IMPACT OF COMMERCIAL AGRICULTURE DEVELOPMENT PROJECT (CADP) ON FARMERS' EMPOWERMENT IN KADUNA STATE (2010-2015)

BY

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A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA
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DEPARTMENT OF PUBLIC ADMINISTRATION,
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AUGUST, 2017

DECLARATION

I hereby declare that the work in this dissertation entitled IMPACT OF COMMERCIAL AGRICULTURE DEVELOPMENT PROJECT (CADP) ON FARMERS' EMPOWERMENT IN KADUNA STATE (2010-2015) has been carried out by me in the Department of Public Administration, Ahmadu Bello University, Zaria. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other Institution.

_____ _____

CHRISTOPHER, Seth Ibrahim Date

CERTIFICATION

This dissertation entitled IMPACT OF COMMERCIAL AGRICULTURE DEVELOPMENT PROJECT (CADP) ON FARMERS' EMPOWERMENT IN KADUNA STATE (2010-2015) by Seth, Ibrahim CHRISTOPHER meets the regulations governing the award of the Degree of Master of Science (M.Sc) Public Administration of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

With appreciation to the Almighty God, I dedicate this dissertation to my parents Mr. and Mrs Christopher I. Garki. For their moral and financial support throughout this programme, may the Lord Almighty preserve and bless them. Also to my lovely wife Ruth Seth I.

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Abstract

In recent years, attention has been drawn to the need to improve the business environment for agriculture to become more successful by gradually shifting from subsistence to commercial agriculture. Several agricultural empowerment programmes have been introduced to reduce abject poverty among rural farmers in Nigeria and also improve their standard of living, but it seems that these efforts have yielded little or no impact. The Kaduna Commercial Agriculture Development Project (CADP) has assumed a different approach with objectives to strengthen agricultural production systems and facilitate access to market for targeted value chains among small and medium scale commercial farmers. However, despite the claim of provision of matching grant amounting to over $3 million to empower commercial farmers in Kaduna State, the extent of farmers' performance is still below expectation. Against this backdrop, the study was carried out to assess the impact of the Commercial Agriculture Development Project (CADP) on the empowerment of farmers in Kaduna State. Survey and documentary methods of data gathering were employed and data sourced was analysed quantitatively and qualitatively i.e. using numerical and non-numerical data. The study revealed that CADP has positively impacted on the lives of commercial farmers by empowering them through provision of matching grant, technological training and developing market opportunities/linkages which is manifested in the improvement in standard of living and the income of farmers. However, some essential facilities are recommended to further strengthen agriculture in the State which includes among other things the provision of storage facilities (i.e. storage cans) in strategic areas; modern farming machinery like Tractor, and enforcing a good price for farm products.

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ABBREVIATIONS AND ACRONYMS

ABU	=	Ahmadu Bello University, Zaria
ADP	=	Agricultural Development Programme
CADA	=	Commercial Agriculture Development Association
CADP	=	Commercial Agriculture Development Project
CADPlan	=	Commercial Agricultural Development Plan
CDD	=	Centre for Democracy and Development
CIG	=	Commodity Interest Group
DFFRI	=	Directorate for Food Roads and Rural Infrastructure
FUGs	=	Fadama User Groups
FCAs	=	Fadama Community Associations
FADAMA	=	Fadama Development Project
FOA	=	Food and Agriculture Organisation
FGN	=	Federal Government of Nigeria
FMAWR	=	Federal Ministry of Agriculture and Water Resources
GRS	=	Green Revolution Strategy
IDA	=	International Development Association
IFAD	=	International Fund for Agricultural Development
IITA	=	International Institute of Tropical Agriculture
KDSCADO	=	Kaduna State Commercial Agriculture Development Office
LGA	=	Local Government Area
M&E	=	Monitoring and Evaluation

MOA	=	Ministry of Agriculture
MOU	=	Memorandum of Understanding
NAFDAC	=	National Agency for Food, Drugs Administration and Control
NAFPP	=	National Accelerated Food Production Project
NEEDS	=	National Economic Empowerment and Development Strategy
NEPC	=	Nigerian Export Promotion Council
NEPAD	=	New Partnership for Africa's Development
NFDP	=	National Fadama Development Programme
NFRA	=	National Food Reserve Agency
NGO	=	Non-Governmental Organisation
NPC	=	National Project Coordinator
NSC	=	National Steering Committee
OFN	=	Operation Feed the Nation
PFMU	=	Project Financial Management Unit
RBRDA	=	River Basin and Rural Development Authority
SCADO	=	State Commercial Agriculture Development Office
SEEDS	=	State Economic Empowerment and Development Strategy
SON	=	Standard Organisation of Nigeria
UNDP	=	United Nations Development Programme

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In recent years, attention has been drawn to the need to improve the business environment for agriculture to become more successful by gradually shifting from subsistence to commercial agriculture. Commercial transformation of subsistence agriculture is an indispensable pathway towards the development of the agricultural sector of any economy. Commercial agriculture stems from the need to improve food production, engage more farmers and enhance sales of agricultural products. Hence, the need for empowerment programmes to support farmers meet up with the increased demands of commercial agriculture.

Empowerment has assumed a prominent role in rural and agricultural development with support to farmer groups and organisations entering the dialogue between donors and governments in Asia and Africa (Mohammad, 2012). A central argument used by donors for supporting farmer empowerment is that there is a strong relation between farmer empowerment and such development outcomes as poverty reduction, improved agricultural opportunities for growth and better governance. More so, is that empowerment can give greater ownership to a project and to a particular direction in development. The UNDP document (2002) states that ownership is the acceptance of responsibility through the process of stakeholder participation, empowerment and concensus. In the words of Rifkin (2003), empowerment is a mechanism or process through which individuals, organizations and groups can work on things and have more control over what they are involved in. So that individuals, organizations and groups with a high power could

control the resources, build confidence, make capacity and have an active participation in managing their life.

Hence, the concept of farmers' empowerment is an integral part of almost all intervention programmes by government, international and non governmental organisations. Intervention in the area of farmers' empowerment is necessitated by the prevalence of food scarcity, abject poverty and low standard of living among rural dwellers, mostly farmers. All these factors or indicators are reasons behind the unsatisfactory nature of the performance of the agricultural sector and farmers in Nigeria. However according to Alsop (2005), the indicators which directly affect the empowerment of farmers include having access to the inputs, credit, infrastructures, information and taking part in social decision making. Training is also an essential component in the empowerment process (Fleming, 2000). Farmers' empowerment goes hand in hand with the modernization theory of development as both concepts are related to agricultural development. Modernization theory assumes that agriculture progresses from being oriented towards subsistence farming that occurs on small plots to commercial farming of large scale; one that is characterized by the availability of mechanized production, improved seeds, storage facilities, access roads, market opportunities, modern equipment, etc. These empowerment opportunities have immense potentials for enhancing the productivity of commercial farmers in the State towards a greater impact on the society.

Nigeria's agriculture remains largely subsistence-based with 90% of agricultural output coming from rural farmers/small farms (Oluwatayo et al, 2008). However, successive administrations ignored agriculture and failed to expand the economy beyond overdependence on oil sector and even if effort is made, with the initiation of strategic programmes and policies for agricultural

transformation, it falls short of being realized as adequate measures are not taken to sustain such programmes.

As articulated in its National Economic and Empowerment and Development Strategy (NEEDS), Nigeria is seeking options to diversify into non-oil sources of growth and away from over dependence on oil and gas. The agricultural sector is seen as one of the main sources of growth and important option for the diversification. Development of commercial agriculture affords at least in the short-to-medium term, the opportunity to increase employment and reduce especially persistent rural poverty. Diversification into commercial agriculture is important for making growth sustainable, to diffuse its benefits to rural areas, and to hedge against the shocks from a single resource dependence on oil.

Agricultural productivity in Nigeria has not grown sufficiently due to under-investment in new technology, slow adoption of existing improved technologies, constraints associated with the investment climate, and lagging infrastructure. Public interventions to accelerate agricultural growth such as the Fadama programme have targeted poor farmers engaged in largely subsistence production with modest interaction with the markets to the detriment of commercialization.

Recently, government is well disposed to empowering small and medium-scale commercial agriculture with assistance from the World Bank. This translates into the ongoing Commercial Agricultural Development Project (CADP) which is being piloted in five states of the Federal Republic of Nigeria including Kaduna State. It is expected that the project would help to promote access of participating small and medium scale commercial farmers to improved agricultural technologies, infrastructure, funds and product markets. It will also provide an investment

climate through policy or regulatory mechanisms and other appropriate complementary instruments.

The CADP is a comprehensive five-year project developed by the Federal Ministry of Agriculture and Water Resources (FMAWR) in collaboration with the World Bank and other stakeholders to help participating small and medium scale commercial farmers access improved technological training, finance and output markets. The major objective of the project is to promote the commercialization of agriculture on a sustainable basis that will positively enhance farm output and income. The income effect will largely depend on the appropriate value addition and marketing of the products. Marketing of agricultural products suffer from an array of problems ranging from improper pricing, poor market infrastructure, including rural roads and local markets, inappropriate storage and processing technologies to inadequate market information system.

It is against this backdrop that this study seeks to access the impact of Kaduna State Commercial Agriculture Development Project (CADP) on farmer's empowerment vis-à-vis the objectives of its establishment.

1.2 Statement of the Research Problem

Over the years, several agricultural empowerment programmes have been introduced to reduce abject poverty among rural dwellers, mostly farmers, in sub-Saharan Africa and also improve their standard of living. Some of these programmes include: United Nations Development Programme (UNDP), International Fund for Agricultural Development (IFAD), Agricultural Development Programmes (ADP), Food and Agricultural Organisation (FAO), and National Economic Empowerment and Development Strategy (NEEDS), The Directorate of Food, Roads

and Rural Infrastructure (DIFRRI), National Orientation Agency (NOA), National Accelerated Food Production Programme (NAFPP), Green Revolution (GR), Operation Feed the Nation (OFN), etc. (World Bank, 1993; World Bank, 1995a; World Bank, 1995b; World Bank, 1996; Hashmi and Sial 2007; IFAD 2001), but it seems that these efforts have yielded little or no impact on the rural population, as argued by Afolayan (1997). Supporting this view, Agwu and Abah (2009) argue that the various attempts by Nigerian government in initiating agricultural development programmes aimed at achieving food security have failed (e.g. as seen in the second National Fadama Development Project) In addition, Adekeye and Bello (2013) posits that, in spite of many policies on development programmes by the government, the physical and socio-economic conditions in most of the communities in Nigeria do not seem to have improved significantly.

The Kaduna State Commercial Agriculture Development Project objectives are: to provide access to funds (in the form of matching grant) to farmers; improved market; and technological training for increased agricultural output and income. Thus, despite the claim of provision of matching grant to farmers through the Commercial Agriculture Development Project's over three million dollars ($3,000,000) so far accessed by Kaduna State government (KDSCADO, 2014 Report), the extent of farmer's performance, empowerment and agricultural output is still below expectations. Reiterating this position Onyeahialam (2002), observed that for more than two decades now, the agricultural sector of the Nigerian economy has continued to perform below expectation despite the huge sums of money being allocated to the sector in each year's budget. This situation thus raised question as to the effectiveness of the World Bank assisted Commercial Agricultural Development Project (CADP) which was established in the belief that such project will empower farmers to radically transform agriculture and increase country's food production.

More so, the project component is to facilitate agricultural production and commercialization which matches with the characteristics of modernization theory which postulates that agriculture progresses from being oriented towards subsistence farming that occurs on small plots to commercial farming on large scale. The problem is much more confounding when one realizes that the farmers in most parts of Kaduna State still engaged in primitive and traditional methods of agricultural production. For example, in communities like Saminaka, Zaria, Kachia, etc, where farming activities are practiced in large scale, it is observed that primitive forms of agriculture are still being used. This therefore, among other factors raises questions on the credibility of the processes involved in the disbursement of the matching grant to farmers in Kaduna State.

1.3 Research Questions

To further give credence to the problem of the study and provide a guide for empirical finding, the researcher addressed the questions highlighted below:

i. To what extent has the matching grant provided by the Kaduna State Commercial Agriculture Development Project improved farmers' standard of living?
ii. What technological training have farmers acquired to support the project in increasing agricultural output?
iii. To what extent have the Kaduna State CADP market opportunities for small and medium scale commercial farmers enhanced their income?
iv. What are the challenges confronting CADP operations in Kaduna State?

1.4 Objectives of the Study

The central objective of this research is to assess the impact of Commercial Agriculture Development Project (CADP) on the empowerment of farmers in Kaduna State. However, specific objectives of this research are to:

i. determine the extent to which the matching grant provided by the CADP has affected the living standard of farmers.
ii. find out the technological training farmers have acquired to support the project in increasing agricultural output.
iii. examine the extent to which the Kaduna State CADP market opportunities for small and medium scale commercial farmers has enhanced the income of farmers.
iv. find out the challenges confronting CADP operations in Kaduna State.

1.5 Hypotheses

In order to achieve the objectives stated above, the following hypotheses have been formulated:

$H_0$1: There is no significant relationship between the matching grant provided by the project (i.e. CADP) and improvement in farmers' standard of living.

H_0 2: There is no significant relationship between the technological training farmers acquired and increase in agricultural output.

$H_0$3: Kaduna State CADP market opportunities for small and medium scale commercial farmers have not enhanced income of farmers.

1.6 Significance of the Study

The significance of this study cannot be undermined. Previous interventions in agricultural development programmes by government and the World Bank (Fadama Projects,) have focused on the provision of farm inputs which included credit facilities to farmers but the Commercial Agriculture Development Project (CADP) pioneers the matching grant approach to assisting farmers. This is probably because previous interventions have not yielded desired results. Also, many scholars including Ogbonna (2014), Dare (2014) among others have conducted researches on agricultural programmes and their impact on the lives of the people achieved through assisting farmers with farm inputs via the provision of credit facilities/loan (reimbursable funds). But this study is unique as it focused on matching grant (non reimbursable funds) advanced to farmers. For instance, Ogbonna (2014) conducted a study on *"The effect of Fadama III Project on Rural Farm Women Production in Gombe State"* where he emphasized on empowerment of farmers through the provision of credit facilities. Also, in another study on *"Impacts of Agricultural Development Programme (ADP): A Study of Isan-Ekiti"* by Dare (2014) talks about empowering farmers through accessibility to credit facilities.

More so, the project is timely as the interest in commercial agriculture in Nigeria is growing. The study is necessary now that the present government has shifted its prime focus from oil resources to the agricultural sector for diversification of the economy.

The study will also have an academic value to other researchers as there are scanty or no documented researches on the impact of Commercial Agriculture Development Project (CADP) on the empowerment of commercial farmers in Kaduna state. However, other writers focused on similar programmes that preceded CADP like National Economic and Empowerment and

Development Strategy (NEEDS), National Fadama Projects I, II & III, which have to do with agricultural policies and empowerment of farmers.

Kaduna State Commercial Agricultural Development Project will provide an interesting prism through which to examine the dynamics and efficacy of public programmes in the State, as it attracts the interest of a wide variety of stakeholders in the agriculture sector. This study would also be of great value to the Kaduna State Government as findings and recommendations from the study will go a long way in correcting the ills in implementation of Kaduna State CADP. Also, lessons learnt can be useful in subsequent programmes.

1.7 Scope and Limitations of the Study

The scope of this study revolved around the operations of Kaduna State Commercial Agriculture Development Project vis-à-vis the empowerment of commercial maize farmers in the Kaduna State. This study delimits its scope to three (3) LGAs, viz: Giwa, Lere, and Kubau Local Government Areas out of the twenty three (23) Local Government Areas of the State. Justification for the choice of these Local Government Areas is that they had the highest numbers of beneficiaries of the CADP grant in the State which is more adequate for this study and also, the project has recorded more successes in these areas. Also, the choice of maize farmers is due to the fact that they contribute more than 87% of all the beneficiaries (i.e. 1,637/2,871 x 100). Apart from that, maize is observed to be the important staple food crop that is produced and consumed in most parts of Kaduna State. Though the project started in January, 2009, this study spans from 2010 - 2015. The justification for the choice of this period is that, funds for the project were not released until October, 2009. Hence, most of the interventions to the various local governments in the state were carried out within this period.

The scope of the CADP covered areas to do with: promoting the commercialization of agriculture; sustainability of that promotion exercise/component; enhancing farm output/value addition; income of farmers; and marketing of the output, processing, technology, market information, good pricing system, rural roads, local markets, storage facilities, etc.

The limitations of this research were in the areas of time and financial constraint, and also, the inaccessibility to some vital and essential documents (e.g. those specifying how the grants were disbursed) from the CADP office and relevant stakeholders/farmers/beneficiaries as they were skeptical about information to be released to outsiders. More so, the researcher was not unaware of the fact that not all farmers to be studied were knowledgeable in spoken English and as such posed a temporary challenge. However, the researcher employed the help of research assistants who are knowledgeable in the local language (i.e. Hausa) in order to easily ascertain their views on the study.

1.8 Definition of Key Concepts

In this study, such terms as Impact, Farmer, Farmers' Empowerment, Training, Commercial Agriculture and Matching Grant will be operationally defined.

Impact:

The term 'impact' as used in this research refers to a measure of tangible and intangible effects/consequences of the CADP empowerment/intervention on the lives of farmers in Kaduna state. The term implies a measurement of the long-term and visible changes that have occurred in the lives of commercial farmers that have benefited from the intervention of the Commercial Agriculture Development Project (CADP). Therefore the study makes a comparison between farmers who are beneficiaries of the CADP intervention and those who were not beneficiaries in

order to ascertain the level of impact that the project has made on the lives of the farmers, with consideration for measurable socio-economic indicators such as: income level, standard of living, etc.

Farmer:

Generally, a farmer is someone who works under the umbrella of agriculture, producing a variety of food products for human and animal consumption. There are several kinds of farmers ranging from farmers who raise animals to farmers who grow crops. A farmer's main goal is to produce a good crop and/or healthy animals in order to make a living and to feed the population. Farmers are responsible for all crops and livestock that are needed for us to survive. Without food, the world would slowly die, and farmers work hard every day to keep plenty of crops and animal products in the market to keep that from happening.

As used in this study, a farmer is seen as an individual who engages in farming activities (with emphasis on maize, fruit and dairy) mostly in a commercial level and as a means of livelihood.

Farmers' Empowerment:

The term 'farmers' empowerment' as used in the study means providing the ability and capacity to small and large scale commercial farmers to use local and international skills and knowledge to ensure a fair social and economical situation. The farmers are informed and taught all the best practices to create sustainable production, market and to increase the quality of their livelihood. Hence, the term revolves around efforts by governments, non governmental organisation and people to provide adequate funds, training, modern farm inputs and an enabling environment for commercial farmers with a view to increase farm output, create employment opportunities, enhance income and consequently eradicate poverty among rural farmers. Farmers'

empowerment also includes effort geared towards enhancing farmers' capacities in the aspects of modern farming technologies, mechanized farming, improved seedlings, farm chemicals, fertilizers, etc. in a sustainable way with a view to improving the standard of living of farmers.

Training:

Training as used in the study means teaching, or developing of farmers in skills and knowledge that relate to specific useful competencies especially on the application of modern technologies. *It* means improving the capability, capacity, productivity and performance of small and medium scale farmers in Kaduna State. These include sensitization and capacity building workshops that will familiarize farmers with modern farming techniques (e.g. improved seedlings and the use of modern equipment).

Commercial Agriculture/Farming:

As used in this study, 'commercial agriculture' connotes a situation where crops are grown and animals are reared for sale in the market, that is, for commercial purposes, unlike in Subsistence farming where crops are grown mainly for the farmer's family needs. **Commercial farming occurs when a farm is set up for the sole purpose of producing crops and farm animals for sale, with the sole intention of making a profit.**

Matching Grant:

Matching grant as used in this study refer to the one-time capital grant for investment advanced to small and medium scale commercial farmers to support the adoption of known and superior technologies and build capacity of small and medium-scale commercial agriculture farmers. This will enable them to take advantage of market opportunities for their produce. The grant is a catalyst that will spur investments in commercial agriculture. In more practical terms, it refer to a

contributory scale or ratio of financial worth of farm input shared between CADP and commercial farmers in the State. For instance, a farmer accessing up to N1, 000,000 contributes 40% while CADP provides 60% of the farm input. This is quite different from a credit facility in the sense that while a credit facility requires a payback with interest of the amount offered, a matching grant is advanced without a refund.

Farmers Performance:

As used in the study, farmer's performance refers to the achievement of the key performance indicators/set goals of the Commercial Agriculture Development Project (CADP Manual, 2009). These include:

- 25% increase in total production and processing of targeted value chains among participating small and medium scale commercial farmers (disaggregated by Diary, Fruit, Maize).
- 30% increase in total sales of agricultural products under the targeted value chains among participating farmers (disaggregated by Diary, Fruit, Maize).

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

A review of related literature involves re-examination of the extent to which previous studies have been carried out in the field of study which the researcher is conducting a research work. This helps the researcher to familiarize himself thoroughly with existing body of works already carried out in the field of his study.

For the purpose of this study, this chapter specifically delved into concepts including Commercial Agriculture, Farming and Farmers' Empowerment. At the end of it all, the researcher adopted Modernization Theory in attempt to explain the reality of agricultural development process as applied in most developing countries and with reference to the study area of this research.

2.2 The Concept of Commercial Agriculture

Commercial agriculture is basically rooted in the idea of transforming agriculture from subsistence farming to that which is focused on large scale commercial purposes. Russ (2009) explains commercial agriculture as a shift from agriculture being oriented towards subsistence farming that occurs on small plots to commercial farming of large scale. Based on the above, the concept is seen as a change in agricultural practices from a simple or traditional to a more complex and mechanical form with the ultimate goal for commercialization and profit.

Govereh et al. define agricultural commercialization as "the proportion of agricultural production that is marketed" (1999:5). According to these researchers, agricultural commercialization aims

to bring about a shift from production for solely domestic consumption to production dominantly market-oriented. In line with the above definitions, Sokoni (2007) defined commercialization of smallholder production as "a process involving the transformation from production for household subsistence to production for the market." Hazell et al. (2007) found out that most definitions refer to agricultural commercialization as "the degree of participation in the output markets with the focus very much on cash incomes."

However, there are some writers who attach profit motive as an integral part of agricultural commercialization. Among others, Pingali and Rosengrant (1995 cited in Hazell et al. (2007) noted that agricultural commercialization goes beyond just selling in the output market. They claim that a household's marketing decisions, both in the output and input choice, should be based on profit maximization. According to Pingali and Rosengrant, commercialization does not only occur by the reorientation of agriculture to high valued cash crops but it could also occur by reorienting it to primary food crops (1995 cited in Hazell et al. 2007).

According to Von Braun et al. (1994), commercialization of subsistence agriculture takes many forms. They state that:

> "Commercialization can occur on the output side of production with increased marketed surplus, but it can also occur on the input side with increased use of purchased inputs. Commercialization is not restricted to just cash crops: The so called traditional food crops are frequently marketed to a considerable extent, and the so-called cash crops are retained, to a substantial extent, on the farm for home consumption, as, for instance, groundnuts in West Africa. Also, increased commercialization is not necessarily identical with expansion of the cash economy when there exist considerable inland transactions and payments with food commodities for land use or laborers. Finally, commercialization of agriculture is not identical with commercialization of the rural economy."

As Von Braun et al. stated above, commercialization refers both to marketing of high value cash crops (such as pulse, oil and horticultural crops) as well as primary food crops (such as maize, wheat and barley).

2.3 Concept of Farming/Farmer

A farmer is someone who works under the umbrella of agriculture, producing a variety of food products for human and animal consumption. There are several kinds of farmers ranging from farmers who raise animals to farmers who grow crops. A farmer's main goal is to produce a good crop and/or healthy animals in order to make a living and to feed the population. Farmers are responsible for all crops and livestock that are needed for us to survive.

According to the Wikipedia encyclopedia, a farmer (also called an agriculturer) is a person engaged in agriculture, raising living organisms for food or raw materials. The term usually applies to people who do some combination of raising field crops, orchards, vineyards, poultry, or other livestock. A farmer might own the farmed land or might work as a laborer on land owned by others, but in advanced economies, a farmer is usually a farm owner, while employees of the farm are known as farm workers, or farmhands. However, in the not so distant past a farmer was a person who promotes or improves the growth of (a plant, crop, etc.) by labor and attention, land or crops or raises animals (as livestock or fish).

The term "Farming" or "agriculture" includes farming in all of its branches and the cultivation and tillage of the soil, dairying, the production, cultivation, growing and harvesting of any agricultural, aquacultural, floricultural or horticultural commodities, the growing and harvesting of forest products upon forest land, the raising of livestock including horses, the keeping of horses as a commercial enterprise, the keeping and raising of poultry, swine, cattle

and other domesticated animals used for food purposes, bees, fur-bearing animals, and any forestry or lumbering operations, performed by a farmer, who is hereby defined as one engaged in agriculture or farming as herein defined, or on a farm as an incident to or in conjunction with such farming operations, including preparations for market, delivery to storage or to market or to carriers for transportation to market.

2.4 The Concept of Farmers' Empowerment

The nature of empowerment renders it difficult to define. On the one hand, it is often referred to as a goal for many development programmes/projects. On the other hand, it can also be conceived as a process that people undergo, which eventually leads to changes. Nelly (1999), for instance, defines empowerment as "a process to change the distribution of power both in interpersonal relations and in institutions throughout society" while Lucy Lazo describes it as "a process of acquiring, providing, bestowing the resources and the means or enabling the access to a control over such means and resources".

Given the above, the term is therefore more relevant to the marginalized groups the poor, the illiterates, the indigenous communities - and of course, cutting across these categories, the farmers.

A central argument used by donors for supporting farmer empowerment is that there is a strong relation between farmer empowerment and such development outcomes as poverty reduction, improved agricultural opportunities for growth and better governance.

Generally, empowerment can be understood in two different dimensions: (i) to develop the competences and capacities of individuals: to educate and to qualify individuals (farmers), special target groups such as children, women, elderly persons and / or families to improve their

skills and knowledge so that they are able to generate income and improve the quality of their everyday live and can contribute to the development of the society. (ii) The means to develop / to enable the preconditions for individuals: basic requirements such as peace, gender equality, human rights, or available food, access to land and micro credits or adequate education systems are necessary to enable individuals, special target groups such as women, elderly persons and / or families to improve their wellbeing (UNDP document, 2002).

The definition of empowerment as stated above has to do with developing or building the capacities and competences of farmers through training them (i.e. education) in order to improve their skills and knowledge in the application of farm input leading to an enhanced outcome, income and ultimately improved standard of living. Supporting this, Mensah and Yankson (2013), opine that empowerment is a social accomplishment involving processes that supports practical contribution of people, organizations and communities in uplifting standard of living.

Rifkin (2003) views the concept empowerment as a mechanism or process through which individuals, organizations and groups can work on things and have more control over what they are involved in. So that individuals, organizations and groups with a high power could control the resources, build confidence, make capacity and have an active participation in managing their life.

For Sen (1993), empowerment is reflected in a person's capability set. The 'capability' of a person depends on a variety of factors, including personal characteristics and social arrangements. Empowerment is the capacity to fulfil this capability and not just the choice to do so.

Empowerment is also related to the process of internal change (Mayoux 1998) and to the capacity and right to make decisions (Kabeer 2001). It consists of change, choice and power. It is

a process of change by which individuals or groups with little or no power gain the ability to make choices that affect their lives. The structures of power (i.e. who has it, what its sources are, and how it is exercised) directly affect the choices that women are able to make in their lives (Mayoux 2001). Empowerment can exist at an individual level, where it is about having an agency, increased autonomy, choice, self-confidence and self-esteem. It can also exist at a collective level that would include collective mobilization of women, and when possible men, for the purpose of questioning and changing the subordination connected with gender. Personal and collective empowerment are intrinsically linked because without the latter, the former becomes circumscribed (Sen 1990).

Farmer empowerment therefore means providing with the ability and capacity to use local and international skills and knowledge to ensure a fair social and economical situation while preserving and conserving the environment. In this process, the farmer is becoming a supply chain actor, a crop specialist with clear market orientation. The farmers are informed and taught all the best practices to create sustainable production, and to increase the quality of their livelihood. This enables the production of a better crop of a higher and more consistent quality and quantity, which is better suited to satisfy the needs of the buyers while asking for a fair price without damaging the environment.

By application, the various opinions or definitions highlighted so far point to the fact that farmers' empowerment basically entails an improvement in the capacity and potential of commercial farmers through the provision of adequate funds, farm inputs, training, marketing opportunities, feeder roads, storage facilities etc. in a manner that will increase their performance, income and consequently standard of living.

2.5 Review of Empirical Studies

The impact of agricultural empowerment programmes which are targeted at rural development have become a world-wide phenomena and therefore they have become subjects of great intellectual curiosity; accordingly, literature in these areas is fast growing and this might be partly due to the existing low levels of farmers' food productivity, income and the deplorable living conditions in the rural areas in spite of all efforts by governments, international organizations and other philanthropic organizations with no satisfactory results. This section therefore reviewed relevant literatures on the impact of agricultural programmes (projects) as it affects the empowerment of rural farmers and the rural population.

Ogbonna (2014) in his study entitled *"Effect of Fadama III Project on Rural Farm Women Production in Gombe State, Nigeria"* determined the effect of the project on the participating rural farm-women in terms of farm size, selected variable inputs (such as labour, herbicides, improved crop and fertilizer use level), income and output in Gombe State. He highlighted the relevance of women or gender in policies that affect access to means of production of which Fadama III provides. According to him, in Nigeria, farm women play important roles in all areas of agricultural production like food production, processing and marketing but they are still neglected. Also, rural women contribute so much in the development process and yet there is little to show for their efforts. He pinpointed the problem of his research being that, despite many years of agricultural development efforts by past successive governments in Nigeria and international donor agencies and in-spite of Million dollars committed into such development efforts, agricultural sector appears to have remained undeveloped. This may be as a result of neglect of most rural farm-women in execution of such programmes. Again the areas where rural farm-women are involved in agriculture, lack facilities such as good road network for proper

evacuation of farm produce, pipe borne water, agro processing equipment and agro-based industries among others. The production of agricultural products by rural women could not be ascertained because many donor sponsored agencies impact are hampered by bureaucratic bottlenecks that ranges from non payment of counterpart funds, religion and socio-cultural factors.

In his methodology, Ogbonna (2014) used multi-stage random sampling technique in the selection of local government areas, Fadama Community Associations (FCAs), Fadama User Groups (FUGs) and participating rural farm women and non-participating rural women for the study. Upon analyses of data using the paired t-test and test of hypothesis, his findings revealed that Fadama III project has played a complementary role in extension delivery in the study area. Based on this, it is evident that the Fadama III project in Gombe State has increased the participating rural women farmers' agricultural production. This is based on the fact that the beneficiaries' levels of income, fertilizer use and labour use were significantly different from the non beneficiaries. He highlighted major challenges of the project to include, late arrival of farm inputs, non prompt payment of counterpart funds and inadequate training and retraining of women as pertinent problems affecting the project. To appropriately address the constraints, Ogbonna (2014) recommended timely supply of farm inputs by the project and prompt payment of counterpart funds by relevant agencies of government in order to sustain and improve the participation level of the rural farm-women and to enable them and the development partner achieve the goals of the project.

As we have thus seen above, Ogbonna (2014) demonstrated that just like their male counterpart, the rural farm women, if given the necessary recognition, support and farm input, it will boost their income and output capacity in Gombe State. He succeeded in highlighting such inputs like

labour, chemicals, improved seeds and fertilizers but failed to mention the place of farmers training and the availability of storage facilities. These areas are key to improvement in the productivity of farmers. Also worth asking is how increase in the income of the rural farm women has improved their standard of living and led to the development of their community. Thus, this study intends to fill such gaps.

Dare (2014) in his study entitled *"Impact of Agricultural Development Programme (ADP) on Rural Dwellers in Nigeria: A Study of Isan-Ekiti"* examined the reality of the impact of Agricultural Development Programmes on rural dwellers in Nigeria, using the people of Isan-Ekiti, Oye Local Government Area of Ekiti State as case study. The main thrust of his study was to find out how the existence of Agricultural Development Programme has impacted on the rural population in respect of food production and infrastructural facilities. Also, income level of farmers, improved seeds, provision of pesticides and fertilizers for farmers.

His study employed the survey method of research which involved the administration of questionnaires as the research instrument. Analysis of data was through descriptive statistics involving percentage frequency distribution, pictorial representation, graphical illustrations and regression approach. The study covered a sampled population of seven hundred and seventy three (773) respondents randomly selected from Isan-Ekiti community, Oye local government area of Ekiti State.

Dare (2014) pointed out that several programmes have been introduced to reduce poverty among rural dwellers/farmers in Nigeria but it seems like these efforts yielded little or not impact on the rural population. Some of these programmes are: United Nations Development Programme (UNDP), International Fund for Agricultural Development (IFAD), Agricultural Development

Programmes (ADP), Food and Agricultural Organisation (FAO), and National Economic Empowerment and Development (NEED), The Directorate of Food, Roads and Rural Infrastructure (DIFRRI), National Orientation Agency (NOA), National Accelerated Food Production Programme (NAFPP), Green Revolution (GR), Operation Feed the Nation (OFN), etc.

In his review of literatures, Dare (2014) was of the view that the neglect for rural infrastructure has negatively affected the profitability of agricultural production. For instance, lack of rural roads impedes on the marketing of agricultural commodities, prevents farmers from selling their products at reasonable prices, and leads to spoilage. The study hypotheses were tested using multiple linear regression analysis and the empirical result reveals that Agricultural Development Programmes have significantly increased food production in the locality through increased provision of pesticides and improved seeds to farmers, establishment of new infrastructure and provision of fertilizers. The analysis of the evidence from the result however reveals that accessibility of credit by farmers has no significant effect on increased Agricultural productivity. The study therefore recommended that government should increase its effort in the area of Agricultural credit financing to encourage the farmers in food and agricultural production in the local government and other parts of the country by the Agricultural Development Agencies.

Based on the foregoing, the study by Dare (2014) has shown that the Agricultural Development Programme (ADP) has by significantly increased food production in the locality under study, though credit financing was low. Also, in his methodology a sample size of 773 rural dwellers was drawn from a total population of 49,887 for the research. But he failed to state what sampling methods were used to arrive at the sample size. The work also lacks a theoretical base. All these gaps will be addressed in the course of this study.

Ja'afaru (2013) conducted a study on *"Role of Fadama III in improving the income of Fadama User Groups (FUGs) through agro-processing and market accessibility in Adamawa State"* to evaluate the income status of Fadama III beneficiaries in Adamawa State, with the ultimate aim of determining the effects of the project on Fadama User Groups (FUGs) in the State. The sample size of his study was 383 comprising of 205 male and 178 female beneficiaries of the Fadama III programme from six (6) local government areas selected based on three (3) senatorial districts.

Ja'afaru (2013) views agriculture products processing (Agro-processing) as a facet in the agriculture value chain that entails addition of value to agricultural commodities with the ultimate intention of increasing the economic value. Adding that various governments of developing economies now adopt programmes which are formulated, taking much cognizance of value addition and marketing of farm outputs. His study stressed that developing countries that intend to rapidly transform their agriculture would have to massively embark on holistic food system which involves processing and clearly defined channels of appropriate marketing in order to provide avenues for income generation for the rural farmers. Just like the work of Ogbonna (2014), he reiterated that several programmes (like DFFRI, OFN, Fadama I, II, III, etc) have been fielded by the Federal Government of Nigeria in the past with the perfect hope that, specifically, the rural farmers and the poor would immensely benefit from such laudable intentions in terms of income generation. However, these could not yield much desired results.

Of the three (3) phases of the Fadama Programmes, Ja'afaru (2013) stressed that Fadama III was established in order to address the inadequacies observed in Fadama I and II. The major Project Development Objective (PDO), among others, is to uplift the incomes of users of rural land and

water resources on a sustainable basis by ensuring that about 75% of the Fadama User Households (FUHs) have increased their income by not less than 40% by 2013.

In his analysis of data, Ja'afaru (2013) employed the use of descriptive statistics which include the application of percentages and frequency distribution, and gross margin analysis. Results from his analysis showed that collectively, that the FUGs recorded 10.54% increase in income from the sales/service rendered in terms of value addition on agricultural commodities, about 15% were said to have access to market information using modern methods. In spite of the marginal success recorded in terms of income generation by the FUGs, they still operate amidst several constraints. Of the constraints identified, inadequacy of funds for purchase of inputs, minimal markets linkages and intra-group conflict of interest accounted for the most worrisome among the FUGs. He therefore recommended for massive enlightenment of the FUGs on appropriate measures for conflict resolutions, rational utilization of projects' resources and accountability, diverse avenues for sourcing markets for their products, among others.

As we have thus seen above, Ja'afaru (2013) gives detailed account on how the Fadama III agricultural programme has succeeded in improving the income of FUGs beneficiaries of the programme especially via marketing of products despite constraints. Unfortunately however, the study did not highlight such mediums or instruments used by the programme for market facilitation. Apart from linking farmers to the market, what are the other market opportunities created by Fadama III to ease farmers' access to the market?

With this general caveat in mind, this study shall be highlighting the various market opportunities created by CADP towards easing the sale of farm products which include: storage facilities, farm access roads, etc.

2.6 Theoretical Framework

2.6.1 Modernization Theory

Modernization refers to a theory of a progressive transition from a 'pre-modern' or 'traditional' to a 'modern' society. The theory looks at the internal factors of a country while assuming that, with assistance, "traditional" countries can be brought to development in the same manner more developed countries have.

Some of the proponents of modernization theory like Walter Rodney, Walt Rostow, W.A. Lewis, Talcott Parsons, Daniel Lerner and so on, connects the incredible change experienced in the modern era with modernization. They felt that the rest of the world needed to look to the Western model of modernity and pattern their society like the West in order to progress (Linda, 2001). Appelbaum and Williams (1997) describes modernization as a complex set of changes that take place in almost every part of society as a society attempts to industrialize. Russ (2009) thus identified four general characteristics of modernization to include a shift from the simple to the complex; agriculture progresses from being oriented towards subsistence farming that occurs on small plots to commercial farming of large scale; a trend towards industrialization in which human and animal powers are de-emphasized, replaced by machinery drive production; and society changes from one centered on rural to one centered on cities. It is thus based on the postulations that as societies modernize, they leave behind their historical agrarian lifestyles in favor of modern industrial or technological lifestyles; at worst, modernize their cultural agrarian lifestyle, towards economic prosperity and effective fight against poverty (McGuigan, 2009).

The core assumptions of modernization theory (Giddens, 1991) include:

- The World is a Stable System of Interrelated Parts: Modernization theory, according to Shannon (1989), views the world society as a "relatively stable system of interrelated

parts." Modernization theory views social change as an evolutionary type process that gradually adapted to a changing environment (Ragin and Chirot, 1984).

- All Societies will develop like Europe: Shannon (1989) contends that much of the modernization theory is based upon the European developmental experience. It suggests that all countries can become modern industrial societies.
- Differentiation and Modernization: The primary characteristic of modernization is differentiation. A few institutions that provided broad ranging services to the citizenry characterized pre-modern societies. Modern societies consist of a variety of specialized institutions.
- Development: An Internal Process: Modernization theory views development as an internal process in each society (generally perceived of as nation-states.) They often view each case as independent of the others.

However, modernization theory has been criticized, mainly because it conflated modernization with Westernization. In this model, the modernization of a society required the destruction of the indigenous culture and its replacement by a more Westernized one. By one definition *modern* simply refers to the present, and any society still in existence is therefore modern. Proponents of modernization typically view only Western society as being truly modern arguing that others are primitive or unevolved by comparison. This view sees unmodernized societies as inferior even if they have the same standard of living as western societies. Opponents of this view argue that modernity is independent of culture and can be adapted to any society. As Tipp (1973) has argued, by conflating Modernization with other processes, with which theorists use interchangeably (democratization, liberalization, development), the term becomes imprecise and therefore difficult to disprove.

2.6.2 The Relevance of Modernization Theory to the Study

In agriculture, the assumption is that developing nations are using traditional techniques and technologies; that farming is at the subsistence level which prevent production of goods at commercial level. Thus, modernization connotes that developing societies would evolve from subsistence farming towards commercial production. There would be need for the production of goods and finally the urbanization of the villages. This therefore emphasized the reason for the Commercial Agriculture Development Project (CADP). The project development objective of CADP is to strengthen agricultural production systems and facilitate access to market for targeted value chains among small and medium scale commercial farmers in the state.

In terms of transforming agricultural programme in Nigeria, there has been the express concern to modernize the agricultural sector by using improved technologies as well as modernized approaches of disseminating the innovations to boost production. One of the strategies is the use of improved technologies with the view that these technologies would improve the levels of productivity of the farmers. The modernization perspective is suitable for this study because commercial farmers in the study area need to move from the use of traditional skills and techniques to using improved technologies in their production as a result of the new agricultural extension approaches in order to improve productivity as well as income of farmers.

As identified in the characteristics of modernization postulated by Russ (2009), it is a shift from the simple to the complex; agriculture progresses from being oriented towards subsistence farming that occurs on small plots to commercial farming of large scale; a trend towards industrialization in which human and animal powers are de-emphasized, replaced by machinery drive production; and society changes from one centered on rural to one centered on cities. These postulations therefore connotes that the Commercial Agriculture Development Project (CADP) is

in a process of modernization especially in the agricultural sector of the country's economy. This is based on the fact that the Kaduna state CADP objectives implies a shift from subsistence farming that occurs on small plots to commercial farming of large scale.

In the same vein, Ellis and Biggs (2001) opined that modernization policies intended to raise the standard of living of the poor often consist of disseminating knowledge and information about more efficient techniques of production. For instance, the agriculture modernization process involves encouraging farmers to try new crops, new production methods and new marketing skills. In general, modernization led to the introduction of hybrids, the green house technology, genetically modified food, use of artificial fertilizers, insecticides, tractors and the application of other scientific knowledge to replace traditional agricultural practices. This view is endorsed by Smith who pointed out that modernization is about exchanging of older agriculture practices with something more recent (Smith, 1973:61). Hence, the introduction of farmers' empowerment strategies like improved seedlings, farm training, farm chemicals, farm equipment and other modern farming techniques characterize modernization in CADP Kaduna.

Furthermore, modernization theory looks at the internal factors of a country while assuming that, with assistance, "traditional" countries can be brought to development in the same manner more developed countries have. Therefore, the Kaduna Agricultural Development Project (CADP) through the World Bank grant has assisted commercial farmers in the State through the provision of farm inputs for maize, fruit and dairy (like improved seedlings, farm chemicals), training programmes, market linkages, construction of farm access roads linking farmers to appropriate markets within and outside the State and so on. These have led to increase in food production, improvement in standard of living of rural commercial farmers, and an improvement in the level of rural development in the state.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

For a research to be empirically inclined in scope, the need for a clearly stated methodology for the study is paramount. There are several methodologies employed in researches in the faculties of social science and humanities to be scientifically accepted. Thus, this chapter is concerned with methodological issues regarding the design of the research, population, sampling technique, sample size, method of data collection, administration of instrument and method of data analysis.

3.2 Research Design

For the purpose of this research, the researcher adopted the survey and documentary methods. This is because, to adequately assess the impact of CADP on the empowerment of farmers in Kaduna State, the researcher was interested in the accurate assessment of the characteristics of the population of commercial farmers that are beneficiaries of the CADP grant as well as staff of the Kaduna State Commercial Agriculture Development Office. Nevertheless, attention focused on the sample drawn from the populations. From these samples, the researcher inferred the characteristics of the defined population because of the difficulties of attempting to study whole population. The choice of Survey method was made because of the versatile and practical nature of the method especially for the researcher in that they identify present conditions and point to present needs of the research. It is good to note that this method adopted can provide us with information on which to base sound decisions in accordance with the research findings. The Survey method does more than merely uncover data but it also interprets, syntheses, and integrates these data and point to implications and inter-relationship. In a nutshell, the survey

method is relevant to this study in the sense that it is realistic because it investigates phenomena in their natural setting. The documentary research method is necessary to validate results obtained via survey method. Records and reports from the CADP office are necessary to complement findings from the field study.

3.3 Population and Sample Size

The population size for this study covered farmers that are beneficiaries of the CADP grant in Lere, Giwa and Kubau local government areas of Kaduna State (which are within the scope of the study) and some staff of the Kaduna State Commercial Agriculture Development Office who are key to the project and area of this study (i.e. facilitator maize, facilitator roads, and facilitator market). The population under study is known and registered as shown below:

TABLE 3.3.1 BENEFICIARIES OF WORLD BANK GRANT AS AT SEPTEMBER 2014

	KAURU	KACHIA	LERE	GIWA	KUBAU	SOBA	B/GWARI	KUDAN	Z/KATAF	MAKARFI	S/GARI	ZARIA	IGABI	K/NORTH	K/SOUTH	CHIKUN	KAGARKO	IKARA	KAJURU	JEMA'A	JABA	TOTAL
MAIZE FARMERS	91	69	**368**	**784**	**485**	92	155	34	17	87	12	67	38	48	12	79	15	31	24	9	0	**2,517**
DIARY FARMERS	0	29	20	58	15	0	28	15	0	0	32	10	13	1	0	0	0	0	0	0	22	**243**
FRUIT FARMERS	0	11	8	54	0	0	0	12	0	0	1	0	3	0	0	6	0	0	4	0	12	**111**
TOTAL	91	109	396	896	500	92	183	61	17	87	45	77	54	49	12	85	15	31	28	9	34	**2,871**

Source: KDSCADO 2014 Progress Report

Based on the table above, there are two thousand, eight hundred and seventy one (2,871) farmers that have so far benefited from the CADP grant throughout Kaduna State but the paper focused on **one thousand, six hundred and forty persons (i.e. Lere 368 + Giwa 784 + Kubau 485 = 1,637 maize farmers + 3 facilitators = 1,640).** Justification for the choice of these local government areas is that they had the highest numbers of beneficiaries in the State which is more adequate for this study and also, the project has recorded more successes in these areas. Also, the choice of maize farmers is due to the fact that they contribute more than 87% of all the beneficiaries (i.e. 1,637/2,871 x 100).

Sample size for the study was drawn using the Krejcie and Morgan (1960) Table for Determining Sample Size from a Given Population as shown in the Annexures.

Based on the table, the sample size for this study stood at three hundred and twelve (312). Therefore, questionnaires we administered using simple random sampling techniques to three hundred and twelve (312) farmers in three (3) LGAs.

The sample size was distributed into the three LGAs using ratio as shown below:

Lere = 368/1,637 x 100/1 = 22.5%

Giwa = 784/1,637 x 100/1 = 47.9%

Kubau = 485/1,637 x 100/1 = 29.6%

Therefore:

Lere = 22.5% of 312 = 70.2 ≅ 70

Giwa = 47.9% of 312 = 149.5 ≅ 150

Kubau = 29.6% of 312 = 92.3 ≅ 92

This implies that 70 questionnaires were distributed in Lere LGA; 150 questionnaires in Giwa; and 92 questionnaires in Kubau LGA.

3.4 Sampling Technique

In selecting our sample size, a simple random sampling and purposive sampling techniques were used by the researcher. These techniques were considered best for this study because the researcher is dealing with two subgroups that is, farmers and staff of CADP, which may have different views or opinions about the variables under study.

3.5 Sources of Data

This research collected data from both primary and secondary sources. In generating primary data, the study employed the questionnaire method. This is informed by the fact that opinions vary depending on individual perception on a particular issue and there is a need to assess these varying responses and opinions in the light of the hypotheses formulated. The researcher also interviewed some staff of CADP and farmers in order to gather information relevant to the topic under consideration and to validate results from the questionnaires.

Also, the researcher made use of secondary sources of data to ensure that the work gives adequate and more reliable facts. This entailed the use of CADP Implementation Manual, CADP Annual Reports, CADP Quarterly Reports, textbooks, internet, journals, and other published and unpublished materials.

3.6 Administration of Instrument

Questionnaire:

A total of three hundred and twelve (312) questionnaires were administered to farmers from Lere, Giwa and Kubau local government areas of the Kaduna State (with the help of a Research

Assistant). The questionnaires were distributed thus; Lere LGA 70, Giwa LGA 150 while Kubau LGA 92 questionnaires.

Interview:

In the course of sourcing information for this study as earlier stated, some key staff of CADP office and famers from the local government areas under study were interviewed. Key staff interviewed include: Facilitators Maize, Facilitator Road, and Facilitator Marketing as these were vital to the study.

Table 3.6.1 Interviewee Table

S/N	NAME	LGA	VALUE CHAIN/ FARM PRODUCT
1	Talafi Commodity Interest Group (CIG)	Giwa	Maize
2	Saminaka Logic CIG	Lere	Maize
3	Anchau Commercial Maize Farmer's Cooperative Society	Kubau	Maize
4	Facilitator Maize	NA	NA
5	Facilitator Markets	NA	NA
6	Facilitator Roads	NA	NA

3.7 Method of Data Analysis

Inferential and descriptive statistical tools were employed for analyzing data generated from the field in the course of this study as it would help in empirical analysis. Descriptive statistics such as frequency, percentages and inferential statistical tools were employed for the purpose of data presentation and analysis. Chi-square (x^2) was appropriately adopted as an inferential statistical tool for testing the hypotheses highlighted in Chapter one (1). These techniques were deemed

imperative in evaluating the role played by Kaduna State Commercial Agriculture Development Project (CADP) on the empowerment of commercial farmers in the state.

CHAPTER FOUR

OVERVIEW OF COMMERCIAL AGRICULTURE DEVELOPMENT PROJECT (CADP) AND SOME AGRICULTURAL STRATEGIES IN NIGERIA

4.1 Introduction

This chapter focused on the Commercial Agriculture Development Project (CADP) beginning with general project in Nigeria then in Kaduna. CADP is a World Bank project currently being implemented in Nigeria under the supervision of Federal Ministry of Agriculture and Water Resources (FMAWR) through the National Food Reserve Agency (NFRA). The project is aimed at developing market opportunities for small and medium scale commercial farmers in the selected states of Nigeria. These are Kaduna, Kano, Enugu, Lagos and Cross River.

4.2 The Project and its Policy Objectives

The project development objective is to strengthen agricultural production systems and facilitate access to market for targeted value chains among small and medium scale commercial farmers in the five participating states. The project was established to support three value chains per state. These are Cross River (Oil Palm, Cocoa, and Rice), Enugu (Fruit Trees, Poultry, and Maize), Kaduna (Fruits Trees, Dairy, and Maize), Kano (Rice, Dairy, and Maize) and Lagos (Poultry, Aquaculture, and Rice). The value chains chosen by each of the participating states were based on the respective comparative advantage and their contribution to agricultural growth. Among the states value chains, Kaduna State has selected dairy, fruit trees and maize. The project approach to boost the income of the target beneficiary is through a value chain approach with special emphasis placed on beneficiaries belonging to relevant CIGs at various levels. The key

performance indicators of the project include: (a) 25% increase in total production and processing of targeted value chains among participating small and medium scale commercial farmers desegregated by dairy, fruit and maize; and (b) 30% increase in total sales of agricultural products under the targeted value chains among participating small and medium scale commercial farmers desegregated by dairy, fruit and maize.

Project Components

The State project has two components namely:

i. **Agricultural Production and Commercialization:** to provide resources to facilitate the adoption of appropriate and existing agricultural technologies and support staple crop production systems and their commercialization.

ii. **Rural Infrastructure:** to provide resources for construction of new roads, rehabilitation of and maintenance of existing roads from communities to market and connection of commercial farms to electricity through various energy sources including the National Grid.

4.3 The Programme and its Benefits

The CAD (LEAD STATES) PROJECT is an intervention project that will provide infrastructural needs of commercial farmers in the areas of farm access roads and electrification, to ease the difficulty in transporting produce in and out of the farm; and provide electricity for processing and other power needs of the commercial farms. It will also provide support for the adoption of proven superior production and processing technologies to enhance the productivity of the commercial farmers to produce high quality product for domestic and export markets. More so, to facilitate needs of commercial to explore available and new market within and outside the country for better pricing of their products. The project will also link commercial farmers with relevant product standardization institutions in and outside the country to ensure quality standard

of their products so as to get better markets for the produces. Also, to link commercial farmers with Partnering Financial Institutions in order to expand and set up required processing facilities, build capacity of commercial farmers to acquire knowledge in management of their enterprises as well as having opportunity to access best practices from other commercial farmers elsewhere. They will also have the opportunity to show-case their best practices in agricultural shows/exchange visits and interactive sessions and for a (forums).

All these are geared towards the desire to address the problems associated with low productivity, lack of adequate infrastructure, inappropriate technology, weak advisory services, post-harvest losses, poor access to markets and lack or inadequate finances among others.

4.4 Implementation Strategies Adopted by CADP

The basic strategy of this project is to improve the business environment for agriculture to become more successful by gradually shifting from subsistence to commercial agriculture. The Project will strive to sustainably boost the incomes of target beneficiaries, through a value chain approach with strong emphasis on stakeholder participation, especially at the CIGs and CADAs levels.

Value chain approach is being used for the implementation of the project. A typical chain includes producers, assemblers/traders, processors, distributors, retailers and finally consumers. Value Chains are chains that incorporate all activities and services that are undertaken along a commodity system from the primary producer to the final consumer. As products move from one stage to another, additional value is created.

Project facilitators will help to organize the CIGs and CADAs and guide them through an intensive process of group formation and decision-making using a range of participatory

techniques, resulting in the development of Commercial Agriculture Development Plans (CADPlans).

The strategic thrust of the project is: (i) to support access to productivity-enhancing technologies, (ii) to improve market access, (iii) to build and improve capacity in areas of need and (iv) to improve access to rural infrastructure (i.e. network of roads and electricity).

4.5 Funding Arrangement and Commencement

The funding of the project is a tripartite arrangement, thus:

- World Bank
- Federal Government of Nigeria, and
- State Governments.

The project was to run for a period of five (5) years starting from April, 2009 and ending December, 2014. However, the date of closure has been extended by 2 years and is now to end by 30th June, 2016.

4.6 Intervention Areas:

The intervention areas of the Commercial Agriculture Development Project (CADP) include the under listed:

A. Dairy

These include: artificial insemination; supplementary feeding (salt licks, wheat offals and cotton seed cake); veterinary drugs; pasture development; milking machine/milking palour; milk processing making machines; management trainings; crush for medication and artificial insemination services, and so on.

B. Fruits

These comprise: improved quality seedlings (mango, citrus, guava, banana/plantain, oil palm & apples with dwarf pawpaw as intercrop); fertilizers – soluble and ground application types; agro-chemicals (Nematicide, Insecticide, Fungicide and Herbicide); irrigation (boreholes, tube wells, wash boles); cottage processing equipment; integrated pest management; layout and management training; capacity building, fencing, etc.

C. Maize

This value chain involves: tractorization; hybrid seeds (outgrower system); agrochemicals; fertilizers; threshing machines; 2 tons storage bin; animal traction; post harvest processing centre; land development; and so on.

4.7 Criteria for Beneficiaries of the Project

All commercial farmers involved in the three (3) commodities that meet the following criteria:

i. Domiciled in any of the 23 LGAs of Kaduna State;
ii. Been in the farming business for at least three (3) years;
iii. Operates a business bank account in any commercial bank;
iv. Being able to contribute own portion to fund technology adoption as relates to any of the three (3) commodities;
v. Belong to any of the three (3) commodity associations as a registered member; and
vi. Being able to produce a Business Plan to access the required interventions.

4.8 Project Modified Sliding Scale for Accessing Grant

The scale below shows the percentage ratio to which the CADP matching grant is distributed. It is a matching grant in the sense that CADP supplements whatever a farmer brings based on the stipulated ratio. The ratio depicts how the grant is distributed among the service providers and

beneficiaries (i.e. commercial farmers). It should be noted that before the beneficiary accesses the grant, he/she must provide his own side of the contribution.

- Accessing up to N1, 000,000 – Beneficiary (40%) while CADP (60%);
- From N1, 000,001 to N2, 000,000 – Beneficiary (50%) while CADP (50%);
- From N2, 000,001 to N5, 000,000 – Beneficiary (60%) while CADP (40%); and
- From N5, 000,001 to N10, 000,000 – Beneficiary (70%) while CADP (30%).

Note that financing the technology demonstrations at 100%, given that their purpose is to expose farmers to new technologies and practices that they did not yet know or not perfected.

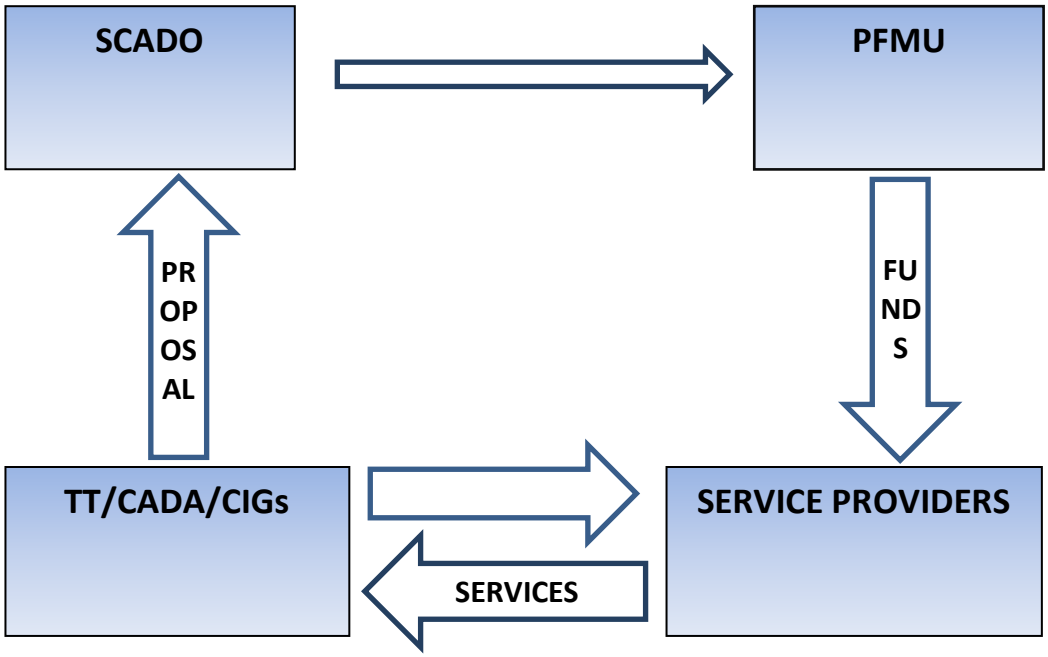
4.9 Flow of Funds under the Grant

Before accessing the grant, the individual farmers and the Commodity Interest Groups (CIGs) will collectively identify investments that will improve their operations. Subsequently, each individual farmer produces a simple proposal showing (a) the total cost of proposed investment and (b) documentation showing details of sources of own funds (i.e. total cost of proposed investment less matching grant). The individual plans are of varying sizes both in terms of investments and the level of matching grant. The CIG aggregates them, and check each item against a list of possible technologies eligible for support. The CIG application then goes forward to the CADA. Another round of aggregation takes place at the CADA level. The CADA checks the submission of the CIGs to be sure that all are complete, approves and then submits them to the project (SCADO) for clearance and payment consideration. In addition, spot audits ex-post will be undertaken by CADAs and SCADO to confirm that the grants are utilized for the intended purpose.

The approved business proposals are sent to the Project Financial Management Unit (PFMU) through SCADO with an instruction to make payments directly to the Service Providers (SP).

The service provider supplies the technology needs of the CIG once the eligible CIG meets its financial obligations. The same process will also be followed if the needs of the CIG are capacity building for accessing technology or to take advantage of market opportunities. The flow of funds for the grant scheme is presented in figure 4.9.1 below:

Figure 4.9.1 Flow of Funds under the Grant



Source: KDSCADO, 2014

Below are the detailed operational modalities of the Matching Grant Scheme, including its management and disbursement arrangements:

- The project will maintain a register of approved Service Providers (SPs).
- SCADO enters into an agreement with the registered SP and prepare an MOU on specific services/goods to be delivered to the beneficiaries.
- The beneficiary pays his/her own contribution for the procurement of the goods/services to the identified Service Provider after sub-project approval.

- The Service Provider confirms to SCADO that the beneficiary has made such payments.
- SCADO instructs the Service Provider to provide the service/works/goods to the beneficiary.
- Beneficiary and Service Provider confirm to SCADO the service/works/goods have been provided.
- SCADO processes for payment of IDA contribution directly to the Service Provider through the PFMU.

4.10 Implementation Challenges of CADP

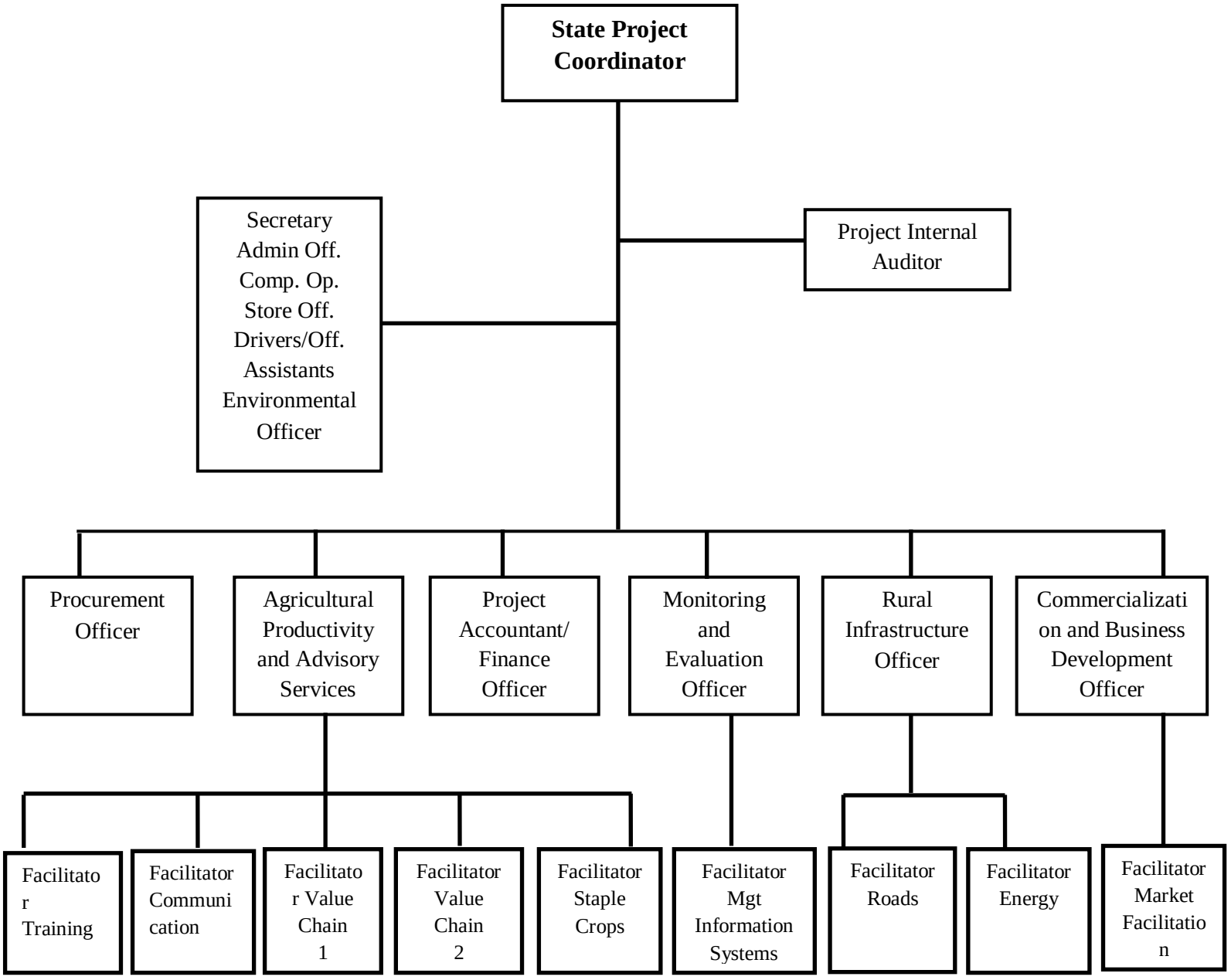
In the course of implementing the Commercial Agriculture Development Project (CADP), some constrains that affected the smooth running of the project were encountered. These challenges as identified by KDSCADO (2014) Annual Progress Report include:

i. Delay in the release of counterpart fund from the State government;
ii. Low capacity of project staff in project implementation;
iii. Reluctance by farmers/CIGs to come up with business plans in processing and marketing aspects of dairy, fruits and maize.

4.11 Organizational Structure of Kaduna State Commercial Agriculture Development Project (CADP) and Functions of Key Staff

The structural based of an organization shows its power relationship between the various officialdom or administrative set-up within it. The structure indicates the positions of functionaries in the organisation, their power and operational pattern; it guide power (authority and responsibility) relations; shows unity of command and administrative process; and, indeed, ensure a smooth flow of information.

The organizational structure of CADP is shown below:



A. National Project Coordinator (NPC)

Under the supervision of the Director, NFRA, the National Project Coordinator (NPC) is responsible for the overall coordination of the Project activities across the participating States.

He will work closely with other staff to manage the implementation of the Project to achieve the Project Development Objectives.

Specific Duties of the Position will include:

i. Head the Secretariat of the National Steering Committee (NSC).

ii. Responsible for the coordination of implementation of the project among the participating states.

iii. Provide guidance to the Project Staff at the National Office.

iv. Liaise with other relevant Programmes and Technical Departments in the Public Sector and Privates Sector.

v. Oversee contracting of support staff and consultants, particularly Commercial Agriculture Service Providers.

vi. Supervision and Coordination of the State Commercial Agriculture Development Offices (SCADO).

vii. Convene and host periodic meetings with the staff of the SCADOs.

viii. Ensure timely and quality delivery of reports to the National Steering Committee (NSC) and the World Bank.

ix. Coordinate supervision missions.

x. Organize impact evaluation, beneficiary assessment, Mid Term Review, and Final Evaluation of the project.

Reporting and Location:

The Position will be in the Commercial Agriculture Development Desk Office within the National Food Reserve Agency, NFRA. The NPC will report directly to the Director, NFRA and

indirectly to the National Steering Committee. As a secretariat to the NSC, the NPC will also report quarterly to the National Steering Committee.

B. Operations Officer

The operations officer is to perform the under listed functions:

i. Assist the National Coordinating Officer in coordination of project implementation among participating states.

ii. Ensure all required reports from participating states are submitted and collated on time.

iii. Carry out all duties as may be assigned by the National Coordinating Officer from time to time.

Reporting and Location:

The Position will be in the Commercial Agriculture Development Desk Office within the National Food Reserve Agency, NFRA. The Operations Officer will report directly to the National Coordination Officer.

C. State Project Coordinator

The State Project Coordinator (SPC) is responsible for the coordination of Project activities in the State, as well as managing the State Commercial Agriculture Development Project Office (SCADO) within the Agricultural Development Project (ADP) of the State Ministry of Agriculture.

Specific Duties of the Position:

i. Head the secretariat of the State Steering Committee (SSC).

ii. Overall implementation of Project within the State.

iii. Supervise staff of SCADO.

iv. Liaise with other relevant programmes and technical departments in the State.

v. Oversees contracting of support staff and consultants, particularly Commercial Agriculture Service Providers.

vi. Ensure timely reporting and quality of reports to SSC and the National Steering Committee (NSC).

Reporting and Location

The Position will be based in the State Commercial Agriculture Development Office in the State capital. The SPC will report directly to the Programme Manager in the State. As a secretariat to the SSC, the SPC will also report quarterly to the State ADPEC.

D. Procurement Officer

Under the supervision of the State Project Coordinator, the incumbent is to coordinate the procurement of all goods, works and services financed under the project.

Specific duties of the position will include:

i. Preparation of procurement plans for implementation of the project.

ii. Prepare Bidding documents.

iii. Responsible for day-to-day procurement activities as contained in the PIM.

iv. Update and implement the procurement manual.

v. Initiate procurement and training workshops.

vi. Undertake any other duties as may be assigned by the State Project Coordinator.

E. Monitoring and Evaluation Officer

Under the supervision of the State Project Coordinator, the incumbent is responsible for generation of project specific information on progress, processes and performance. Analyses and

aggregation of data generated at various levels to track progress, process quality and project sustainability. S/He will also document and disseminate feedback and key lessons learnt to relevant users and stakeholders.

Specific duties of the position will include:

i. Develop Management Information System (MIS) for the project.

ii. Conduct impact evaluation and beneficiary assessments.

iii. Produce and disseminate periodic progress reports.

iv. Undertake relevant surveys as may be required.

v. Assist the State Project Coordinator in the preparation of Workplan and Budget.

vi. Initiate Project M&E workshops and training for Project Officers.

vii. Undertake any other duties as may be assigned by the State Project Coordinator.

F. Finance Officer (Accountant)

Specifically s/he is responsible for, but not limited to:

i. Reviewing, and implementing documentation provided in project implementation manual.

ii. Overall framework and standard system of accounting for the project, including unified charts of accounts, expenditure codes and accounting records consistent with Government Financial Instruction and meeting international accounting standards.

iii. Designing financial reporting formats that provide for variation and variance analysis, and financial performance indicator.

iv. Training all accounting staff on the operation of the accounting system and preparation of financial report.

v. Implement an effective internal control system.

vi. In collaboration with the management team, consolidating the AWPB, and progress reports for submission to NFRA, WB.

vii. Reviewing procurement requests and withdrawal applications to ensure correctness and that they are in line with established procedures.

viii. Liaising with the Internal and External Auditors, Government Auditor General and follow-up on audit queries/management letters.

ix. Monitoring of physical achievements against expenditure

x. Carrying out other related tasks as agreed with the State Project Coordinator

Terms of Reference for Facilitators

Specialization: The project in each state will hire 9 facilitators with different responsibilities as follows:

i. Agronomist/Animal Scientist/Fisheries Specialist (one per value chain, 3nos.)

ii. Engineer: Civil and Electrical (2nos.)

iii. Agric Economist (Market and Business Development Specialist, 1no.)

iv. Agric Economist (MIS, 1no.)

v. Agric Specialist (Training 1no.)

vi. Agric Specialist (Communication 1no.)

Duties of Facilitators

i. Ensure proper formation and registration of the Commercial Agricultural Development Organizations (CADA) in line with the project provisions and production of the development plans for the Association;

ii. Provide technical advise to the farmers in their area of competence and serve as liaison officers between CADP and the farmers;

iii. Identify teaching instruments and develop essential curricula to train the CADP through a PRA process;

iv. Identify sources of improved technology for farmers operation in collaboration with the various research and knowledge institutions;

v. Provide linkage with service providers to assist farmers in productivity enhancement, business planning, financial and business management;

vi. Supply market information and provide linkage to market and credit sources for the farmers

Duration of Assignment:

The work of a facilitator will be throughout the duration of the project but the contract is renewable yearly subject to satisfactory performance.

Deliverables:

The facilitators will be expected to produce Development Plans for their association and also submit a monthly report of activities to the state CADP office. The officers will also work with the M & E officers at state level to monitor the project indicators and the achievement of the project development objectives.

4.12 An Overview of Some Agricultural Development Strategies in Nigeria

Several developmental strategies and programmes have been developed by past and present governments to empower especially the rural farmer to with a view to tackling issues of rural development and food security in Nigeria. And nearly all the strategies were initiatives of governments in league with some international development agencies. Some of these programmes/strategies include – the Green Revolution Strategy (GRS), the River Basin and Rural Development Authority (RBRDA), the Directorate for Food, Roads and Rural Infrastructure (DFRRI) etcetera. A shift of emphasis is made by contemporary rural scholars like Stohr and Taylor (1980); to them development strategies from below are basic, need-oriented, intensive, small-scale, regional, resource-based and rural centered form of development. These are Participatory Rural Appraisal, Integrated Rural Development Approach amongst others.

However, in this subsection of the research, attempt will be made to give an overview of these strategies. To realize such a task, this study seeks to review the Nigerian government's effort in the realm of farmers' empowerment for increased agricultural production and consequently rural development.

i) The Agricultural Development Project (ADP) Strategy

The ADP strategy is one of the projects/approaches to agricultural development in Nigeria (Otaki, 2005). As one of the numerous farmers' empowerment initiatives of government and the World Bank, the ADP strategy was popular in the 1970s; the Nigerian government for example, adopted the ADP strategy on the advice of the World Bank. In 1970, the Pilot Projects were started in Funtua, then in Kaduna State, Gombe, then Bauchi State and Gusau, then in Sokoto State. The Federal Government also expanded the programme to cover Plateau State (the popular Lafia Agricultural Development Project, LADP (presently, Lafia is in Nasarwa State) and

Ayingba in Kogi State, then in Benue State. Other ADP projects were later established in Ilorin, Kwara State, and Oyo.

The objective of the ADP strategy was to improve the living conditions of the low income earners/farmers resident in the rural areas. This implies farmers' empowerment through the supply of farm inputs such as fertilizer, fungicide, pesticide, High Yielding Variety (HYV) seeds, credit facilities, land clearing services, the development of feeder roads and extension services. The Federal Government had also planned to make the programme nationwide. Thus by January 1982, the World Bank as one of the financiers of the ADP programme, had spent well over Two hundred and seventy seven million naira (₦277,000,000) on eleven (11) ADP projects in Nigeria. The Federal Government had in the 3rd National Development Plan (1975-1980) for example, committed nearly ₦260 million to the three (3) Pilot Projects in Funtua, Gusau and Gombe. Out of this amount, the World Bank gave the Federal Government of Nigeria a sum of ₦43 million as loan for the projects. By 1980, the ADP strategy was extended to other parts of Nigeria and in 1981 nearly every part of Nigeria was covered by the ADP Strategy (Takura, 1985 cited in Otaki, 2005).

This is reflected in the 4th National Development Plan (1980-1985), where the government had nearly committed ₦2.3 billion to the ADP Strategy. For the successful implementation of the programme, the ADP Strategy also categorized the rural producers into three (3) based on their receptivity to this programme of development for the purpose of distributing farm inputs:

- The Large-scale farmers;
- The Progressive farmers; and
- The Traditional farmer.

The large-scale farmers are on one hand, those who accept the ADP Strategy and own large-scale agriculture enterprise. They also use modern agricultural equipment because they can afford them. On the other hand the Progressive farmers are not those who own large-scale agricultural enterprise, but embrace the ADP Strategy on the advice of the Extension Officers who are trained by the World Bank while the Traditional farmers are the small-scale farmers who do not totally patronize the ADP Strategy, even with the advice of the ADP Extension Officers, but preserved within the framework of the ADP advice, their values and traditional system of production.

ii) The Directorate for Food, Roads and Rural Infrastructure (DFFRI)

DFFRI was established in 1986 by Ibrahim Badamasi Babangida's administration saddled with the responsibilities of promoting food production and rural development in Nigeria. According to DFFRI Decree (No.4) of 1987, Section 5 (a-r), DFRRI is responsible for:

> Identifying, involving and supporting viable Local Government Community Organizations in the effective mobilization of the rural population for sustained rural development activities, formulating, and supporting a national rural feeder road network programme, involving construction, rehabilitation, improvement and maintenance, especially in relation to national food self-sufficiency programme as well as general rural development; formulating and supporting a national rural water supply programme together with a national on-farm storage programme and identifying and promoting other programmes that would enhance greater productive economic activities in the rural areas; as well as help to improve the quality of life and standard of living of the rural people among others.

The target group of this programme was apparently the rural areas. This was appropriate given that infrastructure like rural feeder roads, rural water supply and on-farm storage programmes are central to the development of the rural areas and improved standard of living which are lacking in this sector. DFRRI recognized the complementariness associated with basic needs such as food, shelter, potable water, and so on. Its nature of intervention therefore, was on increased

food/agricultural production and rural infrastructural development and this of course is the central focus of Kaduna State Commercial Agriculture Project (CADP).

Records have revealed that DFRRI had significant impact on the rural areas. During its lifespan (1986-1993), it had completed over 278,526km of roads and has electrified over 5,000 rural communities (Ogwumike, 2001 cited in Agetue, 2006). However, the programme was marred with poor project execution, lack of coordination among the three (3) tiers of government and subsequently abandoned projects with the truncation of the programme as government that initiated the programme changed in 1993.

As we have thus pointed out earlier at the beginning of this sub-section that, nearly all the programmes/strategies of farmers' empowerment and rural development are initiative of governments in league with some International Development Agencies, development is therefore efforts put together to increase production of farm output through empowerment of farmers with necessary inputs and necessary technologies as postulated by modernization theory of development which will be discussed subsequently.

iii) The Integrated Rural Development

Integrated Rural Development is a multidimensional strategy for improving the quality of life for rural people. It is based on the assumption that the socio-economic framework of the traditional rural system is obsolete as it fails to transform the rural people and their areas. IRD strategies are designed to change this framework and promote structural changes (Charlton, 1981 cited in Bello, 2005).

This is the strategy that is gaining ground in many countries. It amongst other things employs the methods of bringing about social, economic, institutional and technological changes for the development of human and natural resources in order to improve the standard of living of rural

people. Integrated Rural Development Strategy is seen as a concept for planning and executing changes in the rural areas. It is based on the assumption that production increases and social improvement are not mutually exclusive but are mutually reinforcing. This means that all national, technical, economic and institutional relationships should be taken into account and that they be combined in such a way as to serve the well-being and social integration of the rural people. And integrated approach to rural development consists of two (2) elements; firstly integration of the development activities into one programme or action and secondly, of areas to reduce imbalance between the developed areas (cities) and the stagnated ones (rural areas). Projects integration requires collaboration and coordination of activities into one programme of action and integration of areas to reduce the problem in the process of rural transformation while rural development planning is more relevant and more effective when carried out within a defined region.

Looking at the development trends of rural development in Nigeria particularly in recent years, the Commercial Agricultural Development Project in the five (5) participating States is saddled with the responsibility to integrate development activities in such States covering wide range of areas such as provision of rural energy, farm access roads; also, increased agricultural production, commercialization of products and so on, aimed at reducing the imbalance between the urban centers which have these infrastructures and the rural areas lacking these basic infrastructures.

iv) Fadama Development Project (Fadama I, II & III)

The First National Fadama Development Project (branded as Fadama-I) was implemented during the period 1993-1999. Fadama is a Hausa word which connotes low-lying and flood plain areas underlined by shallow aquifers and found along Nigeria's river system. It is in most cases

irrigable land (NFDP II, 2007). Fadama-I focused mainly on crop production and largely ignored support of postproduction activities such as commodity processing, storage and marketing (downstream agricultural sector). The emphasis was on providing boreholes and pumps to crop farmers through simple credit arrangements aimed at boosting cumulative crop output (Nkonya et al. 2008). Fadama I worked with Fadama User Associations, which the states used mainly to recover loans and to decide on water infrastructure locations.

The design of Fadama I did not support rural infrastructure development and did not consider other resource users such as livestock producers, fisher-folk, pastoralists, and hunters, among others. The focus on crop producers contributed to increased conflicts among the users of fadama resource. Increased crop production, increased the surplus, but the project did not support post-harvest technology, contributing to reduced crop prices and increased storage losses. And most importantly, it adopted top-down development approach or strategy.

Second National Fadama Development Project (branded as Fadama-II) was first implemented in 2005 and seeks to address the shortcomings of Fadama I by employing paradigm shift from a top-down and supply-driven public sector development program to the community-driven development approach. The Second National Fadama Development Project (Fadama II) aim was to increase the incomes of farmers, fishers, and other poor people in Fadama areas. It sought to empower local communities and improve the government's capacity to reach out specifically to the poor and vulnerable groups, such as women, unemployed youth, widows, and people living with HIV/AIDS (IDA, 2009; IFPRI, 2007; Nwanchuku and Ezeh, 2007). Importantly, the strategy represented a shift from public sector domination to a community-driven development (CDD) approach, which is built around community-defined priorities. The participatory component of the project was based on Fadama user groups with common economic interests,

such as farmers, fishers, pastoralists (people who raise livestock), women, the disabled, and students (NFDP II, 2005). The project encouraged these groups to develop plans, and then each group requested money to pay for income-generating "community-level assets," such as fishing nets, fertilizer, water-pumps, or generators. Fadama II also supported off-farm activities such as agro-processing, business training, and rural marketing. Moreover, it provided demand-driven extension services, worked to resolve conflicts over natural resources, and developed rural infrastructure such as roads.

Fadama III project which commenced in January, 2004 and lasted for six (6) years was a follow-up to the Fadama II project which was assessed to have impacted the lives of rural farmers, raising their incomes by 63 percent. The project like Fadama II takes the CDD approach, which places beneficiaries in driver's seat. Local community members under the umbrella of Fadama Community Associations (FCAs and Fadama Users Groups (FUGs), oversee the design and implementation of the project and are empowered through skills and capacity building to improve their livelihoods by increasing income generating activities. Fadama III project established standardized procedures and steps to guide the local people on how to take part in the decision-making process. It established platforms for participation, such as local consultation meetings to identify and select the needed infrastructure to be funded by the project. Beneficiaries (participants) were trained to identify the needed infrastructure, execute and manage small-scale development projects in their communities. Community people through the FUGs and FCAs were designated to be the executing agencies of local development projects. Capacity building activities were conducted to ensure that they have the ability to manage the different aspects of project implementation including financial management, procurement management and quality control at a level acceptable to the project.

According to International Development Agency (IDA, 2010), the project was designed to focus on increasing the incomes of rural poor, the project will help reduce rural poverty, Goal (MDG). Financing of Fadama III project is comprised of US$ 250million from the World Bank through International Development Agency (IDA) credits and $200 million counterpart contribution from Nigeria's federal, state and local governments and beneficiaries (World Bank, 2010).

Fadama III Project has six main components:

i. Capacity building, local governance and communication
ii. Small-scale community-owned infrastructure
iii. Advisory service and input support development
iv. Support to the Agricultural Development Programmes, (ADPs) sponsored research and on-farm demonstrations
v. Asset acquisition for individual Fadama Users Groups (FUGs) / Economic interests.
vi. Project management, monitoring and evaluation

v) The Green Revolution Strategy (GRP) - 1980

The Green Revolution Strategy (GRS) was also one of the project approaches aimed at agricultural development of the Nigerian State. The GRS was first started in Mexico in 1943, out of the research works of four (4) American Plant Geneticists, sponsored by the Rockefeller Foundation (Nzimoro, 1986 in Otaki, 2005). The Green Revolution Programme was created in Nigeria in 1980 by the civilian administration of the Second Republic (Alhaji Shehu Shagari). The programme was meant to accelerate the country's movement towards self-sufficiency in food production. The River Basin Development Authorities (RBDAs) were used as a vehicle for bringing about the aim of the programme. The programme went a step ahead of others by

introducing agricultural credit for small-scale farmers. However, the programme was seriously affected by unnecessary political rivalry between state-controlled and federal-controlled programmes. It was heavily politicized that the real farmers hardly benefited from the activities of the programme; it finally died with the exit of the founding fathers.

vi) The River Basin and Rural Development Programme

The River Basin and Rural Development Programme, otherwise known as River Basin Development Authority, is one of the project approaches to agricultural and rural development of the Nigerian State. The River Basin Development Authorities came into being between early and mid 1970s as a result of the Food and Agricultural Organization (FAO) of the United Nations recommendation. The aim of the programme was to develop River Basin and its adjacent rural areas through the provision of irrigation, land clearing and tractor hiring service; it also aimed at providing fertilizer, pesticides and other agricultural inputs to the farmers in the River Basin and those in the adjacent sides of the River Basin. There were over eleven (11) River Basins in Nigeria in 1986. These include – The Chad Basin Development Authority; the Hadeja-jama'are River Basin Development Authority; Owena River Basin and Rural Development Authority; the Upper Niger and Lower Niger River Basin Development Authority; the Sokoto Rima River Basin Development Authority etcetera (Otaki, 2005).

The services the River Basins provide among others are aimed at arresting the impact of drought in some Northern States and to lay a foundation for Import Substitution Industrialization Policy for wheat, sugar, rice, fertilizer etcetera. The import substitution industrialization is aimed at reducing Nigeria's dependence on import of the commodities mentioned above. Thus in the 3rd National Development Plan (1975-1980), the sum of ₦535 million was allocated to the River

Basin and Rural Development Authority nationwide. Also, in the 4th National Development Plan, the sum of ₦2.1 billion was committed to the River Basin Development Programme nationwide (Otaki, 2005).

The Bakalori Project for example, was a subsidiary of the Sokoto Rima Basin Development Authority which had its contract signed in 1975 for the sum of ₦110 million with an Italian Transnational Corporation, the IMPRESIT. A subsidiary contract was also signed for ₦44 million in 1977 with the Italian Consortium. The project was to be completed in March 1980, at the cost of ₦154 million. But by January 1980, the cost of this project had risen to ₦350 million. The government also had to pay the Italian Consortium, the sum of ₦1 million monthly as disturbance allowance caused by the rioting peasants, whose land was confiscated/revoked by the government without compensation (Beckman, 1985 cited in Otaki, 2005). However, it is interesting to note here that despite this large sums of money committed to this River Basin Development Strategy, the programmes are yet to create any significant impact in the lives of the Nigerian farmers.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1 Introduction

The main concern of this chapter is to present, classify and analyses the data collected from the questionnaire administered to respondents so that it can be meaningful to both the researcher and any person that reads this work. Before that however, it would be useful to restate the hypotheses postulated in item 1.5.

i. That, there is no significant relationship between the matching grant provided for the project and improvement in farmers' standard of living.

ii. That, there is no significant relationship between the technological training farmers acquired and increase in agricultural output.

iii. That, Kaduna State CADP market opportunities for small and medium scale commercial farmers have not enhanced the income of farmers.

The data collected is presented in simple frequency tables analyzed in line with the hypotheses formulated. Therefore, the central objective of this research work was to assess the impact of Commercial Agriculture Development Project (CADP) in the empowerment of commercial farmers in Kaduna State. To achieve this purpose, the data collected were subject to statistical analysis and the results are presented therein.

A total number of three hundred and twelve (312) questionnaires based on the sample size selected were administered to commercial farmers in Giwa, Lere and Kubau LGAs in order to obtain relevant information with regard to the impact the project has on the development of farmers in Kaduna State. Out of the 312 questionnaires administered, 266 representing 85% were

filled and returned while 46 of the questionnaires representing 15% were not returned. This is presented as follows in table 5.1.1 below:

Table 5.1.1 Questionnaire Distribution/Rate of Return

Nature of Respondents	**Sample Drawn/No. of Questionnaires**	**No. of Questionnaires Retrieved**	**No. of Questionnaires Completed and Returned**	**Percentage (%) of Questionnaires Returned**
Giwa LGA	150	125	117	78
Lere LGA	70	68	67	95
Kubau LGA	92	89	82	89
TOTAL	**312**	**282**	**266**	**85**

Source: Researcher's field survey, 2015

5.2 Data Presentation and Analysis

The presentation and analysis of data for this study is essentially done with the use of tables, simple percentages and chi-square (x^2) statistical tool. Therefore, the hypotheses were tested at a critical point of 5% (0.05) to serve as a basis for the acceptance or rejection of the hypotheses formulated.

5.3 Test of Hypothesis One (1)

The null hypothesis to be tested is "that, there is no significant relationship between the matching grant provided for the project and improvement in farmers' standard of living." This in effect is to see the relationship between CADP matching grant and standard of living of farmers with the notion that the latter depends on the former. Based on this, the independent variable is "CADP matching grant" while the dependent variable is "farmers' standard of living."

5.3.1 Provision of CADP Matching Grant to Farmers

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	117	100	67	100	82	100	266	100
No	0	0	0	0	0	0	0	0
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

The CADP has set out a formula or ratio for the provision of matching grant to commercial farmers called *sliding scale* in order to assist them have greater access to farm input and the market towards enhancing their productivity, income and development in the rural areas of Kaduna State. In this sliding scale, a farmer accessing up to N1, 000,000 contributes 40% while CADP provides 60% of the farm input. In the same vein, a farmer accessing between N1, 000,001 to N2,000,000 contributes 50% while CADP provides 50%. Also, a farmer accessing between N2, 000,001 to N5,000,000 contributes 60% while CADP provides 40%. A farmer accessing between N5, 000,001 to N10,000,000 contributes 70% while CADP provides 30%. Based on this, records/reports show that the project targeted an expenditure of $14,645,143.23 but achieved $3,397,953.40 as at 31 December, 2014 representing a funding achievement of 23.2% (KDSCADO, 2014).

Respondents were asked whether they received the CADP matching grant to support their farm business. Based on Table 5.3.1 above, the entire 266 respondents from Giwa, Lere and Kubau representing 100% agreed that they have benefited from the CADP matching grant.

An interaction with some staff of CADP revealed that project is guided by the *matching grant* principle. By implication, the higher the contribution made by a farmer, the lesser the

commitment made by CADP. This therefore validates the opinion of farmers that they received grants to enhance their farm business.

5.3.2 Matching Grant and Farmers' Standard of Living

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
High	75	64	41	61	48	59	164	61
Low	42	36	26	39	34	41	102	39
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

The grant offered to farmers was intended to boost their productivity, income and standard of living through provision of adequate farm inputs and access to market. In line with this, the CADP has set its key performance indicators for determining the level of empowerment of farmers and achievements made by the project. These are: 25% increase in total production and 30% increase in total sales of agricultural products.

However, Table 5.3.2 above indicates that 164 respondents representing 61% of the total number of respondents from Giwa, Lere and Kubau LGAs were of the opinion that the CADP matching grant offered to commercial farmers has highly improved their standard of living while 102 representing 39% held a contrary opinion.

Based on the performance indicators earlier stated, CADP has made some achievements in respect of empowering commercial farmers in the State towards improving their performance and sales of farm products. Firstly, reports show that the project targeted an expenditure of $14,645,143.23 but achieved $3,397,953.40 as at 31 December, 2014 thus, representing a funding achievement of 23.2% (KDSCADO, 2014).

It is important to note that while the key performance indicators and achievements of the project were disaggregated by value chains of maize, fruit and dairy, they were not disaggregated by local government areas.

Key Performance Indicator 1

The first performance indicator of the project is to achieve 25% increase in total production and processing of targeted value chains among participating small and medium scale commercial farmers. However, available records from KDSCADO Reports show that there has been significant increase in the production of maize value chain from 2011 to 2014. It is revealed that in the year 2011, beneficiary baseline of 649mt was set by the project. Using a sample of 142 maize farmers showed an achievement of 737.5mt which is an increase of 88.5mt (13.6%). In the 2013, the KDSCADO Report shows that the same baseline of 649mt for maize was set and the achievement was 811.25mt cultivated on 295Ha farmland representing an increase of 25%. Also, in 2014, with a baseline of 649mt for maize, an achievement of 831.6mt was made representing an increase of 28% increase. Further, the number of farmers was increased to 1,089, and given a baseline of 8,859mt had an achievement of 15,342.87 (on a 4,027Ha farmland) was made.

The analysis above shows that CADP achieved its set goal in 2013 and 2014 when it had 25% and 28% increase in the production of maize respectively.

Key Performance Indicator 2

The second key performance indicator of the project is to achieve 30% increase in total sales of agricultural products under the targeted value chains among participating farmers. Records have it that between 2011 to 2012, 15,101mt of maize were harvested out of which 7,551mt were sold off by 49 CIGs valued at N415,277,500. Also, between 2012 to 2013, a total of 37,845mt of

maize were harvested out of which 18,923mt were sold off amounting to N1,040,737,500. More so, between 2013 to 2014, a total of 23,896mt of maize were sold valued at N1,314,280,000.

As seen above, from 2011 to 2013 harvest and sales of maize has increased from 7,551mt (N415,277,000) to 18,923mt (N1,040,737,500) representing an increase of 60% sales. Further, between 2013 and 2014, sales have increased from 18,923mt (N1,040,737,500) to 23,896mt (1,314,280,000) representing an increase of 20.8%. Hence, the project achieved its goal of 30% increased sales of farm products between 2011 to 2013 but sales was poor between 2013 to 2014.

Impact of the CADP Grant on Farmers' Living Standard

The grant provided to farmers is basically to improve their productivity, income and consequently their standard of living. Thus, in ascertaining this, a representative of each of the CIGs from the Local Government Area under study was interviewed based on certain indices after which a comparative analysis was made as shown below:

A. Talafi Commodity Interest Group (CIG), Giwa LGA

S/NO	INDICES	BEFORE CADP INTERVENTION	AFTER CADP INTERVENTION
1	Farm income	N1,485,000 (110 bags @ N13,500)	N4,050,000 (@ N13,500/bag)
2	Maize production	110 bags/7ha	300 bags/7ha
3	Farm Tech.	Employed manual labour	Employs the use of Modern machines
4	Health	Little access to health care	Better access to healthcare
5	Education	4 Children attending public schools	2 Children now attend private schools
6	Assets acquired	Owned a Motorcycle	Own a fairly-used Pickup van

B. Saminaka Logic CIG, Lere LGA

S/NO	INDICES	BEFORE CADP INTERVENTION	AFTER CADP INTERVENTION
1	Farm income	N1,620,000 (120 bags @ N13,500)	N4,995,000 (@ N13,500/bag)
2	Maize production	120 bags/10ha	370 bags/10ha
3	Farm Tech.	Employed manual labour	Employs the use of Modern machines
4	Health	Little access to health care	Better access to healthcare
5	Education	2 Children attending public schools	2 Children now attend private schools
6	Assets acquired	Plot of land	A House

C. Anchau Commercial Maize Farmer's Cooperative Society, Kubau LGA

S/NO	INDICES	BEFORE CADP INTERVENTION	AFTER CADP INTERVENTION
1	Farm income	N1,471,500 (109 bags @ N13,500)	N4,320,000 (@ N13,500/bag)
2	Maize production	109 bags/10ha	320 bags/10ha
3	Farm Tech.	Employed manual labour	Employs the use of Modern machines
4	Health	Little access to health care	Better access to healthcare
5	Education	3 Children not in school	3 Children now attend school
6	Assets acquired	Farmlands	Tractor

The analysis Tables A, B and C above show that the matching grant advanced to commercial farmers has significantly improved their performance and standard of living between 2010 and 2015. Explaining the extent of farm performance, farmers gave instances. For instance, in Giwa local government area, one of the maize farmers belonging to Talafi Commodity Interest Group (CIG) informed the researcher that before the grant, he made 110 bags of maize from 7 hectares of farmland annually, but after the intervention he now makes up to 300 bags. Another farmer from Lere LGA belonging to Saminaka Logic CIG testified that prior to the intervention; he made 120 bags of maize annually using 10 hectares of land, but afterwards produced 370 bags. Also, a farmer from Anchau Commercial Maize Farmers Cooperative Society in Kubau LGA affirmed that he rose from production of 109 bags to 320 bags on ten (10) hectares of farmland.

To further confirm this assertion, available records from the KDSCADO Annual Report (2014) showed that:

> "A total of 541 farmers from 42 CIGs that cultivated a total of 3,255 Ha across the state during the 2013 cropping season recorded an increase in yield from an average of 2.2mt/Ha to 3.8mt/Ha representing 73% increase/achievement."

From the foregoing, it is clear that the grant offered to farmers has significantly improved their productivity and standard of living between 2010 – 2015.

5.3.3 Farmers' Performance and the Use of Modern Farming Machinery

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	17	15	18	27	39	48	74	30
No	100	85	49	73	43	52	192	70
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

The project development objective of CADP is to strengthen agricultural production systems and facilitate access to market for targeted value chains among small and medium scale commercial farmers in the state. Hence, CADP agricultural production and commercialization component implies a shift from subsistence farming in small plots of land to commercial farming on a large scale as postulated by the theory of modernization which anchors this study. It is to provide new farming technologies, improved seedlings and modern machineries (e.g. Harvesters, Tractors, etc) to farmers so as to propel the production of farm products on a large scale.

However, respondents were asked whether their performance was connected to the use of modern farming equipment and machinery provided by CADP. Based on this, 74 respondents representing 30% agreed that their performance was as a result of the modern machinery and equipment provided by the CADP while an overwhelming majority of the respondents from Giwa, Lere and Kubau of 192 representing 70% asserted that their performance and productivity was not tied to the provision of modern farming machinery and equipment provided by CADP.

Interactions with some of the respondents revealed that farmers in the study area were not provided with modern farming machines. Instead, they hired machines like Tractors to work on their farms at high cost and those who could not afford it employed manual labour.

However, records from the CADP Annual Reports showed that between 2010 – 2011, farmers in the three (3) LGAs were supplied farming equipment (inputs) thus:

- Giwa LGA – 174 pairs of Workbulls, 154 Nos Ridgers and 73 Nos Threshers.
- Lere LGA - 4 pairs of Workbulls and 1No Thresher.
- Kubau LGA – 107 Workbulls, 107 Nos Ridgers, 103 Nos Threshers and 3 Nos Storage Bins.

This implies that, the performance of commercial farmers in the local governments under study was not connected to modern farming machinery provided by CADP as they were not provided with such farm machineries. But instead, farmers in the State were only provided with traditional farming equipment. Meanwhile, the supply of farm input in terms of farming equipment to farmers was inadequate in Lere LGA.

The chi-square (x^2) was used to measure the discrepancies between the observed and the expected frequencies of the value obtained from the respondents. The following formula will be adopted for the calculation:

$$X^2 = \Sigma \frac{(O-E)^2}{E}$$

Where O = Observed frequency of any value

E = Expected frequency of any value.

The X^2 value obtained from the above formula is compared with the value of X^2 table for a given significance level ($\propto$) and number of degree of freedom (v).

V = (rows – 1) (column -1)

Where the rows and columns are from the original table of actual or observed frequencies.

Decision Rule

Accept the null hypothesis (H_0), if chi-square (X^2) calculated value is less than X^2 critical value and reject the alternate hypothesis (H_1). However, if X^2 calculated is greater than X^2 critical value, reject null hypothesis (H_0) and accept alternative hypothesis (H_1).

The analysis of the test of hypothesis one (1) is depicted in table 5.3.4 (observed frequencies), table 5.3.5 (expected frequencies) and table 5.3.6 (computation of x^2 calculated).

Table 5.3.4: Observed Frequencies

Farmers' Performance and CADP Matching Grant	**Yes**	**No**	**Total**
Provision of CADP matching grant to rural farmers	266	0	266
CADP matching grant and farmers' standard of living	164	102	266
Extent of farmers' performance and the use of modern farming machinery	74	192	266
Total	**504**	**294**	**798**

Source: Researcher's field survey, 2015.

The expected frequencies are obtained using the formula below:

$$E = \frac{\Sigma R \, x \, \Sigma C}{\Sigma G}$$

Where E = Expected frequencies,

$\sum R$ = Row total, and

$\sum C$ = Column total

Table 5.3.5: Expected Frequencies

Farmers' Performance and CADP Matching Grant	**Yes**	**No**	**Total**
Provision of CADP matching grant to rural farmers	168	98	266
CADP matching grant and extent of farmers' performance	168	98	266
Extent of farmers' performance and the use of modern farming machinery	168	98	266
Total	**504**	**294**	**798**

Source: Researcher's field survey, 2015.

Table 5.3.6 Computation of X^2 Calculated

O	**E**	**O – E**	**$(O - E)^2$**	**$(O - E)^2/_E$**
266	168	98	9,604	57.17
164	168	-4	16	0.10
74	168	-94	8,836	52.60
0	98	-98	9,604	98.0
102	98	4	16	0.16
192	98	94	8,836	90.16
			Total	**298.19**

Source: Researcher's field survey, 2015.

In computing the degree of freedom, we now have:

V = $(3 – 1)(2 – 1) = 2 \times 1 = 2$

The value of the cut off points of chi-square (X^2) for 2 degree of freedom from chi-square (X^2) table at 0.05 or 5% level of significance is 5.99.

Decision

From the computations in table above, chi-square (x^2) calculated value of 298.19 is greater than chi-square (X^2) critical value of 5.99. To this end, the null hypothesis (H_0) would be rejected and the alternative hypothesis (H_1) would be accepted. This has proven that there is a significant relationship between the matching grant provided for the project (i.e. CADP) and farmers' standard of living.

5.4 Test of Hypothesis Two

The null hypothesis to be tested is "that, there is no significant relationship between the technological training farmers acquired and increase in agricultural output." This in effect is to see the relationship between the technological training farmers acquired and agricultural output with the notion that the latter depends on the former. Based on this, the independent variable is "technological training" while the dependent variable is "increase in agricultural output."

5.4.1 Farmers and Technological Training organized by CADP

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	117	100	67	100	82	100	266	100
No	0	0	0	0	0	0	0	0
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Capacity building which is a sub-component of CADP is an indispensable tool for the empowerment of commercial farmers. The effect of training of farmers translates into improved skills in agricultural production and commercialization. Farmers need to be updated and trained

on new modern farming technologies, techniques, modern machinery and adoption of best agricultural practices as obtained globally.

Respondents were asked if they benefited from any form of training organized by CADP. Table 5.4.1 above depicts that all the respondents from the three (3) local government areas of Giwa, Lere, and Kubau have agreed that they have benefited from one form of the training or the other organized by CADP. This confirms that CADP has made significant effort towards building the capacity of commercial farmers in the state.

Confirming the above opinions, an interview with the Facilitator Maize shows that farmers received different types of training, ranging from workshops, on-the-site training, and even international trainings.

5.4.2 Types of Training Farmers Receive

Response Grading	**Giwa LGA**	**Percentage (%)**	**Lere LGA**	**Percentage (%)**	**Kubau LGA**	**Percentage (%)**	**Total**	**Percentage (%)**
Oversees training	-	-	-	-	-	-	-	-
Local training, Workshop and Seminars	40	34.48	19.0	28.38	25	30.49	84	31.28
On-the-farm training	59	50.57	34.4	51.35	40	48.78	133	50.21
Oversees training, Local training, Workshops and Seminars.	18	14.95	13.6	20.27	17	20.73	49	18.51
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Respondents were asked what type of training they have received. From Table 5.4.2 above, it can be deduced that 84 of the respondents representing 31.28% submitted that they have receive local training, workshop and seminars, 133 of the respondents representing 50.21% held that they had on-the-farm training, while 49 of the respondents representing 18.51% opined that they participated in oversees training, local training, workshops and seminars. However, none of the respondents agreed that oversees training was offered to them. Hence, Table it is clear that the major type of training offered to farmers was on-the-farm training.

Interactions with some of the commercial farmers revealed that they received local trainings in the form of workshops, seminars and on-the-farm training on: crop planting, farm chemicals, improved seeds, fertilizer application, new/modern farming techniques, store control, etc.

Further interaction with some staff of CADP revealed that the project has improved the skills and capacities of farmers in Kaduna State through trainings including in-house training on: project facilitation, the use of Aflatoxin technology, keeping of farm records, market facilitation, business plan development, post harvest handling of farm produce, etc. Also, visits were conducted to farm sites and research institutes.

5.4.3 Areas of Farmers' Training

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Modern farming technology	54	46	16	24	22	27	92	33
Modern farming machinery	0	0	3	4	0	0	3	3
Improved seedlings	17	15	9	14	36	44	62	24
Application of fertilizers and farm chemicals	46	39	39	58	24	29	109	42
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Respondents were asked to choose from the list, based on trainings they have received. From Table 5.4.3 above, it can be deduced that 92 of the respondents representing thirty 33% submitted that CADP has trained them in the area of modern farming technology, 3 respondents representing 3% held that they were trained in the area of modern farming machinery, 62 of the respondents representing 24% opined that they were trained on improved seedlings, while 109 of the respondents representing 42% submitted that they were trained on the application of fertilizers and farm chemicals.

However, an interview with commercial farmers in Giwa, Lere and Kubau local government areas revealed that farmers were trained on: selection of appropriate farm site; crop spacing during planting; irrigation techniques especially for fruit farmer; use of modern farming technologies; improved seedlings; application of farm chemicals (e.g. Aflasafe, Sharp shooter,

Perfect killer, lambdatex, VIP, etc) and fertilizer; appropriate time for planting and harvest; treatment of seedling, etc.

Confirming the above opinions, it was gathered from the interview of some staff of CADP that commercial farmers were trained on the application of farm chemicals, improved seedlings, modern farming techniques, etc. For instance, in May, 2014, training workshops were organized for both project staff and commercial farmers held in Kubau and Saminaka on the use of Aflasafe and its application. Also in December 2014, an awareness creation was carried out to youth and women CIGs across the four (4) KADP zonal headquarters (i.e. Maigana, Samaru, B/Gwari and Lere).

Based on the foregoing, it can be deduced that CADP has done comparatively well in the areas of training on modern farming technology, improved seedlings and farm chemicals but it has not succeeded in the area of modern farming machinery training. However, it was observed that farmers were instead trained on use of equipment/input offered to them based on local government as seen in KDSCADO Report (2011):

- Giwa LGA – 174 pairs of Workbulls, 154 Nos Ridgers and 73 Nos Threshers.
- Lere LGA – 4 pairs of Workbulls and 1No Thresher.
- Kubau LGA – 107 Workbulls, 107 Nos Ridgers, 103 Nos Threshers and 3 Nos Storage Bins.

Therefore, the list of input listed above are more of traditional equipment offered to farmers instead of modern machineries as insinuated by CADP and postulated by the modernization theory.

5.4.4 Training and Increased Agricultural Output

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	117	100	67	100	82	100	266	100
No	0	0	0	0	0	0	0	0
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Training is a major aspect of farmers' empowerment as it has the potential to improve the knowledge, skills and capacity of farmers, thereby leading to increase in their performance and farm productivity. In line with these, respondents were asked whether training offered to them by CADP has improved or increased their agricultural output. Table 5.4.4 above indicates that all the respondents from the three (3) local government areas of Giwa, Lere and Kubau agreed that training offered by CADP has led to increase in their agricultural output.

In an interview with some of the beneficiaries, they were of the opinion that the training they received had significantly increased their agricultural output in several ways. Farmers in the local government areas under study opined that, for instance, training on the use of improved seedlings provided by CADP has increased agricultural output unlike earlier times when farmers used any seed; also, adherence to advice, instructions and training provided by CADP facilitators has increased farm yield; farming techniques taught regarding when to plant, crop spacing, time to apply fertilizers and farm chemicals, etc. has also helped to boost farm productivity.

5.4.5 Farmers Training and the Extent of Agricultural Output

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
High	69	58.6	42	62.2	49	59.8	160	60.1
Low	48	41.4	25	37.8	33	40.2	106	39.9
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

As a follow up to the last question, respondents were asked to state the extent to which their agricultural output has increased as a result of the training received. Table 5.4.5 above indicates that 160 respondents representing 60.1% of the total number of respondents from Giwa, Lere and Kubau LGAs were of the opinion that the CADP training offered to rural farmers has highly increased their agricultural output while 106 representing 39.9% held a contrary opinion.

In an interview held with some of the commercial farmers validates the opinion that farmers training in Giwa, Lere and Kubau LGAs has significantly increased their output between 2010 and 2015. For instance, in Giwa local government area, one of the maize farmers belonging to Talafi Commodity Interest Group (CIG) informed the researcher that before the grant, he made 110 bags of maize from 7 hectares of farmland annually, but after the intervention he now makes up to 300 bags. Another farmer from Lere LGA belonging to Saminaka Logic CIG testified that prior to the intervention; he made 120 bags of maize annually using 10 hectares of land, but afterwards produced 370 bags. Also, a farmer from Anchau Commercial Maize Farmers Cooperative Society in Kubau LGA affirmed that he rose from production of 109 bags to 320 bags on 10 hectares of farmland.

It is also on records from the KDSCADO Annual Report (2014) that:

> "A total of 541 farmers from 42 CIGs that cultivated a total of 3,255 Ha across the state during the 2013 cropping season recorded an increase in yield from an average of 2.2mt/Ha to 3.8mt/Ha representing 73% increase/achievement."

Interaction with some staff of CADP revealed that farmers' training has led to improvement in standard of living of farmers; increased supply of agricultural products in the market; and improvement in production of maize, dairy and fruit leading to their high production, for instance, dairy production has increased from a baseline of 0.5 lit/cow/day to 1.5 lit/cow/day.

5.4.6 Commercial Farming and the Rate of Unemployment in the State

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	71	61	44	66	51	62	166	63
No	46	39	23	34	31	38	100	37
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Commercial farming has the capacity to expand the scope of farming for farmers in Kaduna State thereby creating opportunities for the creation of jobs for the unemployed rural population. Commercial farming which is large scale farming employs a larger number of farm workers unlike subsistence farming and this creates opportunities for new jobs.

Respondents were asked whether in their opinion, the activities of CADP have reduced the rate of unemployment in Kaduna State. Table 5.4.6 reveals that 166 of the respondents representing 63% opined that the activities of CADP in the state have reduced the rate of unemployment in the state while 100 representing 37% of them had a contrary opinion.

Elucidating further on how the activities of CADP has to an extent reduced the rate of unemployment, respondents were of the opinion that, benefiting from the project grant has expanded their scope of operation (i.e. to large scale commercial farming) and also they now have the capacity to employ workers to work on their farms thereby creating jobs for them. For instance, a farmer on fruit stated that as a result of the CADP intervention, he has employed 4 staff paying them N700 per day. Another farmer dealing on maize testified that the intervention has enabled him employ up to 20 staff/unemployed youth for manual farming.

The chi-square (x^2) was used to measure the discrepancies between the observed and the expected frequencies of the value obtained from the respondents. The following formula will be adopted for the calculation:

$$X^2 = \Sigma \frac{(O-E)^2}{E}$$

Where O = Observed frequency of any value

E = Expected frequency of any value.

The X^2 value obtained from the above formula is compared with the value of X^2 table for a given significance level ($\propto$) and number of degree of freedom (v).

V = (rows – 1) (column -1)

Where the rows and columns are from the original table of actual or observed frequencies.

Decision Rule

Accept the null hypothesis (H_0), if chi-square (X^2) calculated value is less than X^2 critical value and reject the alternate hypothesis (H_1). However, if X^2 calculated is greater than X^2 critical value, reject null hypothesis (H_0) and accept alternative hypothesis (H_1).

The analysis of the test of hypothesis two (2) is depicted in table 5.4.7 (observed frequencies), table 5.4.8 (expected frequencies) and table 5.4.9 (computation of x^2 calculated).

Table 5.4.7: Observed Frequencies

Farmers' Technological Training and Agricultural Output	**Yes**	**No**	**Total**
Commercial Farmers and CADP Training	266	0	266
Farmers' Training and Increased Agricultural Output	266	0	266
Farmers' Training and the Extent of Agricultural Output	160	106	266
Commercial Farming and Rate of Unemployment	166	100	266
Total	**858**	**206**	**1,064**

Source: Researcher's field survey, 2015.

The expected frequencies are obtained using the formula below:

$$E = \frac{\Sigma R \, x \, \Sigma C}{\Sigma G}$$

Where E = Expected frequencies,

$\sum R$ = Row total, and

$\sum C$ = Column total

Table 5.4.8 Expected Frequencies

Farmers' Technological Training and Agricultural Output	**Yes**	**No**	**Total**
Commercial Farmers and CADP Training	214.5	51.5	266
Farmers' Training and Increased Agricultural Output	214.5	51.5	266
Farmers' Training and the Extent of Agricultural Output	214.5	51.5	266
Commercial Farming and Rate of Unemployment	214.5	51.5	266
Total	**858**	**206**	**1,064**

Source: Researcher's field survey, 2015.

Table 5.4.9 Computation of X^2 Calculated

O	**E**	**O – E**	**$(O - E)^2$**	**$(O - E)^2/_E$**
266	214.5	51.5	2,652.25	12.4
266	214.5	51.5	2,652.25	12.4
160	214.5	-54.5	2,970.25	13.8
166	214.5	-48.5	2,352.25	10.9
0	51.5	-51.5	2,652.25	51.5
0	51.5	-51.5	2,652.25	51.5
106	51.5	54.5	2,970.25	57.7
100	51.5	48.5	2,352.25	45.7
			Total	**255.9**

Source: Researcher's field survey, 2015.

In computing the degree of freedom, we now have:

V = $(4 - 1)(2 - 1) = 3 \times 1 = 3$

The value of the cut off points of chi-square (X^2) for 5 degree of freedom from chi-square (X^2) table at 0.05 or 5% level of significance is 7.82.

Decision

From the computations in table above, chi-square (x^2) calculated value of 255.9 is greater than chi-square (X^2) critical value of 7.82. To this end, the null hypothesis (H_0) would be rejected and the alternative hypothesis (H_1) would be accepted. This has proven that there is a significant relationship between the technological training farmers acquired and increase in agricultural output in Kaduna State.

5.5 Test of Hypothesis Three

The null hypothesis to be tested is "that, Kaduna State CADP market opportunities for small and medium scale commercial farmers have not enhanced the income of farmers." This in effect is to see the relationship between the CADP market opportunities for small and medium scale commercial farmer and the income of farmers with the notion that the latter depends on the former. Based on this, the independent variable is "market opportunities" while the dependent variable is "income of farmers."

5.5.1 CADP Assistance in Marketing of Farm Produce

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Through linkage to other communities	34	28.7	14	21.6	21	25.6	69	25.5
Through linkages to Off-takers/Market	74	63.2	45	66.2	58	70.7	177	66.7
By buying products directly	9	8.1	8	12.2	3	3.7	20	7.8
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

The main focus of Market Facilitation sub-component of CADP is to remove the marketing problems and constraints. Market facilitation or commercialization of farm produce has to do with creating or facilitating market opportunities for commercial farmers in Kaduna State in order to increase their sales, as this will ultimately lead to enhanced income of farmers, profitability of farm business and farmers' empowerment. This is to be achieved through designing and implementation of specific activities such as: linking farmers to off-takers, establishment of market information Kiosks; organize trade fairs; development of Website/Platform for market information exchange; establish standards in liaison with SON, NAFDAC and NEPC; support packaging; and promote one (1) commodity/product to export level.

However, farmers were asked in Table 5.5.1 above to state how CADP has assisted in marketing of their farm produce. The analysis shows that 69 of the respondents representing 25.5% submitted that CADP assisted them in marketing their products through linkages to other

communities, 177 respondents representing 66.7% held that they were linked to off-takers/buyers while 20 of the respondents representing 7.8% opined that CADP/government bought farm produce directly from them.

In the same vein, interaction with some of the farmers revealed that CADP does not market their farm products directly but creates market opportunities by linking them to appropriate manufacturing companies or off-takers that buy their farm products at agreed prices. For instance, fruit farmers were linked to fruit juice companies like Five Alive or maize farmers to feed mill industries. It was also gathered that there was no stipulated prices of farm produce as they were determined most times by companies or off-takers they were linked to. Hence, the lack of fixed price for agricultural products by CADP/government affects the profitability of the farmers business as prices bought by off-takers were not favourable.

Furthermore, an interview with staff of CADP revealed that the project had an understanding with some investors/off-takers in the State to which commercial farmers were linked to. These include: Springs Dairies Nigeria Ltd, Intercity Ventures, Rio-Hondo Spread Ltd, Zaidi Farm Ltd, AJARMS Integrated Farm, Al-Halal Enterprise, NAMALCO, Labar Grains & Feed Merchant Company Ltd, Hybrid Feeds, and ASM Special Grain Tuwo Enterprise.

Also, highlighting CADP component on market facilitation, it was revealed that the project has provided marketing opportunities to commercial farmers in the following activities:

- Monthly collection of market prices for 3 value chains (maize, fruit and dairy) and other commodities and dissemination via CADP market website;
- Participation in International Trade fairs, e.g. the 35th Kaduna International Trade fair, the Enugu International Trade fair, etc.;

- Visit to Processors with ready products;
- Linkage of CIG to Lagos State Agriculture Input Supply Agency in which 150 metric tons of maize was sold at N9,750,000;
- Linkage of Maize farmers with Stanbic IBTC Bank through CADP for loan;
- Linkage of Maize farmers to market through CADP to sell 90 metric tons of maize to Sunchi Farm at Enugu State.
- Linkage of farmers to NEIMACO Nigeria Ltd, Zaria for marketing of farm products.

However, despite these linkages, farmers face difficulty in marketing their farm produce. Selling to off-takers most times leads to unprofitability of the farmers' farming business. The problem is that there is no price control mechanism put in place by CADP/government to ensure good price of products. Hence, these off-takers determine the price of sales thereby negatively affecting the income/profitability of farmers. In line with this, Idachaba (2004) argued that the dwindling agricultural production in Nigeria is a confirmation of the unattractiveness of agriculture as a result of low returns and compensation being paid to farmers which tend to discourage increased production. In other words, food marketing by farmers mostly in the immediate post-harvest period usually involves a lot of costs and in Nigeria these costs are so high that lowering the costs through efficient marketing system may be as important as increasing agricultural production (Ahumed and Rustagi, 1987).

5.5.2 Construction of Feeder Roads to link Farmers to the Market

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	67	57.5	41	60.8	48	58.5	156	58.8
No	50	42.5	26	39.2	34	41.5	110	41.2
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

As a mandate, CADP is saddled with the responsibility of providing resources for construction of new roads, rehabilitation of and maintenance of existing roads to communities so as ease the movement of farm produce and to link farmers to other communities, market and off-takers. Respondents were therefore asked whether CADP has constructed feeder/paved roads in their communities to link them to the market or off-takers. Table 5.5.2 above revealed that 156 of the respondents representing 58.8% were of the opinion that CADP has constructed feeder/paved roads in their communities to link them to the market while 110 representing 41.2% of the respondents opined that CADP has not constructed feeder/paved roads to link them to the market.

Discussion held with farmers in the LGAs under study indicates that there were feeder roads in the local government areas under study although the available roads were in a bad condition and difficult to pass through especially during the rainy season. Therefore, farmers in the area spend more in conveying their products from the farm using alternative routes with longer distance. However, it was revealed that it is so because some of the roads were still under construction.

An interview with Facilitator Road (staff of the project) revealed that in 2014 CADP has constructed some rural access roads in its Phase II of the project while others were still on-going. These comprise:

	Location	**LGA**	**Distance**	**Awarded To/Date**	**Status**
1	Apyinzwag, Kurfi Kataf Road.	Z/Kataf	6.059 km paved	MAMIA Nig. Ltd	On-going
2	Hayin Gada, Maraban Walawa farm access road.	Giwa	7.612 km paved	AGONIC Associates Nig. Ltd.	On-going
3	Shaifai, U/Rabo, U/Dankaka, U/Zakara access road.	Soba	4.825 km paved	SWALEYS Nig. Ltd.	On-going
4	Gefe, Anguwan Auta access road.	Kajuru	4.229 km paved	HAVAGE Engineering Services Ltd.	Completed
5	Tohu, Gobirawa access road.	S/Gari	2.721 km paved	TEKNO Concept Construction Ltd.	Completed

It was observed that most of the roads in the areas under study were in a bad condition because the construction of the rural access roads was still on-going.

5.5.3 Feeder/Paved Roads and Movement of Farm Produce

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	46	39.1	24	35.1	21	25.6	91	33.3
No	71	60.9	43	64.9	61	74.4	175	66.7
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

The CADP has a mandate to provide resources for construction of new roads, rehabilitation of and maintenance of existing roads to communities so as ease the movement of farm produce and to link farmers to the market and off-takers. Sometimes farmers find it difficult to convey their farm products to the market due to the condition of the roads. It is even more difficult during the rainy seasons than the dry seasons to move farm produce from the farms to locations where it could be sold.

Hence, respondents were asked whether the roads provided by CADP are good enough to ease the movement of farm produce. From Table 5.5.3 above, it can be deduced that 91 respondents representing 33.3% agreed that the roads provided in their communities were good enough to ease movement of farm produce while 175 respondents representing 66.7 disagreed that roads provided has eased movement of farm produce.

Discussion with some of the commercial farmers indicates that there are feeder roads in the local government areas under study although the available roads were in a bad condition and difficult to pass through especially during the rainy season. This difficulty results to farmers spending more in conveying their products from the farm to the market using alternative routes with longer distance.

5.5.4 Price Mechanism and Profitability of Farm Business

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	34	28.7	15	23.0	28	34.1	77	28.8
No	83	71.3	52	77.0	54	65.9	189	71.2
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

The market facilitation sub-component of CADP suggests the creation of domestic and export markets, which should support market development, awareness and knowledge sharing for commercial farmers. It is to finance market information system, including market price surveys, website and information kiosks, market/financial linkages, quality control measures and standards; food safety, exchange programs, agricultural trade fairs and shows, local and international study tours.

Respondents were asked whether CADP has put in place a price mechanism to regulated prices of farm product and ensure profitability of their farm business. Table 5.5.4 above shows that 77 respondents representing 28.8% agreed that there is a regulatory price mechanism put in place by CADP to enhance profitability of their farm business while 189 respondents representing 71.2% held a contrary opinion, that there was no price mechanism put in place to regulate prices of farm products and ensure farm profitability.

However, interview held with the CADP Facilitator for Marketing revealed that although CADP (as part of its proposal) made provision for the Market Information Kiosk (MIK) which were to be developed for the dissemination of market information, the project was yet to implement this as at the time of this research. This therefore confirms the assertion that the project has not put in

place mechanism for the regulation of market price of farm products and for ensuring the profitability of their farm business.

Based on the foregoing, it was revealed via a discussion with some of the farmers that the absence of a mechanism for regulating prices of farm product has immensely affected the profitability of their farm business and constituted their greatest challenge in commercial farm business.

5.5.5 CADP Storage Facilities and Agricultural Products

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	39	33.3	12	17.6	17	20.7	68	24.3
No	78	66.7	55	82.4	65	79.3	198	75.7
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

One of the intervention areas of CADP is to finance on-farm primary processing and storage to minimize post-harvest losses by providing threshing/milling machines and storage bins of various capacities to CIGs/CADAs on Matching Grant basis. It therefore made provision for a 2 tons storage facility to commercial farmers in the state (CADP Report, 2011). This is to ensure the preservation to farm produce and to minimize post-harvest waste of farm produce.

Respondents were asked whether CADP has provided storage facilities for the preservation of their agricultural products. Table 5.5.5 above reveals that, 68 respondents representing 24.3% opined that CADP has provided storage facilities for their agricultural products while 198 respondents representing 75.7% held a contrary view that storage facilities were not provided to them by CADP.

However, the researcher gathered from the discussions held with farmers in Lere, Giwa and Kubau local government areas that storage facilities were not provided by CADP although farmers were taught storage/preservation technology and the use of treated bags which can be applied in their local stores. For instance, farmers were taught how to organize a store so as to create space for ventilation, also how to apply chemicals/insecticides effectively and keep farm produce for a longer time.

In consonance with this opinion, an interview with the Facilitator Marketing and Facilitator Maize revealed that CADP has not provided storage facilities to commercial farmers in the Kaduna State, although it was part of the project's plan/proposal.

Further more, information sourced from KDSCADO Annual Progress Report (2011) on the provision of storage facilities to farmers differed from the other opinions. It revealed that among the three (3) local government areas under study, only commercial farmers in Kubau LGA received storage facility (3 Nos Storage Bins). Further, the report showed that farmers were generally taught post harvest storage/preservation technologies.

5.5.6 Types of Storage Facilities Provided by the CADP

Response Grading	**Giwa LGA**	**Percentage (%)**	**Lere LGA**	**Percentage (%)**	**Kubau LGA**	**Percentage (%)**	**Total**	**Percentage (%)**
Storage bins	5	4.6	7	10.8	21	25.6	33	13.6
Treated bags	41	34.5	26	39.2	20	24.4	87	32.5
Agro-chemicals/Preservation technologies	71	60.9	34	50.0	41	50.0	146	53.9
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Respondents were asked to state the types of storage of facilities that were provided to them. From the Table 5.5.6 above, it can be deduced that 33 respondents representing 13.6% submitted that CADP has provided with storage bins to preserve their farm products, 87 respondents representing 32.5% held that CADP provided them with treated bags while 146 respondents representing 53.9% held that they were provided with agro-chemicals/preservation technologies. From the analysis above, it can be deduced that, the three (3) LGAs under study had access to storage facilities such as: treated bags and agro-chemical/preservation technologies which were been used in their local stores.

However, records from the CADP Annual Reports showed that between 2010 – 2011, farmers in the three (3) LGAs were supplied farming inputs as listed below but only Kubau LGA was supplied with storage bin, thus:

- Giwa LGA – 174 pairs of Workbulls, 154 Nos Ridgers and 73 Nos Threshers.
- Lere LGA – 4 pairs of Workbulls and 1No Thresher.
- Kubau LGA – 107 Workbulls, 107 Nos Ridgers, 103 Nos Threshers and 3 Nos Storage Bins.

Based on the forgoing therefore, it can deduced that storage bins were not supplied to farmers in the state but they received treated bags and agro-chemical technologies which were used to preserve their products in their domestic stores.

5.5.7 CADP Market Opportunities and Enhanced Income of Farmers

Response Grading	Giwa LGA	Percentage (%)	Lere LGA	Percentage (%)	Kubau LGA	Percentage (%)	Total	Percentage (%)
Yes	66	56.3	38	56.8	57	69.5	161	60.9
No	51	43.7	29	43.2	25	30.5	105	39.1
Total	117	100	67	100	82	100	266	100

Source: Researcher's field survey, 2015.

Market facilitation or commercialization of farm produce has to do with creating or facilitating market opportunities for commercial farmers in Kaduna State in order to increase their sales, as this will ultimately lead to enhanced income of farmers, profitability of farm business and farmers' empowerment. Improvement in the income of farmers especially in the rural areas is a necessary tool in ensuring development and ensuring a better standard of living for rural farmers. It is a situation where rural farmers are able to earn better income to empower them to achieve greater social and economic values in the societies.

Marketing opportunities includes market facilitation activities employed by the CADP according to its annual reports included the price mechanism through market information kiosk (MIK), access roads, linkage of farmers to market or off-takers, storage facilities, etc. all aimed at enhancing the income of farmer and the profitability of farm business. The presence of these variables has the potential of raising the income of commercial farmers in the State.

However, respondents were asked whether market opportunities provided by CADP has led to increase in their income. Table 5.5.7 above reveals that, 161 respondents in Giwa, Lere and Kubau LGAs representing 60.9% agreed that the market opportunities provided by CADP has

led to improvement in their income while 105 respondents representing 39.1% opined that market opportunities provided by CADP has not enhance their income.

Information gathered from the farmers revealed that while CADP has done well in the areas of linkage of farmers to off-takers, there were shortfalls in the areas of providing a price control mechanism to ensure that they sell farm products at profitable prices.

An interview held with Facilitator Marketing, staff of CADP revealed that part of the project objectives is to facilitate access to market for targeted value chains among small and medium scale commercial farmers with a view to boosting their income.

5.5.8 Challenges of Commercial Agriculture

Interview held with respondents who are beneficiaries of the CADP grant revealed that they encountered certain challenges in the course of their farming business. While some of the problems are general to the three (3) LGAs under study (Giwa, Lere and Kubau LGAs), others are specific. These include the following:

i. Lack of fixed and good price for agricultural products leading to poor price/sales of products and negatively affects its profitability. Farmers are faced with the challenge of how to sell their farm produce due to fluctuation in prices thereby affecting their sales/market.

ii. Farmers are unable to afford enough fertilizers due to their high prices leading to poor performance of the farm. Also, farmers could not make profit upon sale of their produce. This was the case of the year 2015 where the price of maize, for instance went high due to high cost of fertilizer. Also, based on the 2015 experience, it is anticipated that prices of improved seedlings will rise.

iii. There is also delay in the supply of fertilizers and other farm inputs to commercial farmers in the state. For instance, supply of fertilizers to farmers in the state was usually delayed till the month of July which is late for farmers.

iv. Many farmers in the State are unable to benefit from the CADP matching grant due to their inability to contribute their own part of the contribution. For instance, in Table 3.3.1 of the methodology section, the following local government areas had the least number of beneficiaries, thus, Kagarko 15 beneficiaries, Jema'a 9 beneficiaries, while Kaduna South local government area had only 12 beneficiaries. Meanwhile, Giwa has the highest number of beneficiaries, 896. This poses a serious challenge to commercial farmers in the State in the sense that the larger the number of farmers that benefits from the project, the higher the rate of agricultural output/productivity in Kaduna State.

v. Due to the bad condition of the feeder roads in this area, farmers pay dearly to transport farm produce from the farm to the store or market. Also, during the rainy season, access to the farm is difficult.

vi. Lack of modern farming equipment like Tractors, Slashers, Harvesters, Graders, and so on, provided by CADP. Commercial farmers in these areas hire these machines because they cannot afford them due to the high cost of purchasing them. Hence, some farmers employ manual labour.

vii. There is lack of security of farm products as farmers in this area are faced with the issues of theft of farm produce (especially during harvest period) and animals, e.g. cows, maize, fruits, etc.

viii. Lack of storage facilities (provided by CADP) for preserving or keeping farm produce. Although farmers were taught techniques of crop preservation, it is difficult to store large quantity of farm products.

ix. Lack of continuity of the intervention by CADP which hinders the continuity of the project. For a greater productivity and sustainability of the project, farmers should be assisted more than once.

x. Some of the farmers were of the view that most of the interventions or grants provided by CADP are being influenced politically. Some wealthy men who were not real farmers, who had no passion for commercial agriculture, were being offered the grant.

Adding to the above, the Commercial Agriculture Development Project (CADP), has encountered some constrains that affected the smooth running of the project. These challenges as identified by KDSCADO (2014) Annual Progress Report include:

iv. Delay in the release of counterpart fund from the State government;

v. Low capacity of project staff in project implementation;

vi. Reluctance by farmers/CIGs to come up with business plans in processing and marketing aspects of dairy, fruits and maize.

The chi-square (x^2) was used to measure the discrepancies between the observed and the expected frequencies of the value obtained from the respondents. The following formula will be adopted for the calculation:

$$X^2 = \Sigma \frac{(O-E)^2}{E}$$

Where O = Observed frequency of any value

E = Expected frequency of any value.

The X^2 value obtained from the above formula is compared with the value of X^2 table for a given significance level ($\propto$) and number of degree of freedom (v).

V = (rows – 1) (column -1)

Where the rows and columns are from the original table of actual or observed frequencies.

Decision Rule

Accept the null hypothesis (H_0), if chi-square (X^2) calculated value is less than X^2 critical value and reject the alternate hypothesis (H_1). However, if X^2 calculated is greater than X^2 critical value, reject null hypothesis (H_0) and accept alternative hypothesis (H_1).

The analysis of the test of hypothesis three (3) is depicted in table 5.5.8 (observed frequencies), table 5.5.9 (expected frequencies) and table 5.5.10 (computation of x^2 calculated).

Table 5.5.8: Observed Frequencies

Market Opportunities for Small and Medium Scale Farmers and Enhanced Income	**Yes**	**No**	**Total**
Construction of Feeder Roads to link Farmers to the Market	156	110	266
Feeder/Paved Roads and Movement of Farm Produce	91	175	266
Price Mechanism and Profitability of Farm Business	77	189	266
CADP Storage Facilities and Agricultural Products	68	198	266
CADP Market Opportunities and Enhanced Income of Farmers	161	105	266
Total	**553**	**777**	**1,330**

Source: Researcher's field survey, 2015.

The expected frequencies are obtained using the formula below:

$$E = \frac{\Sigma R \, x \, \Sigma C}{\Sigma G}$$

Where E = Expected frequencies,

$\sum R$ = Row total, and

$\sum C$ = Column total

Table 5.5.9: Expected Frequencies

Market Opportunities for Small and Medium Scale Farmers and Enhanced Income	**Yes**	**No**	**Total**
Construction of Feeder Roads to link Farmers to the Market	110.6	155.4	266
Feeder/Paved Roads and Movement of Farm Produce	110.6	155.4	266
CADP Storage Facilities and Agricultural Products	110.6	155.4	266
Price Mechanism and Profitability of Farm Business	110.6	155.4	266
CADP Market Opportunities and Enhanced Income of Farmers	110.6	155.4	266
Total	**553**	**777**	**1,330**

Source: Researcher's field survey, 2015

Table 5.5.10 Computation of X^2 Calculated

O	**E**	**O – E**	**$(O - E)^2$**	**$(O - E)^2/_E$**
156	110.6	45.4	2,061.16	18.63
91	110.6	-19.6	384.16	3.47
77	110.6	-33.6	1,128.96	10.21
68	110.6	-42.6	1,814.76	16.40
161	110.6	50.4	2,540.16	22.96
110	155.4	-45.4	2,061.16	13.26
175	155.4	19.6	384.16	2.47
189	155.4	33.6	1,128.96	7.26
198	155.4	42.6	1,814.76	11.67
105	155.4	-50.4	2,540.16	16.34
			Total	**122.67**

Source: Researcher's field survey, 2015.

In computing the degree of freedom, we now have:

V = $(5 – 1)(2 – 1) = 4 \times 1 = 4$

The value of the cut off points of chi-square (X^2) for 4 degree of freedom from chi-square (X^2) table at 0.05 or 5% level of significance is 9.48.

Decision

From the computations in table above, chi-square (x^2) calculated value of 122.67 is greater than chi-square (X^2) critical value of 9.48. To this end, the null hypothesis (H_0) would be rejected and the alternative hypothesis (H_1) would be accepted. This has proven that Kaduna State CADP

market opportunities for small and medium scale commercial farmers have enhanced the income of farmers.

5.6 Summary of Major Findings

The study focused on the impact of CADP on the empowerment of maize commercial farmers in three (3) local government areas of the State. However, the researcher discovered that most of the findings were general to the three (3) LGAs under study, namely, Giwa, Lere and Kubau. Therefore, based on the data collected, presented and analyzed the test of formulated hypotheses for this study has led to the following findings:

i. The study discovered that there is a significant and positive relationship between the matching grant offered to commercial farmers and their standard of living. This implies that the matching grant offered to commercial farmers in Kaduna State has helped to improve their performance, income and consequently standard of living. The grant has led to the empowerment of farmers by building their capacities for higher production of farm products thereby impacting their lives.

ii. It was found that technological training offered to farmers has increased their agricultural output. Based on the performance indicators earlier stated in chapter one (1) of this study and analyzed under Table 5.3.2 (i.e. 25% increase in total production and 30% increase in total sales of agricultural products), CADP has made some achievements. (However, the key performance indicators and achievements of the project were disaggregated by value chains of maize, fruit and dairy but were not disaggregated by local government areas). It was revealed therefore that CADP achieved its set goal in 2013 and 2014 when it had 25% and 28% increase in the production of maize respectively. Also, as regards sales of

harvested farm products, the project achieved its set goal of 30% increase between 2011 to 2013 but sales was poor between 2013 to 2014 as the target was not reached.

iii. This study also found out that, CADP market opportunities for small and medium scale commercial farmers have enhanced their income. The project has succeeded in providing opportunities such as: linking commercial farmers to off-takers/market; provision of feeder roads; post-harvest technologies/techniques of crop preservations; etc. However, the project has not recorded succeeded in the areas of: provision of good pricing system to regulate prices and enhance profitability; and the provision of storage facilities.

iv. The study revealed that many farmers in the State were unable to benefit from the CADP matching grant due to their inability to contribute their own part of the contribution. This poses a serious challenge to commercial farmers in the State in the sense that it has affected the rate of agricultural output/productivity in Kaduna State.

v. We discovered that even though farmers were empowered through technological training, modern machines (e.g. Tractors, Harvesters, Graders, etc.) were not provided to assist them. Thus, commercial farmers in the State still hired machines at high cost to work on their farms and those who could not afford it resort to manual labour. However, it was gathered that the project provided farming inputs to farmers from the LGAs under study (with Lere receiving the least quantity of inputs) as follows:

    - Giwa LGA – 174 pairs of Workbulls, 154 Nos Ridgers and 73 Nos Threshers.
    - Lere LGA – 4 pairs of Workbulls and 1No Thresher.
    - Kubau LGA – 107 Workbulls, 107 Nos Ridgers, and 103 Nos Threshers.

vi. The study found out that CADP has succeeded in empowering farmers through: training/workshops, provision of matching grant, market linkages, etc. which have

resulted in increased food production, enhanced income of farmers, improved standard of living, increased sales of farm products, etc.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter provides the general overview of the study. It goes further to advance some conclusion based on the findings of the analysis of data given earlier on. Some recommendations were made on areas we felt attention is highly needed.

6.2 Summary

Ultimately, research study is all about attempt to discover the underlying cause(s) or principles(s) behind a particular phenomenon. In this research for instance, the central focus was to assess the impact of Commercial Agriculture Development Project (CADP) on the empowerment of farmers in Kaduna State. To achieve this, three (3) local government areas (Giwa, Lere and Kubau) were selected in order to ascertain whether the CADP has over the years been able to enhance farmers' performance and empower them for increased food production, improved income and ultimately improved standard of living in Kaduna State. The time frame for this study was 2010 – 2015. This was a period when the interest in commercial agriculture in Kaduna State and Nigeria is growing and more so, now that the present government has shifted its focus from oil resources to the agricultural section for diversification of the economy.

In order to conduct this study, the work has been segmented into six (6) chapters, namely; introduction, literature review and theoretical framework, research methodology overview of Commercial Agriculture Development Project (CADP), data presentation and analysis and summary, conclusion and recommendations.

The first (1st) chapter which formed the introductory part defined the problem of the study- why the extent of farmer's performance and living standard are still below expectations despite the provision of matching grants to commercial farmers in Kaduna State through the Commercial Agriculture Development Project (CADP). This chapter also highlighted some fundamental objectives for which the study sets to achieve which include finding out whether the matching grant offered to commercial farmers has increased their performance, improved their income and enhanced their standard of living. And also, to find out the challenges confronting CADP operations in Kaduna State. The chapter also covered the hypotheses to be tested, the scope and limitation of the study and the significance of the study. More so, part of this chapter includes the operational definition of key terms as used in the study.

The second (2nd) chapter dwelt on the literature and theoretical framework. In this chapter some literatures were reviewed and expert views of scholars on commercial agriculture, farming and farmers' empowerment. Subsequently, the study used Modernization Theory as its theoretical underpinning.

The third (3rd) chapter deals with research design and method of data collection which comprises sources of data (primary and secondary sources), population and sample size (Population 1,640 and sample size 312) and method of data analysis (was based on both qualitative and quantitative techniques).

The fourth (4th) chapter focuses on the area of the study, that is, the Commercial Agriculture Development Project (CADP). Specifically, the project objectives, project components, funding arrangement, intervention areas, criteria for project beneficiaries, scale/ratio for accessing grant, implementation challenges, organizational chart and functions of key staff of the CADP. Also, an

overview of some agricultural development strategies (ADP, GRS, RBDP, DFRRI & IRD) in Nigeria that were targeted at increasing food production, reducing poverty and ultimately rural development.

Attempt has been made to present and analyze the data gathered in Chapter five (5) with a view to testing the three (3) hypotheses by the use of Chi-square statistical tool. Major variables were discussed together with the analysis and eventually, research findings of this study were revealed.

The sixth (6^{th}) chapter summarized each of the above chapters. It also dwelt on summary of findings and conclusion, and recommendations which concludes the research work.

6.3 Conclusion

This study set out to assess the impact of Commercial Agriculture Development Project (CADP) on farmers' empowerment in Kaduna State. It investigated why the extent of farmer's performance and standard of living were still below expectations despite their empowerment through the provision of matching grants through the Commercial Agriculture Development Project (CADP). Based on our findings from the analysis of our data, we wish to conclude that the activities of CADP has impacted especially on the empowerment of commercial farmers in Kaduna State based on its policy objectives to strengthen agricultural production systems and facilitate access to market for targeted value chains among small and medium scale commercial farmers in the State. The project was assessed to have impacted the lives of commercial farmers by raising their income level, increasing production and sales of farm products, creating linkage to market and ultimately improving their standard of living. Success has been made in the

empowerment of farmers through the provision of matching grant, training, market linkages to potential off-takers, and so on. However, CADP has not succeeded in the aspects of ensuring a good/fixed pricing system for agricultural products, storage facilities, modern machineries, and so on. All these therefore pose a great challenge that has undermined the effective performance of farmers from 2010 – 2015 in Kaduna State. Notwithstanding, if the operators of CADP and government will rise to these challenges and put every necessary facility in place, the impact of commercial farming will be more tangible in every *nook and cranny* of the State as it has the potential of providing a greater quantity of its value chain of food (i.e. maize, fruit and dairy) to all parts of the State, Nigeria and even beyond.

6.4 Recommendations

In the light of the research findings, the following recommendations are suggested for implementation:

i. For Kaduna State to record high rate of agricultural output and avoid waste of farm produce, there is a need to provide storage facilities to commercial rural farmers in each local government area of the State. Storage facilities like storage cans, silos, etc. should be made available to farmer in the State as this will help save agricultural produce 'for the rainy day'.

ii. It is obvious that untimely supply of farm inputs to farmers negatively affects farm performance. There is the need therefore to make available farm inputs especially fertilizers, farm chemicals, improved seedlings to commercial farmers in the state before every farming season.

iii. It is revealed via this study that many commercial farmers in the State have not benefited from the CADP grant because they could not pay up their own part of the contribution. This menace has tremendously challenged the rate of agricultural output in Kaduna State. It is recommended therefore that CADP intervention/grant should be reviewed or re-organized to address current predicaments of commercial farmers in Kaduna State. Hence, farmers who are financially incapacitated and unable to give their own part of the contribution should be linked to commercial banks for loan assistance.

iv. Commercial farmers in the State have not achieved full potentials because they were not provided with modern farming equipment like Tractors, Harvester, Slasher, etc. hence, farmers in the state hire machines or employ manual labour. We therefore strongly recommend that modern farm machinery should be made available to commercial farmers as this will go a long way towards enhancing agricultural productivity in Kaduna State. Alternatively, CADP can enter into a memorandum of understanding (MOU) with relevant companies who can lease these farm machines to commercial famers.

v. One major challenge faced by commercial farmers in the State is that of the sale of their farm produce as there is no fixed price for their agricultural products, hence, leading to poor price/sales of products. Therefore to further improve farmers' marketing opportunities, we recommend that CADP should put in place a price regulation system in order to regulate prices of farm commodities so that improve the marketability and profitability of commercial farming. When a fixed price of all products is put in place, this will boost the farmers' willingness to engage in commercial farming as he/she is sure of making profit.

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APPENDIX I

DEPARTMENT OF PUBLIC ADMINISTRATION

FACULTY OF ADMINISTRATION

AHMADU BELLO UNIVERSITY

ZARIA – NIGERIA

Dear Respondent,

QUESTIONNAIRE

The Researcher is a Postgraduate Student of the above named Institution conducting a research entitled: **"Impact of Commercial Agriculture Development Project (CADP) on Farmers' Empowerment in Kaduna State (2010 - 2015)".**

This questionnaire is an integral part of the study and it is designated to seek your own opinion on the subject under investigation as one of the requirements for the award of Master of Science Degree (Public Administration) of A.B.U., Zaria.

The Researcher assures you that the information you will give is purely for academic purpose and will be treated as confidential. Your kind cooperation and honest response is greatly appreciated.

Thank you for your anticipated cooperation and kind consideration.

Yours faithfully,

Researcher

SETH CHRISTOPHER I.

PART A: BIO-DATA OF COMMERCIAL FARMERS

Please tick the appropriate answer and fill as it applies to you:

i. Local Government Area: ……

ii. Senatorial District: …….

PART B: Matching Grant and Farmers' Standard of Living

1. Have you benefited from the CADP matching grant between 2010-2015?
   (a) Yes ( ) (b) No ( )
2. If yes to the question above, to what extent has the matching grant improved your standard of living?
   (a) High ( ) (b) Low ( )
3. Is your performance connected to the use of modern farming equipment and machinery provided by CADP?
   (a) Yes ( ) (b) No ( )

PART C: Farmers Training and Agricultural Output

1. Have you benefited from any form of training programme organized by CADP?
   (a) Yes ( ) (b) No ( )
2. If yes to the above question, what type of training did you receive?

   (a) Oversees training ( )
   (b) Local training, workshop and seminars ( )
   (c) On-the-farm training ( )
   (d) Oversees training, local training, workshop and seminars. ( )

3. In what areas were you trained?

   (a) Modern farming technology ( )
   (b) Modern farming machinery ( )

(c) Improved seedlings ( )
(d) Application of fertilizers and farm chemicals ( )

4. Has training offered to commercial farmers led to increased agricultural output in Kaduna State between 2010-2015?

   (a) Yes ( ) (b) No ( )

5. If yes to the question above, to what extent has your agricultural output increased as a result of the training received?

   (a) High ( ) (b) Low ( )

6. Do you think commercial farming (activities of CADP) has reduced the rate of unemployment in Kaduna State?

   (a) Yes ( ) (b) No ( )

PART D: Market Opportunities for Small and Medium Scale Commercial Farmers and Income of Farmers:

1. Does CADP/government assist farmers in the marketing of their farm produce?

   (a) Yes ( ) (b) No ( )

2. How has CADP assisted in the marketing of your farm produce?
   (a) Through linkage to other communities. ( )
   (b) Through linkage to off-takers/market. ( )
   (c) By buying products directly. ( )

3. Has the Kaduna state CADP or government constructed rural feeder/paved roads in your communities to link you to the market?

   (a) Yes ( ) (b) No ( )

4. If yes to the above question, do you think that the road networks are good enough to ease movements of farm produce?

(a) Yes ( ) (b) No ( )

5. Do you think that CADP has put in place a price mechanism to regulate prices of farm products and ensure profitability of farm business?

   (a) Yes ( ) (b) No ( )

6. Has the Kaduna State CADP provided storage facilities for the preservation of your farm products?

   (a) Yes ( ) (b) No ( )

7. If yes, what types of storage facilities are provided by CADP?

   (a) Storage bins ( )
   (b) Treated bags ( )
   (c) Agro-chemicals/Preservation technologies. ( )

8. Has the marketing opportunities provided by CADP led to increase in your income?

   (a) Yes ( ) (b) No ( )

9. What problems do you encounter in the course of your farming business?

   ……

   ……..

APPENDIX II

INTERVIEW SCHEDULE FOR COMMERCIAL FARMERS

1. How has the CADP matching grant offered to you to support your farm business increased your performance and standard of living?
2. What type of farm input did you receive through the CADP intervention (e.g. fertilizer, farm chemical, improved seeds, etc)?
3. Is your performance/productivity connected to the use of modern equipment and machinery provided by CADP?
4. Have you benefited from any form of technological training organized by CADP? If yes, mention them including areas in which you were trained.
5. How has the training you received improved/increased your agricultural output?
6. Do you think the activities of CADP have reduced the rate of unemployment in Kaduna State? If yes, how.
7. How has CADP/government assisted in the marketing of your farm produce?
8. Has the Kaduna State CADP provided storage facilities for your agricultural products? If yes, give examples.
9. Do you encounter any problem in your farming activities? If yes, what are some of these problems? What do you recommend as the way forward?

APPENDIX III

INTERVIEW SCHEDULE

FOR KEY OFFICERS (FACILITATORS MAIZE, ROAD & MARKETING)

1. Based on the goals set by CADP how do you measure farmers performance in Kaduna state with respect to the matching grant they received?
2. What type of farm inputs (e.g. Workbulls, Ridgers, Threshers, Storage bin, etc) has CADP provided to commercial farmers in the state between 2009-2015?
3. How do you think grant offered to rural farmers has increased their performance between 2009-2015?
4. What type of training programmes are offered to commercial farmers in Kaduna State and how have they increased their performance?
5. How has the Kaduna State CADP assisted famers in marketing their farm produce?
6. Who determines/regulates the prices of farm commodities and how is it disseminated to the public?
7. What is the role of CADP towards providing good road networks in the rural areas to ease movement of farm produce? Give examples of roads constructed by CADP in the rural areas.
8. How has the Kaduna State CADP created marketing linkages between farmers and consumers of agricultural products?

APPENDIX IV

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381

200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note: *N* is population size while *S* is sample size.