zonal offices. Eastern zone at Zuru, Western zone at Argungu, Central zone at Birnin kebbi and Southern zone at Yauri for Kebbi state, while Sokoto state has Western zone at Tambuwal and Eastern zone at Wurno. Several factors have been identified to influence technology adoption by farmers.

3.1 Research Design

Descriptive survey research design was used for the study. This design allowed the researcher to collect data from respondents using questionnaires and subject them to statistical analysis.

3.2 Population of the study

The target population of the study was Fadama I project participating farmers in Kebbi and Sokoto states. A total of seven thousand six hundred (7,600) participating farmers from two agricultural development zones in Kebbi state and a total of seven thousand (7,000) participating farmers from two agricultural development zones in Sokoto state served as the population. The

total population of farmers from both Kebbi and Sokoto states stands at fourteen thousand six hundred (14,600). Table 3.1 shows the breakdown according to states and zones selected.

Table 3.1 Population for the study

Participating farmers in Kebbi and Sokoto states

| State | Zones | Total |
|--------------------|--------------------------------------|---------------|
| Kebbi | Yawuri – 3,500 Birnin Kebbi 4,100 | 7,600 |
| Sokoto | Wurno – 2,500 Tanbuwal – 4,500 | 7,000 |
| Grand Total | | 14,600 |

Source: Kebbi and Sokoto states Agricultural Development Project (2007)

3.3 Sampling Techniques

Multistage sampling technique was employed in to select two agricultural zones out of three. From each zone two blocks were randomly selected and one ward was selected from each block given a total of twenty (20) circles (villages). From each village twenty participating farmers were selected to give four hundred farmers.

3.4 Instrument for data collection

Structured questionnaire was used and is in two sections “A” and “B”. Section “A” comprises of questions meant for the collection of bio-data of the respondents, while section “B” items were based on the objectives, research questions and research hypothesis of the study to solicit for the respondent responses. From farmers structured questionnaire items, In section “A” respondents were to tick the appropriate option.

3.4.1 Validity of the Instrument

The structured questionnaire was given to experts in the Department of Science and Vocational Education, Usmanu Danfodiyo University, Sokoto, for comments, suggestions and

correction to enhance the suitability for eliciting the accurate and specific answer to the questions.

3.4.2 Pilot Study

A pilot study was conducted in Funtua, Katsina state. The reason for choosing Funtua in Katsina state Nigeria was the fact that the respondents in this area have similar characteristics with those in the areas of study. Thirty copies of the questionnaires were distributed to the contact farmers from one of the Katsina State Agricultural Development zone (Funtua). All copies of the questions were collected after two weeks.

3.4.3 Reliability of the instrument

Data collected from the pilot study were subjected to reliability test analysis using Codiran Alpha and Guttman split-half coefficient. The result gave the reliability of 0.75 for the instrument. This instrument was considered reliable based on the Rama (2007) statement that the reliability coefficient can range from 0 to 1, with 0 as representing instrument full of error and 1 representing total absence of error.

3.5 Procedure for Data Collection

The researcher collected an introductory letter from the Department of Vocational and Technical Education, Ahmadu Bello University, Zaria and also employed the services of two trained research enumerators each for Kebbi and Sokoto states. The copies were collected after eight weeks of distribution. In order to ease the statistical manipulation of each data, the Strongly Agree (SA) Agree (A) is considered as Agree, while Disagree and Strongly Disagree (SD) is regarded as Disagree. In the analysis, items with mean score of 2.50 and above were considered agree while those with less than 2.50 as disagree. Section B was designed in a four scale rating

such as Strongly Agree (SA), Agree (A) Disagree (D) and Strongly Disagree (SD). Points were rated as follow:

| | | |
|----------------|---|----------|
| Strongly Agree | = | 4 Points |
| Agree | = | 3 Points |
| Disagree | = | 2 points |
| Strongly | = | 1 point |

And items 31 to 50 are designed in a four scale rating also as: Very Often (VO), Often (O), Rarely (R) and Not at All (NA).

3.6 Procedure for data analysis

Data collected were analyzed in three stages. The bio-data of the respondents were analyzed using frequencies and percentages. All the research questions were answered using descriptive statistics including mean, frequency distribution, percentages and chi-square was used to test relationship between farmers demographic characteristics, technology provided and land cultivated before and after project take off., while t-test was used to test all the null hypotheses at 0.05 level of significance..

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION OF RESULTS

Data Analysis Procedure

The data obtained was analyzed using frequency count distribution and mean variations were determined using test analysis. The degree of associations between the dependent and independent variables were determined using regression analysis.

RESULTS AND DISCUSSIONS

Socio-economic status of the farmers

Table 4.1.1: Distribution of respondents demographic characteristics (n=375)

| Variable | Categories | Frequency | Percentage (%) |
|------------------------|--------------------|-----------|----------------|
| Gender | Female | 67 | 14.16 |
| | Male | 308 | 85.8 |
| Age | < 20 years | 65 | 17 |
| | 31-40 years | 172 | 46 |
| | 41-50 years | 89 | 24 |
| | 51 years and above | 35 | 09 |
| Marital status | Single | 102 | 26 |
| | Married | 240 | 65 |
| | Divorced | 33 | 09 |
| Religion | Islam | 217 | 97.5 |
| | Christianity | 102 | 01.7 |
| | Traditionalist | 56 | 0.8 |
| Educational attainment | Quranic | 228 | 64 |
| | Non formal educ. | 00 | 00.0 |
| | Formal educ. | 57 | 35.8 |
| | Adult educ. | 00 | 00.00 |
| Occupation | Civil servant | 131 | 25.8 |
| | Business | 160 | 50.0 |
| | Artisan | 84 | 24.17 |
| Family size | 1-10 people | 123 | 50.0 |
| | 11-20 people | 102 | 32.5 |
| | 21-30 people | 78 | 12.5 |
| | 31-40 people | 69 | 05.0 |
| Farm size | <2 ha | 83 | 14.2 |
| | 2-3 ha | 102 | 25.8 |
| | 4-5 ha | 91 | 23.3 |
| | 5 ha and above | 99 | 30.0 |

Gender

The findings in table 4.1 showed that majority (85.5%) of the participating farmers were males while only (14.16%) were females. The reason behind less number of female farmers was because people of the study area believed that farm works are mainly for males while women are left with household chores. This statement is in accordance with the findings of Okeh (2010) who reported that rural female farmers are not statistically identified as an active population in farm operations. As a result, their productive economic roles are regarded as part of their domestic and reproductive roles.

Age

The result in table 4.1 also indicated that 30% of the fadama I project farmers are within the age brackets of 41-50 years, 26.7% of the participating farmers were within age range of 31-40 years, and only 4.2% were within the age bracket of less than 20years. This indicates that most of the farmers that participated in the programme are in their active productive years.

Farm size

Fadama I farming was normally found to be in practice especially during the dry season of the year, where most of the farmers cultivate small piece of land of less than 4 hectares. The findings in table 4.1 indicated 14.4% of the respondents had a farm size of 2 hectares, 25.8% of the farmers had a farm size of 2-3 hectares while 30% of the respondents had farm size of 5 hectares and above. The finding implies that almost all the farmers cultivate between 2-5 hectares of land. This result is based on the findings of Bello et al (1998) who reported that majority of the farmers of Sokoto Rima basin operate on a small - scale basis with only 2-3 hectares of fadama I project plots under their operation.

Table 4.2: Distribution of respondents according to their participation in cooperative membership and mode of land acquisition (n=375)

| Variable | Categories | Frequency | Percentage (%) |
|------------------------------|-------------|-----------|----------------|
| Cooperative Membership | | | |
| | No | 42 | 20.0 |
| | Yes | 114 | 80.0 |
| Fadama Users Association | | | |
| | No | 47 | 24.2 |
| | Yes | 109 | 75.8 |
| Farmers Club | | | |
| | No | 95 | 99.2 |
| | Yes | 61 | 0.8 |
| Water Users Association | | | |
| | No | 217 | 99.2 |
| | Yes | 20 | 08 |
| Farmers' Cooperative Society | | | |
| | No | 83 | 54.2 |
| | Yes | 73 | 45.8 |
| Methods of Land ownership | | | |
| | Inheritance | 83 | 54.2 |
| | Purchase | 62 | 37.5 |
| | Borrowing | 25 | 05.8 |
| | Leasing | 22 | 02.5 |

Educational attainment

Many findings of researches conducted revealed that majority of the people of the northern region of Nigeria normally enrolled in to quranic schools before enrolling in to western education, this makes majority of them having quranic education even in the absence of western education. As shown in the finding of Table 4.1, majority (64%) of the fadama I participating farmers had attended quranic school and 35.8% had formal education. The attainment of any type education was found to have favourable attitudes towards acceptance and adoption of agricultural innovation. This might be the reason why majority of farmers participated in fadama I development programme.

Social Impacts of the Fadama I Project

Cooperative Membership

The pre-requisite condition for a farmer to benefit the supply of agricultural inputs and extension services by the fadama I development programme depends on the ability of the farmers to form fadama users groups, under which all agricultural inputs and other assistance are provided through the leaders of the groups. As shown in Table 4.2, majority of fadama farmers (75.8%) belong to the Fadama Users Association (FUAs). Large numbers of farmers were found to belong to the fadama users association because it is only registered members of the association that are entitled to the provision of tube wells, pumps and other agricultural inputs. This finding corroborated the view of Umaru (1994) who reported that the Kebbi and Sokoto Agricultural and Rural Development Programme drill tube wells and supply water pumps on loan basis only for members of Fadama Users Association (FUAs). This is enough to democratically motivate farmers to join associations.

Table 4.1.3: Distribution of respondents according to land ownership before and after programme intervention (n=375)

| Variable | Categories | Frequency | Percentage (%) |
|-----------------------|------------|-----------|----------------|
| Land before programme | 1-3ha | 100 | 62.5 |
| | 4-6ha | 58 | 26.7 |
| | 7-9ha | 36 | 08.3 |
| | 10-12ha | 28 | 01.7 |
| | >13ha | 26 | 0.8 |
| Land after programme | 1-3ha | 81 | 46.7 |
| | 4-6ha | 68 | 35.8 |
| | 7-9ha | 37 | 10.0 |
| | 10-12ha | 33 | 05.8 |
| | > 13ha | 28 | 01.7 |

Method of Land Ownership

Land for farming and any other purpose is mostly inherited in the northern part of Nigeria and which its distribution among the heirs of the deceased person is restricted to the dictate of the Islamic religion. While other lands especially for farming are either purchased or leased from those that inherited the land from their parents. The finding in Table 4.2 also indicated that most of the Fadama I participating farmers (54.2%) acquired land through inheritance, 37.5% of the farmers were found to have purchased the land they are operating on while only (5.8%) of them leased the plot of the land. Acquisition of land through inheritance was found to be very high among Fadama I project irrigation farmers; this is because inheritance is the common mode of acquiring land and land of a deceased person is normally passed to his heirs based on the Islamic lay down rules. This finding is in accordance with Singh (1995) who pointed that the introduction of Sharia in most part of the north at the beginning of the 17th century has undermined the customary principles which emphasized collective ownership of land. It also has established rules concerning transfer, inheritance and commercial transactions in land.

Economic Impacts of the Fadama I Development Project

Land ownership before and after the project

Due to its drudgeries nature, most of the Fadama I project farmers engaged in cultivating fewer plots of land (1-4 hectares) that can be easily managed by them, but few of the better-off among the rural populace engaged in cultivating many hectares ranging from 5 hectares and above. The finding in table 4.3 indicated that among the small-scale Fadama I project farmers 62.5% of them cultivated 1-3ha before the programme take-off and which has reduced to 46.7% of participating farmers cultivating 1-3ha after programme take-off. But based on the large-scale cultivation, it could be seen from the finding that 26.7% of the participating Fadama I project farmers cultivated 4-6 hectares of land as compared to 35.8% of the farmers cultivating the same hectares of land

after project take-off. It was also discovered that only 1.7% of the farmers cultivate 10-12 hectares of land before project take-off when compared with 5.8% of the farmers cultivating the same hectares of land. This implied that the number of farmers cultivating more lands among the fadama I project farmers has decreased in terms of small-scale farming but it was found to have increased among the large-scale fadama I project farmers.

Table 4.1.4 Frequency distribution of respondents according to crops grown before and after programme take-off (n=375)

| Variable | Categories | Frequency | Percentage (%) |
|---|------------|-----------|----------------|
| Crops grown before programme (rice, tomatoes, pepper and spinach) | Grains | 114 | 61.7 |
| | Tubers | 72 | 24.2 |
| | Vegetables | 63 | 14.3 |
| Crops grown after programme (rice, tomatoes, pepper and spinach) | Grains | 112 | 57.5 |
| | Tubers | 74 | 28.8 |
| | Vegetables | 63 | 16.7 |

Crops grown before and after the programme

As shown in Table 4.1.4, a high proportion (61.7%) of the farmers grew grains (rice) before the programme take-off, but the proportion of farmers that grow rice reduced to 57.5% after project take-off. Also 14.3% of the farmers were found growing vegetables before project take-off when compared to 16.7% of the farmers growing vegetable after the project take-off. The findings of the research implied that there is a shift on the cultivation of grains among the farmers before and after the fadama I programme, this ought to be due to the fact that the fadama I project farmers were never dictated to, as per which type of crop to be grown. Unlike in the large scale irrigation projects in Nigeria where the farmers are forced to grow a particular crop on which the government has a special interest. This result is in contrast with Sintiki (1994) who posits that,

with the provision of modern irrigation, government dictated the farmers to grow grains (wheat and rice) under the policy of Accelerated Wheat Production Programme (AWPP)

Table 4.1.5: Frequency distribution of farmers according to their income/ season when a bag of unshelled rice was N2, 500 (n=375).

| Variable | Categories | Frequency | Percentage |
|-------------------------|--------------------|-----------|------------|
| Income before programme | N1,800-N36,000 | 62 | 34.2 |
| | N37,000-N72,000 | 38 | 14.2 |
| | N73,000-N108,000 | 36 | 12.5 |
| | N111,000- N144,000 | 36 | 12.5 |
| | N145,000-N180,000 | 26 | 3.33 |
| | >N 181,000 | 49 | 23.0 |
| Income after programme | N1,800-N36,000 | 60 | 32.5 |
| | N37,000-N72,000 | 41 | 16.6 |
| | N73,000-N108,000 | 36 | 12.5 |
| | N111,000- N144,000 | 28 | 05.8 |
| | N145,000-N180,000 | 29 | 06.6 |
| | >N 181,000 | 51 | 25.0 |

Income realized in a Season

The main essence of participating in any agricultural programme is to improve the living standard of the farmers that participated in to the programme through increase in their earnings. The findings in table 4.1.5 revealed that 3.3% of the fadama I project farmers had an income of N145, 000-N180, 000 before the inception of the programme but after participating in to the programme the number of participating farmers' earnings of N145, 000-N180, 000 has doubled to 6.6%. The result also indicated that 23% of the farmers earned an income of more than N181, 000 before the project take-off when compared with an increment of 25% of the farmers, after a year into the project in an agricultural season. This implied that there was an increase in the number of participating farmers after the programme take-off.

Test of Associations between dependent and independent variables

Table 4.1.6: Relationship testing between farmers demographic characteristics, technology provided and land cultivated before and after project take off.

| Variables | Test-values | Df | P - value | Mean + SE |
|--|-------------|-----|---------------|-----------|
| Gender and gender programme impact | X =0.6157 | 2 | 0.92239 NS | |
| Technology provided and total impact(social and economic) of the programme | r =0.2479 | 5 | 0.001*** | |
| Land cultivated before and after programme | t=1.23 | 210 | 0.22*** | 0.131 |

NS = Not significant

*** Significant at 1%

The chi-square (χ) analysis in table 4.1.6 indicated that the demographic characteristics of the farmers are significantly associated with the effect of the programme except for farm size ($\chi=31.763$; $p < 0$). The table further revealed that the impact of the programme on farmers before and after programme take-off was analyzed using t-test. The result of the analysis showed that more land was cultivated by the fadama farmers after the programme take-off ($t=1.23$; $p > 0.22$).

Testing the null hypothesis

Hypothesis one: *Fadama I project has no significant influence of on the socio-economic status of farmers in Kebbi and Sokoto states*

To test null hypothesis 1 the mean for all the socio-economic indices such as source of farmland, farm size, level of income, traditional title, membership of association before and after the Fadama 1 project were compared using t-test analysis.

Table 4.2.1: effect of fadama I project on the socio-economic status of the participating farmers

| Variable | N | \bar{X} | SD | DF | t-cal. | t-crit. |
|-----------------|-----|-----------|------|-----|--------|----------------|
| Before Fadama I | 400 | 2.70 | 2.33 | 788 | 2.88 | 1.96 |
| After Fadama I | 400 | 3.52 | 2.71 | | | |
| P= .005 | | | | | | Decision = Sig |

The result of the t-test analysis in tables 4.3.1 revealed that fadama I project had a significant influence on the socio-economic status of farmers in Kebbi and Sokoto states. This is because, t-calculated (2.88) was greater than t-critical (1.96) at 5% level of significant. Consequently the null hypothesis which stated that Fadama I project has no significant influence on the socio-economic status of participating farmers was therefore rejected.

Null hypothesis two: *There is no significant difference in the technologies adopted by Fadama I project participating farmers before and after the project.*

Table 4.3.2.2 presents t-test analysis to determine the difference in the technologies adopted by Fadama I project participating farmers before and after the project.

Table 4.2.2: Difference in the technologies adopted by Fadama I project participating farmers before and after the project

| Variable | N | \bar{X} | SD | DF | t-cal. | t-crit. |
|-----------------|-----|-----------|------|-----|--------|----------------|
| Before Fadama I | 400 | 2.55 | 1.90 | 788 | 2.53 | 1.96 |
| After Fadama I | 400 | 3.40 | 2.11 | | | |
| P= 0.05 | | | | | | Decision = Sig |

The result of t-test analysis revealed that, there is a significant difference in the technologies adopted by Fadama I project participating farmers before and after the project. This is because; t-calculated (2.53) was greater than t-critical (1.96). Hence the null hypothesis which, stated that, there is no significant difference in the technologies adopted by Fadama I project participating farmers before and after the project was rejected.

Null hypothesis three: *there is no significant difference between the land cultivated by Fadama I project participating farmers before and after the project.*

Table 4.2.3 presents t-test analysis of the difference between the land cultivated by Fadama I project participating farmers before and after the project.

Table 4.2.3 presents difference between the land area cultivated by Fadama I project participating farmers before and after the project.

| Variable | N | \bar{X} | SD | DF | t-cal. | t-crit. |
|-----------------|-----|-----------|------|-----|--------|----------------|
| Before Fadama I | 400 | 2.23 | 1.46 | 788 | 3.12 | 1.96 |
| After Fadama I | 400 | 3.60 | 2.31 | | | |
| P= 0.05 | | | | | | Decision = Sig |

The result of the t-test Analysis showed that, there is a significant difference between the land cultivated by Fadama I project participating farmers before and after the project.

. Therefore, the null hypothesis which states that, there is no significant difference between the land cultivated by Fadama I project participating farmers before and after the project was rejected.

Null hypothesis four: *Fadama I project has no significant effect on the standard of living of the participating farmers.*

Table 4.2.4 presents effect of fadama I project on the standard of living of the participating Farmers.

Table 4.2.4 Effect of fadama I project on the standard of living of the participating farmers

| Variable | N | \bar{X} | SD | DF | t-cal. | t-crit. |
|-----------------|-----|-----------|------|-----|--------|----------------|
| Before Fadama I | 400 | 2.52 | 1.51 | 788 | 2.72 | 1.96 |
| After Fadama I | 400 | 2.90 | 2.62 | | | |
| P= 0.05 | | | | | | Decision = Sig |

The result of the t-test analysis showed that, fadama I project has significant effect on the standard of living of the participating farmers. This is because; t-calculated (2.72) was greater than t-critical (1.96). Therefore, the null hypothesis which states that, Fadama I project has no significant effect on the standard of living of the participating farmers was rejected.

Major findings

The following findings are presented.

- It's evident from this study, that farmers were involved in the decision making on planning the programme and the farmers were encouraged to participate in cooperative organizations and the common association joined by most of the participating farmers was fadama users association (FUA). It is also evident that only registered members of the fadama users association were provided with the required agricultural inputs
- High cost of farm inputs such as improved seeds, herbicides, pesticides, inorganic fertilizers reduced effective adoption of Fadama I project.
- The fadama I farmers cultivated more land after the project, thus, indicating that fadama I irrigation farmers benefitted from the programme.
- The finding of the research also revealed that the participating farmers were allowed by the programme to plant crops of their choice

4.4 Discussion of the major findings.

This research work was specifically designed to determine the influence of Fadama I project on the socio-economic status of farmer in Kebbi and Sokoto states. In order to achieve this purpose, four specific objectives four research questions and four null hypotheses were raised simple percentage and frequencies there used in analyzing the personal data of the respondents and answering research questions. T-test analysis was used to test the four null hypotheses. The first objective was to identify the effect of Fadama I project the socio-economic status of farmer in Kebbi and Sokoto states data collected to achieve were rated.

The socio-economic characteristics of farmers which included the level of education, major occupation, farm size, years of farming experience and their source of land were found to

have significant effect on their adoption of Fadama I project. This finding was in line with the work of Agada (1998) who asserted that farmer' age in correlation with farming experience had significant influence on the decision making process of farmers with respect to adoption of improved agricultural practices and other production related decision. Contrary to this was the study carried out by Oladoja and Olusanya (2007) who stated that age of farmers and farming experience were not in correlation with the adoption of improved agricultural practices. Farm size and educational level of farmers tended to be positively correlated with adoption of new technologies.

The implication of this significant relationship was that the greater the farm sizes the more adoption of improved practices. Also the more knowledgeable the farmers the greater the adoption of improved farm practices and this may subsequently affect his standard of living. Atala (1980) viewed standard of living from different angle as the personal and impersonal materials which an individual's possess and use to meet their physiological and sociological needs. To further support this assertion, Aturamu, and Daramola (2005) stated that ability of a farmer to improve on his farm output may be determined by his well-being, skills, farmland, access to inputs etc.

Research question 2 and Null hypothesis 2 on the significant difference in the technologies adopted by Fadama I project participating farmers before and after the project. It is no surprise that significant difference existed in the technologies adopted by Fadama I project participating farmers before and after the project. This is in line with Adebo (2006) who stated that high cost of farm inputs and lack of finance was the major problems against agricultural production. The implication of this type of development is that the greater the problems, the less

the agricultural production and the lower the problems the greater the adoption of improved farming practices for effective agricultural production.

Results of Null hypothesis 3 and research question 3 indicated the existence of relationship between Fadama I project and adoption of new farming practices by the benefiting farmers in Kebbi and Sokoto states. For instance, 93% of the sampled farmers agreed that through Fadama I project they had knowledge on how to clear and prepare their land with good spacing and over 82% also said through Fadama I project they were able to use inorganic fertilizer, supporting this impression that Fadama I project as an external intervention had led to improved farming techniques. Sridhar (1994), Sintiki (1994) and Alao, (2003) viewed external intervention in farming activities and farm efficiency through effective labour, location and choice of production techniques.

Research question 4 and Null hypothesis 4 showed that significant relationship existed between Fadama I project and the land cultivated before and after programme take-off. For instance majority of the benefiting farmers attested to the fact that adoption of new farming practices through the Fadama I project increased their ability to purchase more farmland and ability to purchase new farming equipment. This finding agreed with Ogunwale, Ayoade & Ayansina (2006) who stated that having access to external assistance had positive impact on the adoption of new farming practices as a result of increased in income of the farmer. This was supported by Lockhart (1978) who reported that adoption of most practices helped in raising standard of living of farmers. According to Ajayi (2008) durable goods like possession of Radio, Television, Bicycles, Motorcycles, cars, Zinc roofs etc were used to measure level of living standard, while Solomon and Adeyemi (2005) opined that standard of living were those things contributing to

the quality of human existence. Majority of the farmers testified that adoption of Fadama I project helped them to possess such durable goods as viewed by Ajayi (2008).

CHAPTER FIVE:

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presented the summary, conclusion and recommendation of the study.

5.1 Summary

The study was carried out to assess the perception of influence of Fadama I project on the socio-economic status of famers in Kebbi and Sokoto states, four specific objectives were stated which include to determine the effect of adoption of Fadama I project on the standard of living of farmers in Kebbi and Sokoto states. In line with specific objectives, four research questions were raised which included; what are the effects of adoption of Fadama I project on the standard of living of farmers in Kebbi and Sokoto states. Four Null hypothesis were formulated which include there is no significant relationship between adoption of Fadama I project and standard of living of farmers in Kebbi and Sokoto states. Multistage survey design was adopted for the study, while random sampling technique was used to select four hundred respondents from a population of the fourteen thousand six hundred from the fadama farmers that benefited with the programme. Structured questionnaires were used for data collection; the data collected were presented in tables and analyzed using simple percentages, standard deviation, t-test and mean. Therefore, the four null hypotheses were tested at 0.05 level of significance.

The findings included among others, that inadequate capital (finance) reduced effective adoption of Fadama I project and adoption of modern farming practices, and adoption of fadama I project has increased farmers' total farm output, hence influence the farmers' ability to send their children to schools.

5.2 Conclusion

Based on the objectives, and research questions that guided this study, it could be concluded that fadama irrigation farming is a male dominated profession, on which farmers found to attained average status in terms of socio-economic standard. It's evident from this study, that farmers were involved in the decision making on planning the programme and the farmers were encouraged to participate in cooperative organizations and the common association joined by most of the participating farmers was fadama users association (FUA). It is also evident that only registered members of the fadama users association were provided with the required agricultural inputs. The fadama farmers cultivated more land after the project, thus, indicating that fadama irrigation farmers benefitted from the programme. The finding of the research also revealed that the participating farmers were allowed by the programme to plant crops of their choice.

5.3. Recommendations

Based on the findings, discussion and conclusions drawn from the research, the following recommendations are deemed necessary:

1. Policy makers should find more viable alternatives of involving farmers in the design, planning and implementation of any irrigation scheme.
2. Fadama farmers should be provided with agricultural inputs irrespective of joining any association.
3. Financial institutions such as banks should provide irrigation facilities to the farmers in addition to the effort of the National fadama development programme
4. Kebbi and Sokoto states government should provide basic social amenities and give of soft loans and credit facilities to Fadama farmers at low interest rates to enable them adopt new

innovations and purchase necessary farm inputs and other household materials that will improve their standard of living, hence, reduce rural-urban migration.

5.4 Limitation of the study

The limitation of this study was that the researcher had no control over the respondents, to this ends choices of response had some degree of inconsistency this may be attributed to some reservations on the part of the respondents to reveal personal options. Another limitation was poor attitude of the respondents of not willing to fill-in the questionnaires on time of which the researcher feels bad which led him to disturb most of the respondents by mounting pressure on them to fill the questionnaires. The researcher also find it difficult to reach some farmers as he has to cross some rivers in Kebbi state, while the researcher is not better than a stone Para venture he falls into the river.

5.5 Suggestions for further study

A study of this nature cannot cover every area; hence, there is need for further studies. It is on the basis that the researcher suggested that further study can be carried out as:

- Similar studies should be carried in other states with Fadama potentials.
- Effect of external intervention on farm production.

References

- Abiola, O.O. (2007) *Procedure in Educational Research*. Kaduna; Hanijam Publishers.
- Adebo, G.M. and Ewuola S.O. (2006), Effect of training on adoption of improved farm practices by farmers in Ondo State. *Journal of Agricultural Extension*, 9 (2), 42-46.
- Adeshinwa, A.O.K., Okunola J.O. and Adewumi (2004), Socio-economic Characteristics of Ruminant livestock farmers and their Constraints in South Region of Nigeria.
- Agada, J.E. (1998) An analysis of the socio-economic factors affecting farmer participating in the Nigerian Agricultural Insurance Scheme in Kaduna State. Unpublished M.sc Thesis, Department of Economics and Rural Sociology Ahmadu Bello University, Zaria, Nigeria.
- Agbamu, J.U. (2005), problem and prospects of agricultural extension in the development of agricultural extension in Nigeria; Agricultural Extension Society of Nigeria; Ilorin. 159-169.
- Ajayi, A.R. (2008). The potential role of agricultural extension service removing banana and plantain production constraints in Nigeria. Retrieved 2010 may, 2nd from [http://www, Science direct. Com/Science? -06=Article](http://www.ScienceDirect.com/Science? -06=Article).
- Alao, O.T. (2003) Impact of Oyo Oshogbo Catholic Diocesan Agricultural Programme on farmers' Production in Osun State, Nigeria. M.Sc. Thesis submitted to the Department of Agricultural Extension and Rural Sociology, Obafemi Awolowo University, Ile-Ife, Nigeria.
- Amalu, U.C. (1998) *Agricultural research and extension delivery system in sub-saharan Africa*. Calabar, University of Calabar Press.
- Amogu, U. (2004) Emerging Socio-economic institutional and policy factors, likely to influence future intensification of crop-livestock system in Nigeria. *Journal of Sustainable Crop-Livestock Production in West Africa* 5 (3); 282-298.
- Amoaka, K.Y. (2003) Harnessing technologies for sustainable development in Africa. 5th Annual International Research Institute Addis Ababa, Ethiopia, 10th April, 2003.
- Ango, A.K. Illo, A.U & Jibril, B.A. (1999) Socio-economic impact of fadama development programme on Participating farmers in Kebbi State; *Nigeria journal of Agricultural research*; 5(8) 122-120
- Arokoyo, J.O. (2002) "Demand – driven agricultural extension services: the way forward for Nigeria in a deregulated economy" *Journal of Vocational and Technical Education*, 3(9) 68-73. Ahmadu Bello University, Zaria.
- Atala, T.K. (1986) Role and Impact of Extension Agents in Kaduna state Unpublished Ph.D. Dissertation. Iowa State University, United States of America.

Aturamu, O. A. & Daramola, A. G. (2005) Agriculture agro-forestry policy option for Nigeria. *Journal of Food, Agriculture and Environment*: 3 (1); 120-124.

Bawa, D.B. Ani, A.O. & Nuhu, H.S (2010), Challenges of greed and corruption in agricultural extension development and practice in Nigeria. Retrieved 3rd July, 2010 From <http://www.medirelijournals/contact.php>.

Bello, A. (2006) "Fadama II NEEDS, Instrument for millennium development goals" An article written on FadamaII update in a Bulletin of National Fadama Development Office (PCU-NFDO). Pg 9

Bello, H.M, B.R. Singh, & Garba U.A. (1998). Improvement Strategies for Fadama Farming In Sokoto State. *Nigerian Journal of Rural Sociology*, vol. 2 Special edition. 18-23.

Balogun, E.D. (1986) *Agricultural development strategies in Nigeria; past, present and future*. *Nigeria Agriculture Outlook*. NAAE Publication. 11(1):56-61

Bowman, M.J. (1996) Through Education to Earnings. *Proceedings of the National Academy of Education* 3(5) 221-292.

Cadisch, G. Ndufa, J.K., Yasmin, K., Mutuo, P., Baggs, Em., Keethisinghe, G. & Albacht, A. (2002) Soil Science: Confronting new Realities in the 21st Century. In Transaction of the 17th World Congress of the Soil Science: 4th-21st August, 2002, Bangkok, Thailand.

Cook, B. and Kothari U. (2001). *Participation: The New Tyranny* ZED books. London.

Cristova, E.; Koehnen, A.T. and Portela, J. (1997) Developing and delivering extension programme. A Reference Manual. Rome: FAO: 57-66

Douthwaite, B. (2000), *Enabling Innovation: A practical Guide to the Understanding and Fostering Technological Change*, ZED Books London

Essenjour, A.P. (1991), *Nut and bolt of community development*. Kano, Kano state Polytechnic press.

Feder, G., Lawrence, L.J., and Slade, R.H. (1987). Does Agricultural Extension pay? The Training and visit system in North west India. *American Journal of Agricultural Economics* 69 (3), 677-686.

Gefu, J.O. (1989), Livestock development paradox in Nigeria: in sight from Glossary of Statistical Term (2001). Agricultural Final output <http://stats.oecd.org/glossory/detail.asp?ID=956>.

Haruna, U.M. (2010) Role of Fadama II project in improving rural livelihood in Niger state

Second National Fadama Development Project, Nigeria, M.Sc. Thesis, Department of Agricultural Economics and Extension, Usmanu Danfodiyo University, Sokoto.

Iorbee, A. (2009), The history of agricultural extension in Nigeria till the present: modern extension and how it spread through the west, north and south. Department of Food Science and Technology, Federal University of Agriculture, Makurdi, Nigeria, Retrieved 13th August, 2010, [http: ayamgei.wordpress.com](http://ayamgei.wordpress.com).

Linsdaine, L.I.& Bernet (1975), *Discovering whether programme Evaluation Santa Monica*, GoodPublishing. California.

Lockhart, J.A. and Wiseman, A.J.L. (1978), *Introduction to Crop Husbandry*. 4thed: Pergamum press. New York.

Lokesh, K. (2010) *Methodology of Educational Research*: New Delhi; Vikas Publishing House. PVT LTD.

Madukwe, M.C. (1991) Evaluation of School to Land Programme in Anambra State, Nigeria The Nigerian Journal of Rural Extension and Development.1 (1): 33-40.

Madukwe, M.C.& Anyanwu, C.O (2000) The challenges of Nigeria agricultural extension in the 21st century *Journal of Agro-Science*. 1 (1); 85-90

Mahmud, M. (2011) Impact of farmer education on the standard of living of farmers in Bauchi State. An Unpublished M.sc (ED) Thesis, Department of Vocational and Technical Education, Ahmadu Bello University, Zaria

Mansell, R.P. (1996). Socio-economic sustainability in the dry land of Nigeria; *The Geographical Journal*, Vol. 35(3) 43-49

Mijindadi, N.B. Arokoyo, J.O. (1984), A Review of the Agricultural Extension Services of the Savannah Area Agricultural Development projects (ADPS) Involvement. Paper Presented at the Agricultural Development projects Technical-coordination Meeting on Agricultural Extension, Bauchi 10th 11th November, 1984.

Nwalieji, H. U.(2005) Evaluation of Fadama phase-one vegetable production project of the Anambra Stateagricultural development programme. Unpublished Msc Thesis, Department of Agricultural Extension, University of Nigeria, Nsukka

Ogundele, O.O. (2004). Input use and socio-economic characteristics of rice farmers: gender dimension and implication for small scale agriculture in Nigeria. %20% and socioeconomic pdf.

Ogunwale, A.B, Ayoade, A.R. & Ayansina, O. (2006), impact of extension service on farmers' production activities in Ogbomoso Agricultural Zone of Oyo State. Nigerian Journal of Agricultural Extension, 9: 150-158.

Okeh, B. I. (2010) Socio-economic impact of root and tuber expansion programme on farmers in Plateau State, Nigeria; A Dissertation submitted to the School of Postgraduate, Ahmadu Bello University, Zaria, for the award of degree of Doctor of Philosophy in Agricultural Extension and Rural Sociology

Okunade, E.O. (2006). Factors influencing adoption of improved farm practices among Kloman Farmers in OsunState.Retrieved 28th February, 2011. From <http://www.merit.unu.edu>.

Oladele, O.I. (2002). Africa in search of extension system: experience from Nigeria. *Journal of Food, Agriculture and Environment* 2 (1): 276-281

Oladoja, M.A. and Olusanya, T.P. (2007). Adoption of coccidiosis vaccines by poultryfarmers in Ijebu Ode Area of Ogun State, Nigeria. *International Journal of Poultry Science* 6:883.

Owens, T. Hoddinott& Kinsey, B. (2001). The impact of agricultural extension on farm production in resettlement areas of Zimbabwe: Retrieved 12th October, 2010 from<http://www.case.oxac.uk/workingpaper/pdfs/2001-06text.pdf>.

Rama, R.B. (2007) Tips for developing and testing questionnaires/Instrument:Retrieved 22nd February, 2011 from http://www.joe.org/joe/2007_February/tt_2.html

Rank, J. (2010) Nigeria – agriculture: encyclopedia of nutrition. Retrieved 11th November, 2010. From <http://www.nationsencyclopedia.com/index.html>.

Reinjinties, C., Harverkort, B. &WaterBayer; A. (1992) *Farming for the Future: An Introduction to Low-External Input and Sustainable Agriculture*. The Macmillan press Ltd. London.

Rogers, E.M. and Shoemaker, F.F. (1971).*Communication of Innovation: Across Cultural Approach* (2nded.)Collier-Macmillan p.496.

Simonyan, J. B. (2009) An impact assessment of Fadama II project on income and productivity of beneficiary farmers in Kaduna State. An unpublished PhD dissertation, Department of Agricultural Extension and Rural Sociology, Faculty of Agriculture, Ahmadu Bello University, Zaria

Singh, B.R. (1995), Soil management strategies for the semi-arid ecosystem in Nigeria. The case of Sokoto and Kebbi States .*African Soils*.28:317-320

Sintiki, B.T. (1994). Sustainable small-scale irrigation development in Northern Nigeria. The roles and potentials of women.in Kolawole A., Scoones, I., Awogbade, M.O. and Voh.J.P (Eds) strategies for the sustainable use of fadama lands in Northern Nigeria. Ola and Sons, Zaria. 83-90.

Sridhar M.K.C. (1994). Health hazards of fadama Farming, in Kolawole A., Kolawole, A. Scoones, I., Awogbade, M.O. and Voh, J.P. (Eds) Strategies for the sustainable use of fadama lands in Northern Nigeria. Ola and Sons, Zaria. 175.

Solomon, V.A. and Adeyemi (2005). "Enhancing the food security of small holder households in Iwo Community. through extension communication and education" *Nigerian Journal of Rural Sociology* 5 (2), 84-91.

Stewart, S. (1998). Source of learning together: The agricultural works participatory book, Heifer project International Seethe, Netherlands.

Strauss, A. (1959). *Mirrors masks* cited in Lauer, R.H. Lauer and Handel (eds) Social Psychology. The theory and application of symbolic interaction. Houghton Mifflin Company, United States of America.

Umaru, F.B. (1994). Factors affecting the adoption of smallholder irrigation technology by farmers in Jega local government area of Kebbi State, Nigeria. M.Sc. Thesis, University of Ibadan.

Wetch, F. (1970); Education and production *Journal of Political Economy*. 78(3) 35-59.

World Bank (1995), *Impact evaluation draft report of Kano and Sokoto ADPs operations evaluation and development*: Washington D.C. World Bank.

World Bank (2004), *Enhancing Agricultural Innovations: How to go Beyond the Strengthening of Research Systems*: Washington D.C. World Bank.

Yahaya, M.K. and Ango A.K. (2003). Socio-economic and environmental effects of Bakolori irrigation and Fadama development projects in Sokoto/Kebbi watershed. *Moor Journal of Agricultural Research*, vol. 4(1): p 12-24.

Yazid, I. (1983). "Agricultural Development and Extension Services in Nigeria: paper Presented at a seminar on Agricultural based industries held at the Administrative Staff College of Nigeria (ASCON), Lagos. 14th November – 3rd December, 1983.

Zininach, M.M. (1997) *Agricultural Extension Approaches, Issue problems and prospects of the Unified Extension Systems*; Unpublished. University of cape-coast, Ghana.

Appendix I

Farmers' Questionnaire

Department of Vocational and Technical Education,
Faculty of Education,
Ahmadu Bello University, Zaria

Dear Respondent,

Request to fill questionnaire

I am a student of the above named institution undergoing a research on “perception of Influence of Fadama I on the Socio-Economic Status of Farmers in Kebbi and Sokoto states”.

Kindly, respond to the attached questionnaire as objectively as possible. All information given will be treated confidentially and mainly for academic purpose.

Thank you for your cooperation.

Yours Sincerely,

Nuhu Ishaq Lawal

**FARMER'S INTERVIEW SCHEDULE
PERSONAL DATA**

Tick appropriately

Socio-Economic Characteristic of the Respondent

SECTION A

1. Age (in years)

a. Less than 30

b. 30-40

c. 41-50

d. 51-60

e. 60 and above

2. Sex

a. Male

b. Female

3. Marital Status

a. Single

b. Married

c. Divorced

d. Widowed

4. **Highest Educational Qualification**

a. Primary Education

b. Secondary Education

c. OND/NCE

d. BSc/HND

e. MSc

f. PhD

5. Major Occupation

a. Crop production

b. Livestock production

c. Mixed farming

d. Others (specify).....

6. Farm size

a. Small

b. Medium

c. Large

7. Years of Farming experience

a. Less than 5

b. 5-10

c. 11-15

d. 16 and above

8. Source of Farm Land

a. Inherited

b. Purchased

c. Gift

d. Leased

Please indicate your answer *by* ticking (✓) the appropriate column.

Note: The abbreviation in the columns stand for: S.A = Strongly Agree; A = Agree, D Disagree, S.D = Strongly Disagree.

| S/N | Problems of Farmer In Adopting Fadama I Project Technology in Agricultural Production. | SA | A | D | SD |
|-----|--|----|---|---|----|
| 9 | Inadequate capital affects the adoption of Fadama I Programme by farmers. | | | | |
| 10 | High cost of farm inputs reduces effective adoption of Fadama I Programme by farmers. | | | | |
| 11 | Late Arrival of Farm inputs discourages farmers from adopting Fadama I Programme by farmers. | | | | |
| 12 | Inadequate information dissemination affects the adoption of Fadama I Programme by farmers. | | | | |
| 13 | Adoption of Fadama I Programme by farmers, involves high risk uncertainties | | | | |
| 14 | Non availability of credit facilities affects adoption of Fadama I Programme by farmers and effective agricultural production. | | | | |
| 15 | Late disbursement of credit by banks discourages Fadama I Programme farmers. | | | | |

| | | | | | |
|----|---|--|--|--|--|
| 16 | High interest rate charged often discourages Fadama I Programme farmers. | | | | |
| 17 | Problem of social amenities affect farming systems | | | | |
| 18 | Incidence of pests and diseases affect effective Fadama I project | | | | |
| 19 | Problem of marketing farm produce affects adoption of Fadama I project and effective crop production | | | | |
| 20 | Fadama I project assists in the increase of my farm income | | | | |
| 21 | Fadama I project improved my farming, nutrition and food security | | | | |
| 22 | Fadama I project adoption increased my ability to purchase new farming equipments | | | | |
| 23 | Fadama I project adoption increases my ability to purchase some articles of convenience such as zinc roofs, Radio, Television, Motorcycle, Car etc. | | | | |
| 24 | Fadama I project adoption helps me to have easy access to bodies of water for irrigation farming | | | | |
| 25 | Fadama I project reduced the cost of my farm production | | | | |
| 26 | Fadama I project has increased my ability to send children to school | | | | |
| 27 | Fadama I project reduces rural-urban migration by farmers | | | | |
| 28 | Fadama I project helps farmers to have access to good health facilities | | | | |
| 29 | More people are employed as a result of Fadama I project | | | | |

| S/N | Indicate the at which you use the followings as a result of Fadama I project | Very Often | Often | Rarely | Not at all |
|-----|--|------------|-------|--------|------------|
| 30 | Use of improved seeds | | | | |
| 31 | Use of recommended planting spacing | | | | |
| 32 | Use of inorganic fertilizer | | | | |
| 33 | Use of pesticides | | | | |
| 34 | Use of herbicides | | | | |
| 35 | Crop rotation | | | | |
| 36 | Modern irrigation system | | | | |
| 37 | Use of modern storage facilities | | | | |
| 38 | Processing farm produce/products | | | | |
| 39 | Marketing of farm produce/products | | | | |
| 40 | Vaccination of livestock | | | | |
| 41 | Dehorning of livestock | | | | |
| 42 | Use of improved breed of livestock | | | | |
| 43 | Control measures for disease infection | | | | |
| 44 | Use of improved pastures for livestock production | | | | |
| 45 | Use of Artificial insemination | | | | |
| 46 | Cross breeding of livestock | | | | |
| 47 | Modern hatching system of chicks | | | | |
| 48 | Modern brooding system of chicks | | | | |
| 49 | Debeaking of fowls | | | | |
| 50 | Deworming of livestock | | | | |