IMPACT OF CATHOLIC DIOCESAN DEVELOPMENT SERVICES EXTENSION ON FARM OUTPUT AND INCOME OF FARMERS IN IDAH LOCAL GOVERNMENT AREA OF KOGI STATE

BY

SALIFU, DANJUMA EDWARD

A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL,AHMADU BELLO UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURAL EXTENSION AND RURAL SOCIOLOGY

DEPT. OF AGRICULTURAL ECONOMICS & RURAL SOCIOLOGY,FACULTY OF AGRICULTURE/INSTITUTE FOR AGRICULTURAL RESEARCH AHMADU BELLO UNIVERSITY ZARIA, NIGERIA

FEBRUARY 1998

DECLARATION

I hereby declare that this thesis has been written by me and that it is a record of my own research work, except where reference is made to published literature and duly acknowledged, has not been part of any presentation for a higher degree.

SALIFU, DANJUMA EDWARD

The above declaration is confirmed.

PROFESSOR J.P. VOH
CHAIRMAN,
SUPERVISORY COMMITTEE

Date: May 20, 1998

CERTIFICATION

This thesis entitled: **"IMPACT OF CATHOLIC DIOCESAN DEVELOPMENT SERVICES EXTENSION ON FARM OUTPUT AND INCOME OF FARMERS IN IDAH LOCAL GOVERNMENT AREA OF KOGI STATE"** by **Salifu, Danjuma Edward** meets the regulations governing the award of the degree of Master of Science of Ahmadu Bello University, Zaria, and is approved for its contribution to scientific knowledge and literary presentation.

Professor J.P. Voh
Chairman,
Supervisory Committee

Professor T. K. Atala
Member
Supervisory Committee

Head of Department of Agric. Ecomomics and Rural Sociology — 9/10/98

Dean, Postgraduate School — 2/11/98

DEDICATION

This thesis is dedicated to the following:

a) My Parents: Mr. & Mrs Peter Salifu Iyeh who gave me life and nurtured me till this time.

b) My Brothers: Mr. Jonathan Baba Salifu who was responsible for my education right from secondary up to the University level. Luke Abdul and John Sule Salifu and my Sister Achimawo (Acho) who never had the privilege of western education.

c) My Wife and Children: Mrs Joyce Inikpi Salifu. Franco Enyone, Franca Ojone and Akubo-Gabriel

d) All those concerned for the emancipation and alleviation of the suffering masses of the world.

ACKNOWLEDGEMENT

My utmost thanks and praise to the Almighty God who is the Author and prefecter of my existence for seeing me through the rigours of this academic excersise. My sincere appreciations to my supervisors. My major supervisor professor L.A. Ega who despite his tight other official schedule still had the time to critically examine this thesis and has brought it this level.

Also, my second major supervisor Professor J.P. Voh who even though he was on sabbatical leave was still being consulted and he provided me with relevant materials that gave me the focus for this thesis. In addition, I am grateful to Professor T. K. Atala for agreeing to be associated with this thesis following the retirement of Professor Ega at the tale end of this thesis development.

I am very much indebted to my course-mates for their moral support especially Magaji Abubakar, Bolaji Adeniji, Michael Musa and Joseph G. Akpoko. My special thanks to some staff members of the department of Agricultural Economics and Rural Sociology particular; Mall. Akanya Ali Braimah and Dr. Ben Ahmed whom I could run to any moment of hard times.

I sincerely appreciate the efforts of my friends during the field work especially Mr. Ojomaje Atokolo, Mr. Ignatius Ajodo and Mr. Alfred Okolo for their assistance in conducting interviews with the farmers. My thanks to the coordinator and the entire staff of DDS, the then Rector of St. Kizito Seminary Most Rev. Father John Iyere and the present Rector Fr. John Abuh for their support and guidance.

Also, I am particularly grateful to my parents Mr. & Mrs. Peter Salifu Iyeh and my Brothers and Sisters. I equally appreciate the patience of my Wife Mrs. Joyce Salifu and the Children during my extended absence from home.

Also, I am indebted to my very important friend Mall. Abdulraman (Alinga) Akibu and his Family for accommodating me and providing virtually all the materials for this write-up, and who during this trying periods in Nigeria lost his job. The God I am serving will provide him with another more rewarding job.

I must not forget to mention the effort of my Cousin Mr. Alih O. Agbadi who was so brotherly throughout my stay in Zaria.

Above all, I thank the entire members of the Catholic Charismatic Renewal group, particularly the Chief Servant (Dr.) Br. Joseph Mudiare, the Wife Mrs. Patient Mudiare, Mrs. Solanke who were my spiritual directors for this and their Christianly affection. The list of those to be thanked in this respect is inexhaustible.

Once more, I owe all to the Almighty Provider, the Fountain of Life, JESUS the Lord of Lords. May his blood and Spirit liberate and deliver his believers from the bondage and dominion of the enemy. Finally, I appreciate the efforts of Mr. Akaa of the Department of Agricultural Economics and Mr. Emmanuel Uko for putting this work together.

ABSTRACT

This study assessed the impact of Diocesan Development Services on "farmers in Idah Local Government Area of Kogi State. The assessment focused on the adoption of recommended practices, gross farm output and level of living.

Fifty DDS contact farmers as well as fifty non contact farmers were interviewed. The results indicated that the DDS had a positive impact on the target farmers.

The adoption score and rate for the contact farmers were comparatively higher than the non contact farmers. The innovation examined were improved cassava varieties, rice varieties, seed dressing, storage chemicals yam minisett technology and use of herbicides. The innovation with highest adoption response was seed dressing. The innovation least adopted was the use of improved cassava varieties by the contact farmers.

As a result of adoption of these improved planting materials and other technologies promoted by DDS, there was comparatively higher increased yield for the contact farmers over the non contact farmers. The mean values of' the household income from the sales of the four selected crops in monetary terms were N2398.00 for maize, M2195.00 for rice, M5018.00 for yam and M1768.00 for cassava. The mean values for the non-contact farmers were, N1362.00for maize, N674.00 for rice, N503.00 for yam and N988.00 for cassava. These results showed a significant difference between yield of contact and non-contact farmers.

The result of analysis of variance comparing the average income of contact and non contact farmers indicated that the contact farmers had more average income than the non-contact farmers.

The result further showed an increased level of living for contact farmers as compared to the non contact farmers. Contact farmers spent more money in funding their children's education than the non contact farmers and also had more food security than the non contact farmers.

The result of Pearson Correlation analysis showed that institutional variables such as agricultural credit, extension contact were positively associated with increased output, and level of living of the contact farmers. Regression analysis indicated that extension contact and use of fertilizer were the best predictor of the observed change in the increased farm output and level of living.

The success of DDS effort seems to lie in its "bottom up" development strategy and a short line of authority in the organization. These seem to facilitate quick implementation of directives.

TABLE OF CONTENT

Title Page i
Declaration ii
Certification iii
Dedication iv
Acknowledgement . . . . . v-vi
Abstract . . . . . vii-viii
Table of Contents . . . . . ix-x
List of Table . . . . . xi-xii
List of Figures xiii
CHAPTER ONE
1.1 Introduction 1-4
1.2 Statement of the Problem 4-6
1.3 Objective of the Study 6-7
1.4 Hypothesis 7
1.5 Justification of the Study 7
CHARTER TWO
2.0 Literature Review 8
2.1 Concept of Agricultural Extention 8-9
2.2 An overview of Agricultural Extension in Nigeria . . 9-12
2.3 Concept of Non-Governmental Organization 12-13
2.4 The Role of NGOs in Development Processes 13-18
2.5 The Concept of Impact 18-21
2.6 Theoretical Framework and Discussion of Variables . . 21-27
CHAPTER THREE
3.0 Methodology 28
3.1 Method of Data Collection 28-29
3.2 Sample and Sampling Procedure 30
3.3 Analytical Techniques 30
3.4 Operational Indices 30-31
3.5 Limitations of the Research Design. 32-33

CHAPTER FOUR

4.1 The Organizational Structure and Operational Mode of Dicesan Development Services 34

4.1.1 Job Specification of Programme Leaders 34-39

4.1.2 Monitoring and Evaluation 39-40

4.2.0 Impact of DDS on Adoption of Agricultural Practices, Gross Farm Income and Standard of Living in the DDS Operational Area/Idah Local Government Area 40

4.2.1 Adoption of Agricultural Practices in the DDS Operational Area/Idah Local Government Area . . 40-44

4.2.2 Influence of Adoption on Gross Farm Output 44-46

4.2.3 Level of Living of the Farmers 46-51

4.2.4 Comparisons of the Mean Values of Average Income of the Farmers 51-52

4.3.0 Factors Associated with the Level of Success Attained by Extension Programmes. 52-55

4.3.1 Statistical Analysis of Factors Associated with Improved Level of Living among DDS Contact Farmers. 55-57

4.3.2 Constraints Faced by the Farmers. 57-58

CHAPTER FIVE

5.0 Summary, Conclusion and Recommendations 60-61

5.1 Summary 60-61

5.2 Conclusion 61-62

5.3 Recommendations 62-65

References 66-72

LIST OF TABLES

Table 1: The extent of adoption of DDS recommended farm practices among DDS contact farmers and Non-contact farmers. 41

Table 2: Distribution of respondents according to their adoption rate of the six farm practices among DDS contact farmers and non-contact farmers. 41

Table 3: A comparison of mean values of gross farm output for the four major crops grown by the DDS contact farmers and non-contact farmers quantified in monetary terms. 45

Table 4: Main reason given by contact farmers for increased output. 45

Table 5: The Distribution of respondents according to the monetary values of durable consumer goods, livestock and income from the sales of farm output of the contact and non-contact farmers. 47

Table 6: Distribution of respondents according to the amount of money spent in children's education among contact and non-contact farmers. 48

Table 7: The Distribution of number of months food were held in store after harvest for contact and non-contact farmers. 49

Table 8: Distribution of respondents according to the amount of money spent on food per day. 50

Table 9: Comparisons of the mean values of the average income of contact and non contact farmers. 51

Table 10: Pearson correlation analysis of the relationship between selected variables and gross farm output of the DDS contact farmers. 52

Table 11: Stepwise regression analysis on gross farm output of contact farmers and institutional factors. . . . 53
Table 12: Pearson correlation analysis of selected variables and level of living of DDS contact farmers. 55
Table 13: Stepwise analysis of farmers level of living and institutional factors. 56
Table 14: Major problems facing the two categories of farmers57
Table 15: Pearson correlation matrix of the variables used in this study. 59

LIST OF FIGURES

Fig. 1 ORGANIZATIONAL CHART OF Diocesan Development Services. 36

CHAPTER ONE

1.1 INTRODUCTION

For many decades, the mainstay of the Nigerian economy and indeed, the largest foreign exchange earner, was agriculture, through the production and sales of cocoa rubber, palm produce, groundnut and cotton for export markets. This contribution to the national economy was made possible by the efforts of the Nigerian rural population. It can therefore be said that rural population in Nigeria was responsible for the provision of infrastructural facilities for cities and towns - infrastructure and facilities that were far beyond the reach of rural dwellers themselves (Alubo, 1987).

This development was made possible through the imposition of tariffs and taxes on the rural cultivators. Yet thousands of rural communities were and are still going through social decay, with most homes partially empty, occupied by aged men and women, with the young men and women fleeing the rural area in hundreds.

As long as the rural area remains depressed and neglected in the tide of development, deprived of amenities, with unemployment and underemployment endemic, and plaqued with a low level of income, so long will there be a strong tendency for our young people even those with only a smattering education to seek their fortunes in towns. Williams (1973) observed that since the towns are not yet ready to absorb the large number now entering the labour market, unemployment is merely transferred from the rural areas to the urban areas. This results in slums which are features of many Nigerian cities.

Leagans (1974) speaking on the need for rural development in America, said "the growing significance of rural development has emerged in recent years as perceptions in trends in the quality

of living become clear. If there is no sound rural development it become painfully obvious that there can be no balanced national development. Put differently, the only measure of a national development is the proportion of its rural sector that is undergoing transformation.

It is the realization of these obvious facts that the successive governments in Nigeria have articulated strategies to rectify the unbalanced national development. Some of these strategies among others include, price incentive, credit policy and mechanization policy. Others are, extension services, Agricultural Development projects and of late, Directorate of Food, road and Rural Infrastructure. All these developmental strategies are similar in character and are better known for colossal waste of public fund, corruption and personal enrichment (Esman, 1984).

For instance, Ega (1988), In his study of Ayangba Agricultural Development project reported that after four years of the commencement of the project, an evaluation of the extension activities revealed that only fifty percent of the contact farmers received the stipulated forthnightly visit. The investigation also revealed further that about twenty six percent of the visit were for other social reasons rather than the primary concern of extension. Twenty nine percent of the farmers in the areas reported not to have seen the extension agent throughtout the farming season. Also adoption of recommended practices by the project were partial and complete acceptance of the recommended package were non existent.

These approaches have been found to be generating a new breed of problems. Atala (1981) reported that in Funtua Agricultural Development Project there were differential access

to extension services. For instance, farmers in the areas served with infrastructure had more access to extension services than those in areas without such facilities. Even within the project area, the arbitrary classification of farmers into progressive, cash crops and small scale farmers created unequal benefits from the project. The so called progressive farmers received more attention from the project than the small scale farmers who are the majority. During the 1979\80 farming season each of the contact farmers got between fifty and a hundred bags of fertilizer and non contact farmers got between three and five bags. Such arbitrary classification of farmers resulted in an unequal distribution of the benefit of the project. This development tends to keep a large proportion of the rural areas in a vicious cycle of poverty. Gana (1982) observed that the problems of rural poverty defies solution, millions of people still live in absolute poverty in whatever ways and means we may define the term.

Food production in Nigeria since the advent of oil boom has not been keeping pace with population increase. This was due partly to the neglect of agricultural sector and the adoption of strategies that were irrelevant to the food need of the rural majority of Nigeria. It is evidently clear that the issue of feeding a teeming population of over eighty five million and improving income earning capacity is a serious problem that cannot be solved by government alone.

The Non-Governmental Organizations (NGOs) since the 1970s have been assisting to complement the efforts of both the local, state and Federal governments in rural development in various parts of the country. These organizations among others, include the Red cross Oxfams CARITAS, Lutheran World Federation, the

Methodist Church, Anglican Church, Young Farmers Clubs and co-operative societies. A good number of schools, hospitals and agricultural establishments in Nigeria are living testimonies of the involvement of these organizations in the upliftment of Nigeria's rural sector.

Some of the rural areas in Nigeria that are privileged to be served by some of these non-governmental organizations now enjoy some benefits such as rural infrastructure and input supply as well as credit availability. These organizations may be considered as having some inherent superior characteristics regarding their achievements judging from their lean financial resources and high level of successes relative to the government agencies. The purpose of this study is to assess the impact of one of such organizations, the Diocesan Development services in Idah LGA of Kogi State.

1.2 STATEMENT OF THE PROBLEM.

The Diocesan Development Services (DDS) is a non-governmental organization of the Catholic Church working in Kogi State. DDS represents the development branch of the Catholic Diocese of Idah. Its structure and functions are guided by Christian principles and Catholic doctrine of justice and equality. However, the DDS reaches out to all people, Muslims, animists and other Christian denominations. Also the staff include non catholics (DDS, 1990).

The DDS was established in 1971 in the church's quest to be relevant to the situation it found in Igala land which may be considered as one of the poorest areas in Nigeria. Abject poverty, malnutrition and diseases are the common features of the area.

According to Mcnamara (1980), the organization was designed to focus on the poor, the deprived and backward people in the area. Funding is meager and comes from donation from generous and kindhearted individuals, mainly from foreign countries. It has Idah town as its headquarters and branches in Ayangba and Ankpa, (Okanebu, 1980). The major thrust of DDS is agricultural development.

The DDS initiated a savings scheme in 1977, which forms the major means of capital accumulation as well as useful collateral for the agricultural credit scheme. This scheme is enjoying a repayment rate of 99%. The organization evolved a model of on-farm extension research programme titled Farmers' Level Agricultural Innovation and Response (FLAIR). The programme introduced a number of ideas such as new crop varieties to the farmers for adoption on their farms. DDS on-farm trials also allow the DDS to spread the new crop varieties over a large number of farmers so as to ensure that many people may have access to the new crop varieties. This programme also allows the organization to collect yield data which can be used to judge the performance of the various varieties.

In addition to agriculture, DDS has a substantial primary Health care (PHC) facilities mainly in Ankpa areas. Other activities include the establishment of village water project, women and youth training schemes and also care for the disabled persons.

Latest in DDS's approach is sustainable research and extension, relying more on the farmers than on a large number of staff. Extension farmers (EF) in this approach are farmers who participate in the activities of the DDS on part time basis, helping in the management of FLAIR trials in their areas. The

extension farmers (EF) benefit from the DDS by gaining access to new technologies. The approach is aimed at improving the technological know-how and skills to bring about a break-through that could lead to greater output and improvement in the standard of living of the target farmers. Despite the organization's long involvement in agricultural and rural development in general, no systematic effort has been made to investigate its effects on the output and standard of living of the target farmers. The result is that there is a dearth of basic information about the organization and its agricultural development efforts.

This study therefore attempts to provide answers to the following questions.

(1) what is the organizational structure and mode of operation of the DDS?

(2) to what extent has DDS influenced adoption of improved agricultural technologies and raised the level of living of the target farmers?

(3) what are the factors limiting the level of success of the organization?

1.3 Objectives of the Study

The broad objective of this study is to evaluate the impact of DDS in Idah Local Government Area. Specifically, the objectives of the study are:

i. to describe the organizational structure of the DDS and determine the extent to which it meets the set goals of the organization.

ii. to determine the impact of the extension activities of DDS on adoption of recommended agronomic practices, farm output and the level of living of the target farmers.

iii. to identify factors that are associated with the level of success of the organization.

iv. to offer suggestions based on the findings of this study.

1.4 GENERAL HYPOTHESES

Farmers covered by the DDS do not have better standard of living than those not covered by DDS extension activities.

SPECIFIC HYPOTHESES

1. There is no significant relationship between DDS extension activities and farmers gross output:

2. There is no significant relationship between DDS extension activities and the farmers standard of living.

1.5 Justification of the Study

The knowledge of impact would help to determine the level of achievement of the objectives of the orgaization. It is obvious that for any organization to justify its existence, its impact on the target population must be known.

Indeed, the continuous existence of DDS can be seen as having to do with the extent to which it contributes to increased level of output and create an atmosphere for improvement in the level of living of the farmers.

The thrust of this study was on shedding light on the structure and performance of DDS. The study also focussed on the issue of organization and operational mode of the organization so as to enhance our understanding of the processes at work and shed light on areas requiring modification.

This study was expected to fill the gap created by the present dearth of data on the impact of DDS in Idah local Government and improve understanding of the role of similar organizations in agricultural development.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 CONCEPT OF AGRICULTURAL EXTENSION

Agricultural extension as an integral component of agricultural development is defined by Seville (1964) as the service given to a farmer and his family with minimum government assistance to raise his standard of living through his own efforts and resources. Farqular (1962) defined it as a service or a system which assist farm people through educational procedure and improved farming methods and technologies to increase production efficiency and income thereby enhancing the level of social and educational standard of living of rural life. Both definitions emphasized increased production as well as raising of the standard of living, Maunder (1973) see extension as voluntary, an informal out of school learning which can take place anywhere. Agricultural extension is also considered as educational because it helps to improve knowledge which is useful to the farmers. Agricultural extension is concerned with training and influencing farmers to accept and adopt new ideas. It is therefore a link between research stations and the farmers. It seek to motivate farmers to desire information but it is different from other learning procedure because it does not concern itself only with learning but the application of the knowledge gained to every day rural living problems.

The hallmark of extension efforts is to change behaviour leading to increase in production, better living standard and strengthening of national economy. It is not only saddled with the responsibilities of securing adoption of innovation but a change in the farmers outlook.

The success of extension is measured by its ability to

change a rural area to a dynamic setting. The importance of extension can be summarized in the extension philosophy as follows:

1. Analyzing with the people the problems the programmes are designed to solve.
2. Informing them about the technical and other resources available.
3. Explaining to them why the programmes are desirable.
4. Obtaining commitment from the people to co-operate.
5. Organizing the people to make use of the resources available.
6. Obtain the views of the people about the programme.
7. Training leaders for local administration of the programme to the extent practicable (Maunder, 1973).

2.2 AN OVERVIEW OF AGRICULTURAL EXTENSION IN NIGERIA

The conscious efforts at establishing a modern scientific agriculture began with the establishment of Botanical Garden by the British Colonial Administration in 1893, with Olokomeji being made the headquarter in 1903. In that same year, a station for the British Textile Industry was established at Moor Plantation Ibadan. Moor Plantation became the headquarters of the department of agriculture in Southern Nigeria in 1910. By 1912 Samaru was made the headquarters of Northern Nigeria Department of Agriculture. This marked the beginning of what Williams (1980) called extension in embryo. The first three decades of the so called organized extension services was associated with the experimental production of export crops carried out by local agricultural workers who travelled by foot and bicycle visiting farmers from village to village, the main mission was to advise

farmers particularly the export crop farmers and also enforcing government rules and regulation on farmers, extension agents at this stage lacked scientific information to extend to the farmers(Atala, 1981). As a result, not much was achieved, perhaps the only achievement during this period was spread of the fact that agriculture is a science and that it could be improved through scientific investigations and practice (Akinbode, 1980).

In 1921, following the amalgamation of the Northern and the southern protectorate of 1914, Samaru and Moor Plantation became research stations. The Federal Department of Agriculture has as one of its objectives, the establishment of elementary extension services. This development was followed by the opening of schools of agriculture at Moor Plantation and Samaru in 1921 and 1931, respectively. These schools of agriculture were great a boost to the development of extension in Nigeria. It must be mentioned however, that extension efforts were concentrated in the areas of production of cash crop at the expense of raising the living standard of the rural people in 1927. In Kano and Zaria provinces,
mixed farming extension began but it did not make much impact (Forest, 1978). This was probably because export crops were the main focus and extension activities were concentrated around the ruling class to whom farming was not the major source of income. This resulted in the underdevelopment of food crops.

As the country moved into the sixties, there was the need to seek for better policies that could make the country self-sustaining. This search led to changes in management strategies and the need to be self-sustaining as a nation in food and export crops resulted in setting up of special units of extension in the south to cater for rubber and cocoa production (williams,

1980). This special unit took care of the export crops and the general extension was left to advise farmers in the production of food crops. It became obvious that for any meaningful progress to take place in agriculture, good road, water, health care services, electricity and housing were essential. In an attempt to achieve increase in production, the integrated approach was adopted in the 1970s. The establishment of research institutes were great assets to the adopted approaches. Agricultural extension service units Agricultural Extension and Research Liaison Services (AERLS) were established in each of the institutes to link the research and farmers.

Despite all these efforts evidence has shown that the performance of Nigerian extension services were unsatisfactory. However, the failures of or the poor performance could not be blamed on the extension personnel, but on the environment the extension found itself. Akinbode (1980) viewed extension failures as caused by long decision making processes, unavailability of farm inputs, lack of personnel motivation, insufficient research delivery system and farm education.

The performance of extension was further weakened when research and extension were placed in different ministries. This breakage in the institutionalized linkage between extension and research in the ministries led to the alienation of extension personnel, considering the recognition and faster career mobility accorded to research personnel (Akinbode et al, 1979).

Despite the poor performance of agricultural extension in Nigeria, its role in rural development is crucial to the development of the country in general, considering the huge proportion of the Nigerian population that is still rural.

Evidence has shown in literatures that non-governmental

organizations are involved in extension services in some parts of the country. Such NGO's are the Nigerian Tobacco Company, Philip Morris and Church Organizations like the Evangelical Church of West Africa (ECWA), Diocesan Development Services (DDS), and Norwegian Church Relief Agricultural Project (NORCARP). These organizations have been reported as achieving a high degree of successes in agricultural extension activities.

2.3 CONCEPT OF NON-GOVERNMENTAL ORGANIZATION

A non governmental organization is defined by the World Bank as those private, profit or non profit organizations outside of government. Formed by organizations, communities or individuals to respond to basic needs not being met by the government, some produce goods others deliver services and some of the largest do a combination of both (World Bank, 1990).

Some of these organizations are religious and others secular, some indigenous and some foreign. Their primary aim is the alleviation of human suffering and they assist in the development of poor countries. For the purpose of this review, emphasis will be on the voluntary, non profit organizations that mobilize the enthusiasm and commitment of volunteers to the objectives of the relief of suffering and involvement in development activities. These organizations are well known in the advanced countries for their educational and advocacy programmes where they draw the attention of the public to the need of poor countries. Equally, they are known for their work on projects both for production and services. These organizations which are usually good at reaching and mobilizing the poor, use participatory bottom-up process of implementing projects and help poor people to gain control over their lives.

Some of them, because of their motivations and comparatively small operations, are more adaptable and sensitive to local conditions and therefore better suited to promote self reliance.

Some of these organization lack co-ordination in their various activities. This is so because of decentralization and resultant overlaps and gaps. NGO's can be overtly driven, for example, by project objective and consequently give insufficient attention to the priorities of local population. This imposes undesirable option on local communities and endangers several other core NGO's values. Further more, their projects are not easily replicable and are in sufficiently concerned with long term impact.

2.4 THE ROLE OF NGOs IN DEVELOPMENT PROCESSES

Throughout the third world countries numerous NGO's are working in different fields and are noted for their strong link with rural communities (Chamber, et al, 1992).

For instance, the post colonial African states have failed to deliver development to the people thereby providing challenge for NGO's to take their present form. NGO's are proliferated both in number and geographical coverage and functions. All kinds of NGO's that were in refugee and relief work now do all kinds of work.

The emerging role of NGO's in West Africa must be seen in a historical context, an important element of which is the fact that much of the agricultural technologies available for West Africa has for long been considered inappropriate or poorly adapted especially for small resource poor farmers. Research institution and researchers have carried much of the blames for this situation. In more recent years, "Farmer participatory

research" has been offered by some as alternative model for integrating farmers' concern and the farmers themselves in the identification, development and evolution of agricultural technology (Chamber et al op. cit). The role of NGO's in the third world particularly in Africa may be considered developmental and advocacy because they help present the African cases to their home countries for support, to back their work in Africa. A few of these NGO's are involved in solidarity work in Africa some of them for example have been supporting the liberation of Zimbabwe and South Africa. They are quick at identifying gaps whether thematic or spatial left by government services in any country they choose to work.

The concern of NGO's in rural communities is to promote self reliance and alleviate poverty. They enhance local organizational capacity through community education to enable local people to conceptualize and articulate their needs within the wider political and economic structure of the region. They promote self reliant economic activities through the provision of credit, input and market facilities. In their interaction with farming communities they are often concerned with identification, testing, adapting and disseminating locally appropriate technology. NGO's are becoming increasingly involved in devising new participatory technologies for technological development and extension especially tailored to the needs of the small scale farmers.

Farington and Amanor (1990) identified the efforts made by the NGO's in research and extension services in difficult farming areas as follows: The creation of a philosophy of agricultural development which is critical of conventional development; promotion of a more sustainable agriculture rooted in ecological

perspectives; action concerned with preserving local farming system, local cultivars, genetic diversity and minimizing expensive external inputs; building up of indigenous knowledge system and providing alternative to chemical fertilizer, pesticides, and modern varieties; Development of new research and extension methodologies to adapt technology to local needs. They (NGO's) are always impressed by the knowledge the local people have of their environment and their innovative abilities and so have attempted to develop local institutions and training facilities to strengthen these capabilities in which they are catalyst to local initiatives.

In addition, they build research capabilities and foster linkages with national agricultural research services to provide technical option which the NGO's with participating farmers or farmers' groups can try out and adapt to local conditions.

FAO/FFHC (1987) reported that in a practical sense, NGO's do not have a purpose in themselves, they exist as a function of the social sector they intend to serve. The characteristic of this sector will define and condition the purpose, methodology and the very nature of the NGO's, their projects and programmes. The NGO's in Latin America, for instance, function in relation to the pressing needs of the people and so serve a role that is unique and peculiar to the environment they serve. They were primarily linked to the action of the Catholic Church, inspired by its doctrines. The Church related NGO's were concerned with the visible consequence of social injustices and inequality. This symptomatic vision of society led them to engage in charitable and a form of action, to help the people develop themselves as the subject of their own history and autonomously build their own self reliant development project. This in the view of FAO/FFHC

(1989) is the most comprehensive definition of Latin American NGOs. Organization of social movements is in fact the most important function of the NGO". They are the most eloquent expression of the peoples' needs to gather forces and fight for their right. In Latin America, many members of NGO" derive their current commitment with people's cause from past experiences in political action in the framework of parties and groupings. They were moved by the conviction that organization carry the true vision of how to fight and win the struggle for liberation, therefore, Latin American NGO" concern themselves with questioning, raising consciousness and providing the people with the practical and theoretical tools that allow them to maximize their potential and autonomously face the challenges of development.

In Africa, the NGO" focused their attention on the most pressing needs of the people. This vary from region to region. In Burkina Faso, for instance, an NGO emerged from the desire of some people in a region to contribute in some ways to the development of their areas. These people identified the most pressing need of their areas to be erosion control. They developed erosion control strategy within their general policy, taking into account the successes and failures of the traditional erosion control and guided by the government rural development policy. Their strategy is based on taking into account the farmers need and the diversity of natural processes occurring (PNG TV, 1992). Farmers participation at all levels of the process is the foundation of this strategy. In order to ensure effective participation, the NGO usually intervenes only at the request of a village or group of villages. Their strategy begins with awareness raising phase, followed by discussion meetings to

choose activities where matters of participation are discussed.

Within this strategy the criteria for selection of techniques are as follows a) simplicity of the technique itself, b) ease of replication c) low cost d) potential for use even by the poorest e) and immediate obvious benefit.

The impact of the NGO's in Kenya and Zimbabwe are being felt in areas of agro-forestry and ecological agriculture with small farm organizations being promoted (IFAD/IFAP, 1988). While in North and South East Asia activities of NGO's are most noted in the area of irrigation management (Vermillion, 1989).

In Nigeria, Bonat (1990) in the study of the role of non-governmental grass root agencies (NGGA) in Kaduna state found that the (NGGA) made a positive contribution to the rural development of Nigeria through the provision of much needed infrastructural facilities to the rural communities in which such NGGA operated. These facilities include the supply of farm inputs, technical skills and the enhancement of the living standard of the rural dwellers. In a related study, Obibuaku (1983) reported that the Norwegian Church Relief Agricultural Project (NORCARP) contributed greatly to the improvement of infrastructual development and the general living standard of the people of Abakiliki areas. Similarly, in Kwara State over the period 1969-1974, the total cost of self help activities by different organizations was about 20 Million Naira of which the NGO's' contribution was over 90% (Awogobade, 1980). The NGO's had in the past decades made substantial contributions toward the alleviation of poverty and raising the standard of living in virtually all the third world countries. They are actively involved in this human endeavour to date. The involvement of these organizations in some selected African countries is

instructive. In Angola, for instance, between 1974-1975 Direct Relief Foundation (DRF) spent $11,876 in the improvement of health supply delivery in rural hospitals and health resource centres.

In Ethiopia, Oxfam a British NGO spent £119031 on various projects that were targeted toward increasing the standard of living of rural people in that country between 1974-1977 (United Nation, 1977). Similarly, another NGO working in Ethiopia called Lutheran World Federation/Department of World Service (LWF/WS) spent a total of £476009 on the same project about the same period.

In Nigeria, between the period 1975-1976 Oxfam and DRF alone spent,£12,220 and $176,130, respectively on projects that were to raise living standard of rural Nigerians at various locations. In Zimbabwe, for instance, Organization of Rural Association for Progress (ORAP), had as one of its objectives the need to raise the living standard of communual people and thus achieve self reliance.

The expenditures of NGO's in Third World Countries is substantial and questions are asked as to whether this huge spending has any measurable impact on the people? This study is addressing this very important question in relation to the impact of DDS in Idah LGA.

2.5 THE CONCEPT OF IMPACT

Impact can be defined more broadly than goal attainment as long term influence on the state of the environment surrounding an organization (Kanter el al 1981). Mulford et al (1977) argued that it is important that programme evaluation should devote more time to the efficiency with which goals are achieved and the

impact programmes have on the environment determines the organizations' confidence and credibility. Brumback et al (1978) see impact as synonymous with end result. It is interchangeably used as outcomes or results. Measurement of impact has been done objectively and subjectively or both. Subjective measures of impact is used in the study of extension organization in analyzing the perception of client regarding given services. Objective assessment, on the other hand, measures the rates of adoption of new technology. This is commonly used in adoption diffusion studies. According to Katz et al (1975), perception of impact study is one means of demonstrating the quality of service provided by the organization. Such perception are designed to provide an organization with feedback from the relevant public the organization is serving.

The objective of any extension organization is to increase production and hence income of the farmers. It is, therefore, imperative to look at the immediate end result of the efforts of the extension organization.

Measure of client satisfaction was proposed as means of establishing focus on impact. A model of effectiveness based entirely on client satisfaction was first used by Katz et al 1975. in their study of government services. It must be mentioned, however, that the role played by extension services is conditioned and influenced by relevant factors which to a greater extent determines effectiveness. Ladewig (1983) asserted that if efforts to measure impact of extension organization are to provide any meaningful results they must be based on multi-dimensional framework. This framework should reflect the major activities involved in carrying out the extension mission.

Reynolds (1970) suggests that the impact of an organization

could be determined by these indicators, namely:-

1. Change in attitudes and knowledge.
2. Information seeking behaviour of the client system.
3. Changes in individual behaviour toward the activities of the organization.
4. The resulting outcome of the organizations programmes on the target populations, that is, the indices of economic or general well being of the target group.

Whether the goals of an organization are being achieved or not depend on the attributes of the innovations, the socio-economic characteristics of the clients (Rogers, and Shoemakers, 1971; Fliegel and Kelvin; 1966).

Calson (1964) also observed that although clients participate in the activities of an organization at their discretion, there is need to consider other factors like support agencies in determining success or failure of an organization.

Jibowo et al (1978/79) in an empirical study used an approach involving the participants and agents, programme activities and the environment and the characteristics of all involved to assess the impact of Isoya Rural Development Project.

Therefore, in assessing the impact of agricultural extension programmes on farmers' agricultural behaviour is a function of several variables covering socio-economic characteristics of the farmers and institutional and environmental factors. (Akanya, 1989). Socio-economic characteristics of farmers would affect their request, utilization of services from an extension organization (MCKINLAY, 1979). (Alao, 1971; Voh, 1979; Atala, 1980) found out that certain socio-economic factors like household size, formal education, farm size, income, cosmopoliteness and community status were related to adoption.

Daramola (1988) in his study of the impact of the various elements of a recommended farm practices found that supply problems, ignorance and poor level of farmers' education were responsible for farmers not adopting the recommended agromomic practices. Atala and Abdullahi (1988) were of the opinion that adoption behaviour of farmers were a function of their inability much more than their unwillingness to accept improved farm technologies. According to them, the major factors limiting the use of recommended farm practices were inadequate extension contact, inadequacy of input supply and lack of credit.

D'Silva and Raza (1981) reported in their study of Funtua Agricultural Project that standard of living is positively related to socio-economic and institutional factors of the farmers. In a study of a comparative job performance of special extension agents and general extension services of Midwestern Nigeria, Ekpere (1974) found job satisfaction to be related to the organizational effectiveness.

In conclusion, the various dimensions for assessing impact include the rate of adoption of recommended agromomic practices, farm output and the level of living of the farmers.

2.6.0 THEORETICAL FRAME-WORK

Various prospectives have been used to interprete and explain the nature and process of change in the rural sector. For example, the modernization theory based on social change is a process in which new ideas and alterations occur in the structure and function of a social system (Roger and Shoemaker, 1971). In most developing countries, the theoretical assumption underlying the planning and execution of change programmes is the modernization approach. This approach focuses on the premise that change will occur when there are changes in technology,

level of capital investment and market demand.

The approach further stressed that to achieve the goals of change, programmes, such as modernizing agriculture, must pay close attention to the attributes of the innovations and socio-economic characteristic of the clients (Farmers).

In this approach, emphasis is on changes that could lead to increase production in agriculture. However, modernization of agriculture could create an unbalanced national development and affect the welfare of the people as exemplified by Green Revolution in Asia, Latin America and some parts of Africa.

In these instances, adoption of modernization strategy in agricultural production was based on the assumption that the programme designed to increase agricultural production must resolve the problems of welfare or social equity and increased agricultural production through some "trickle down" effect (Ega, 1981).

Modernization theory is a simplified model of development which lacks two essential ingredient: adequate historical input and a structural perspective. Nevertheless, this theory underscores the diffusionist approach which defines the extension strategies in most developing economies.

Diffusionist approach defines the process by which innovations spread or are communicated in certain channels to the members of a social system, that is, the process of spread of innovations or new idea from it source of invention or creation to its ultimate user or adopters (Rogers, 1983). This process consists of four main facets/elements: the innovation; communication; timeframe and the social system.

An innovation is an idea, practice or product that is perceived as new by the potential user or adopter, something that is new by the perception of those confronted with it. What matters here is not the time of the invention of the idea,

practice or product but rather the perception of novelty by the end users. Thus, an innovation is relative, what is new to a person may not be new to another.

All innovations have characteristic as perceived by their potential users. Which further affect their rate of usages. Innovation must be compatible to the existing system, must be triable, accessible, divisible, observable and simple to gain popularity among users.

The third element of diffusion is time. The spread of an innovation is also characterized by time factor. It is not all individuals in a social system that adopt an innovation at the same time. It takes a process to get members of a social system to adopt an innovation. Adoption process is the mental process through which an individual passes from first hearing about an innovation to the final adoption. This process follow time sequence or stages. These stages are awareness, interest, evaluation trial and adoption. Some individual are faster than others in adopting an innovation. The degree to which an individual is fast in adopting new ideas than others members in the social system is called innovativeness. The different times within which members of society adopt new ideas can be used to classify them to adopter categories. The categories are innovators, early adopters, early majority, late majority and laggard.

For an innovation to be adopted, there must be dependable source of input supply. That is, agricultural organisation which ensures regular supply of these inputs. Adoption is defined as the extent of acceptance and use of improved agronomic practices.

It is not true for all indidivual to adopt improved practices at the same time in a social setting. Rather, they accept innovations in an ordered time sequence. Adoption period is therefore used to depict the length of time required for an individual to pass through the adoption process from awareness to adoption. This is measured in days, months or years. Rogers (1962), Hobbs (1960) and Katz (1961).

As a result, adoption impact of agricultural extension programme may also vary from farmer to farmer.

From the above explanation, communication is important to diffusion. Communication is the process by which messages are transferred from a sender to a receiver. There are five major elements necessary for the process to be successfully completed. These are - the sender, the message, the channel, the receiver and response.

Communication is more effective when there is a homophilous relationship between the sender and the receiver.

In an agricultural organisation, extension contact forms avenue through which the organisation communicate with the farmers. Rogers defined extension agent as an individual who influence client behaviour and serve as a linkage between change, agency and client system. A major concern of agricultural extension programmes is to transfer improved agricultural innovation to farmers. This depend to a large extent on the frequency of contact between farmers and agents.

For the farmer to be able to effectively translate the information into action, he needs credit. Agricultural credit determines the impact of agricultural development activities. Credit is defined by Nelson (1967) as the vehicle for rural

development. It is a general concensus among scholars that due to low level earning among farmers in most developing countries, the propensity to save is low. Credit must be made available to farmers to facilitate access to inputs.

The relevant of change efforts is measured by the amount of transformation witnessed in a social system. Such facets like gross farm output and the level of living of the farms. Atsu (1977), defined gross farm output as the total output of crops grown by farmers over a period of time. The ability of a farmer to improve on his output may be a function of his mental being, skill and exposure to extension agent as well as access to input supply it will therefore be expected that there will be relationship between gross output and socio economic and institutional factors.

While level of living is defined as all things contributing to the quality of human existence (Smith, 1977). Atala (1980) expressed level of living as the material and impersonal resources which individual possess and use to meet his physical, psychological, social and economic condition or needs. An increase in farm income is a measure of an increasing level of living D'Silva and Raza (1987) use material possession as a measure of increased level of living. Farming is the main source of living for farm families. Since farm output is related to some selected socioeconomic and institutional factors, level of living is expected to be related to these variables.

Social system is the last element of diffusion. This refers to a group-of individual that are functionally differentiated and are engaged in a collective problem solving behaviours. Although members of a group may constitute a social system, each of the

members can be differentiated from others. Yet, all the members do co-operate to the extent that they have a common problem which they want to solve. For example, farmers in a local government area or state may constitute a social system so long as they engage in collective problem solving behaviour. Social system influence the diffusion process. That is, the norms of a social system and the status of individual affect the diffusion of ideas. A norm is defined as most frequently occurring accepted pattern of behaviour expected from individual members of a social system. When the norm of a social system is traditional it will discourage adoption of new ideas, if they are modern, they may encourage the use of innovations.

In a social system, ideas may spread through some individuals. These individuals are called opinion leaders. Opinion leader are individuals from who other seek information and advice. In some cases, they may belong to same professional agencies. In such cases, they are referred to as change agents for example an extension agent who lives in a village or community of farmers (Social system) but could at the same time be representing an Agricultural Development Project. Some individuals identify with change agent and scientists, to a greater extent than others. Other individuals interact with early adopters, develop a similar self- identification, and eventually become more like the persons with whom they interact.

In the model of diffusion of innovations, perception is the key concept that can lead to understanding the process of diffusion. Perception is a function of situational fields within which the individual operates.

This study goes beyond the modernization approach and takes

into consideration the historical and processual context of development; it examines personal as well as institutional factors such as agricultural credit, extension contact, access to improved planting materials and yam minisett technology, use of fertilizer, herbicides and seed dressing. Also the social organisation of agriculture and the impact of agricultural extension on farmers' gross farm output and level of living were examined in a global context. The multi-dimensional aspects of development was taken into consideration.

CHAPTER THREE

3.0 METHODOLOGY

This chapter discusses the area of the study the method of data collection, sample size and sampling procedure. It also focuses on the analytical techniques employed.

The Area of Study

Idah Local Government Area was selected for this study. The selection was based on the fact that the L.G.A had the longest contract with DDS, being the first Local Government Area in which the DDS was established.

Idah Local Government is located in eastern part of Kogi State. It has months of effective rainfall and a dry season period of 4 months. The area is within the derived Savanna zone with patches of relic forest on humid soils of valley bottom and forest reserves. It is bounded on the western part by the River Niger which forms a natural boundary between Idah and Edo State, in the north by Ofu Local Government Area and in the east by Enugu State and in the South by Anambra State.

Agriculture forms the principal means of livelihood of 80% of the population. Farming is the traditional occupation with emphasis on the cultivation of good crops like yam, maize, rice, cassava and millet. Farmers in the area keep livestock like Sheep, Goats as well as poultry on a free range system.

3.1 METHOD OF DATA COLLECTION

Malton (1970) observed that record keeping by the farmers is highly rudimentary. The study area is not an exception. For the lack of record keeping in the study area, data for this study were mainly obtained through a survey questionnaire and structured interview administered by the researcher.

The assistance of the staff of the DDS, particularly the

extension staff and the coordinator were sought to ensure access to the respondents. In addition, published materials of the organization were consulted to gather information on the structure of the organization to provide supplementary data to the field data.

3.2 SAMPLE AND SAMPLING PROCEDURE

Ten villages were purposively selected for this study, while systematic sampling with a random start was used in the selection of the respondents.

The following criteria influenced the selection of these villages.

1. All the villages are predominantly agricultural.
2. The selection were to ensure coverage of the entire Local Government Area geographically.
3. The DDS does not have project in all the villages selected. Five villages where DDS has project were selected for this study. These are Alla Okweje, Ugwoda, Onyedega, Inemeh and Inachalo. Villages where it does not have project are Ibochi Imere, Atenegoma Oforachi and Alade. It is assumed that this differentiation would make a difference in the degree of exposure to DDS extension activities.

In villages where DDS has projects, the DDS extension farmers were asked to submit lists of their contact farmers. From each list or village, ten household heads were selected and interviewed giving a sample size of fifty farmers from the five project villages. On the other hand, ten household heads were randomly selected and interviewed from the five villages where DDS had no project. This brought the total number of farmers interviewed in both projects and non-project villages to one hundred respondents. Also twenty extension agents, ten each from

the DDS organisation and government extension were interviewed to generate comparative data on their perceptions of their respective organisations in January, 1993.

3.3 ANALYTICAL TECHNIQUES

Three sets of statistical tools were used to report the findings of this study. Descriptive statistic like percentages, means and standard deviation were used to report the impact of DDS extension activities on farmers' adoption of agronomic practices, gross farm output and standard of living.

To determine factors that may be associated with the level success of the organization, Pearson Product Moment Correlation was used to show the relationship between variables while Stepwise Correlation procedures were used to show the degree of relationship between variables.

Finally analysis of variance was used to compare the mean values of the average income of contact farmers and non contact farmers.

The statistical level of significance of the relationship between the variables will be at .05.

3.4 OPERATIONAL INDICES

Extension contact was measured as the number of visits by the extension agents to the farmers as reported by the respondents.

3.4.1 AGRICULTURAL CREDIT

In this study credit was measured as the total amount of money borrowed from sources like banks, money lenders, relatives and friends during the 1992/93 cropping season.

The main dependent variables are adoption of improved farm practices of the target farmers, gross farm output and level of living.

3.4.2 ADOPTION

This was measured as the total number of innovations the farmers reported using. Equal weightage was assigned to each practice with the possible score ranging from 0-6. The innovations were improved planting materials (improved rice varieties, improved Cassava Varieties and improved Maize Varieties; Seed dressing yam minisett technology; use of herbicides; use of fertilizer; and storage chemicals.

3.3.4 GROSS FARM OUTPUT

The variable was measured as the total farm output accruing to the farmers per crop during the 1992/93 cropping season. The crops considered were maize, yam, rice and cassava, quantified in monetary terms.

3.4.4. LEVEL OF LIVING

The respondents were asked questions about their gross farm income in the year 1992/93 cropping season and their ownership of items like transistor radio, bicycles, motorcycle, goats, sheep and poultry and also the prices of the items. Also they were asked the amount of money spent in funding their children's education. These were added to the gross income to determine the amount of money the total capital outlet to the farmers and also to obtain the individual level of owing of the farmers. In addition, they were asked the number of time food is served in a day as well as the amount of money spent on food per a day so as to be able to measure the effect of increase in income on the living standard of the farmers.

3.5 LIMITATIONS OF THE RESEARCH DESIGN

It would have been appropriate for this study to carry out baseline survey before the commencement of the DDS activities. In the absence of a baseline data from the same group of farmers before the commencement of DDS activities, two sets of farmers were selected for this study. The first set consisted those who benefited from the DDS extension activities and the second set were those who do not benefit from DDS activities Campbell and Stanley (1966) did caution the use of result from this kind of study. According to him, the result must be interpreted bearing in mind the inherent limitations. Data from such study could pose a problem because of external influences enjoyed by farmers considered to be outside or inside the project areas.

But however, these facts were put into consideration in the selection of the ten villages and in the interpretation of data from the villages. During the preliminary survey of the villages, the earlier mentioned criteria were strictly applied to make sure that any form of external influences were brought down to the barest minimum so that inference from the finding can be valid. This was done by selecting villages with similar socio-cultural and financial background for the study as well as wide geographical coverage of the local government area.

Another related issue is the influence of other factors like the financial background and the managerial ability of the two groups of farmers, which might be responsible for the observed differences and so making comparisms baseless as, in the first place, the two set of farmers are not the same. However, the World Bank (1984) appraisal of similar ecological background reported that little variation existed between the farmers in terms of their socio-economic characteristics, financial and farm management skills as well as physical environment. Therefore,

the circumstances of the two group farmers are the same and comparable. Atoza (1989), Yaro (1983) used the same method of analysis to assess the impact of Gombe Agricultural Development Project and Kaduna State Agricultural Development Project.

This study was carried out in 1992/93 cropping season, the condition under which the study was carried out on the farmers might not be the same with what obtain now.

CHAPTER FOUR

4.1 THE ORGANIZATIONAL STRUCTURE AND OPERATIONAL MODE OF DDS

This chapter describes the organizational structure of DDS and it operational mode and discusses its relevance in achieving its set goals.

The organization of DDS in based on a short line of authority as shown in figure 1. The DDS being a Catholic Church based Non-Governmental organization, is headed by the Bishop of Idah Diocese. It has a management Board which is assisted in its activities by the Diocesan Justice and Peace Commission (DJPC), an advisory board to the Bishop. The day to day management is headed by a project coordinator assisted by a deputy coordinator.

There are three basic types of operations in DDS. These include the Diocesan Agricultural Advisory Services (DAAS) headed by a Programme Leader. This is in turn divided into two major divisions: the farmer self-reliance programmes (FSRP) and agricultural innovation programme (AIP). The second operation is the Village Development Programme (VDP) while the third is Water Development Programme (WDP).

All these three key areas in the development strategy of the DDS are headed by Programme Leaders who are senior people with a long experience of development work with DDS. The programme leaders are answerable to the deputy coordinator.

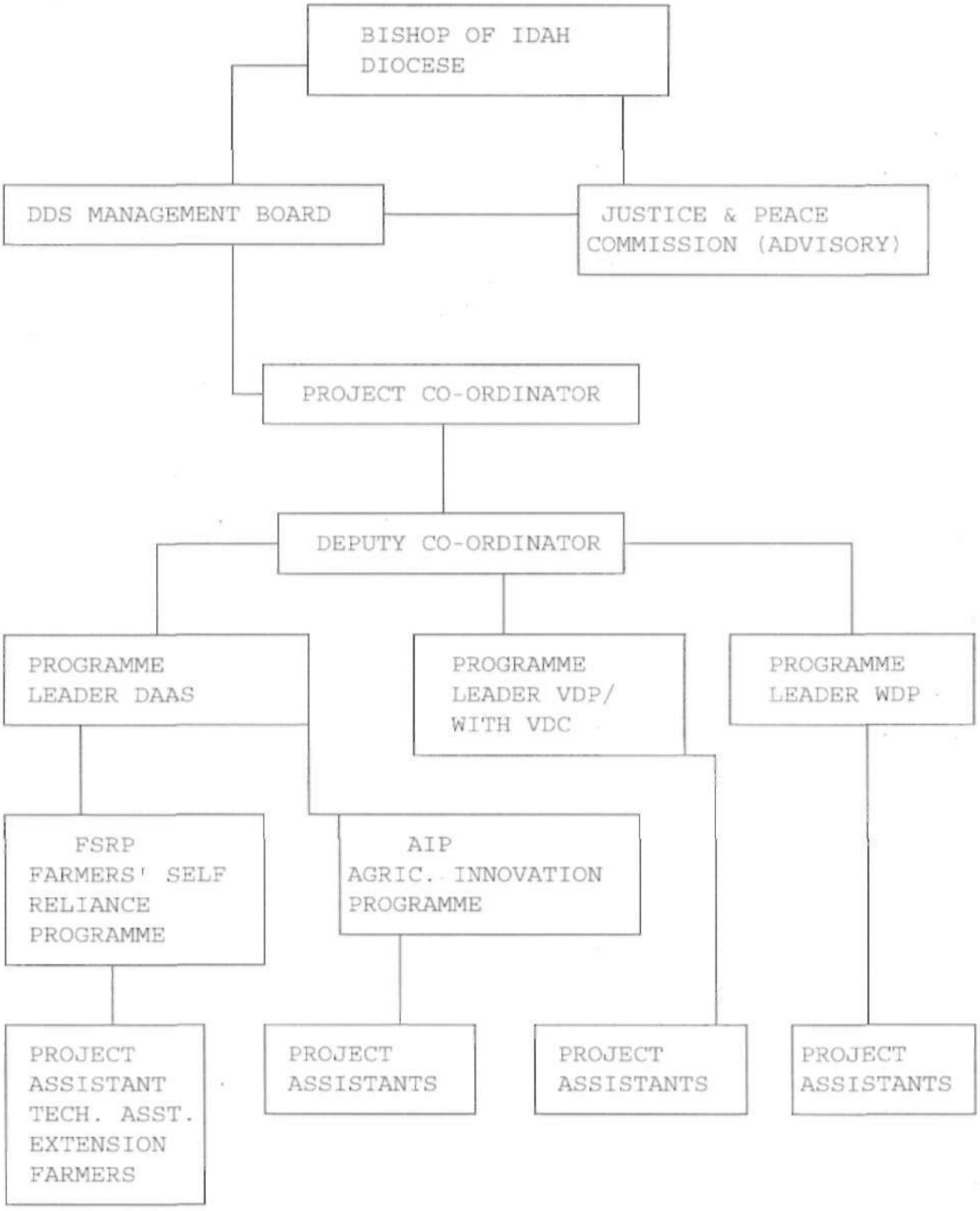
4.1.1 JOB SPECIFICATION OF PROGRAMME LEADERS

1. The farmers self reliance programme: The programme leader heading this division is responsible for keeping the vision of the strategy alive, setting realistic targets with the rural people, ensuring that they supply the inspiration and initiatives for continuing the projects and evaluating constantly to ensure that they the farmers are also involved in a reflective and active ways in their own transformation.

2. Agricultural innovation programme (AIP): is headed by a project leader who also ensures that the vision of the programme is kept alive. The project leader is responsible to the co-ordinator for the overall management and smooth running of the organization.

In addition, the project leader has the responsibility of achieving the goal of agricultural innovation programme of DDS. Under this programme, the DDS operates a seed multiplication farm where seeds are tested, multiplied and eventually released to farmers under the management of a farm manager. The seeds supplied by other Research Institutes like International Institute of Tropical Agriculture (IITA) and Institute of Agricultural Research (IAR) are tested by the farm manager, who is charged with the responsibilities of producing seeds rice, soyabean and yam minisett. The improved seeds produced are for trials and eventual release to the farmers.

FIGURE 1: ORGANIZATIONAL CHART OF DIOCESAN DEVELOPMENT SERVICES



KEY: FSRL = Farmer Self Reliance Programme VDP = Village Dev. Prog.
AIP = Agricultural Innovation Programme
VDC = Village Development Committee
WDP = Water Development Programme.
DAAS = Diocesan Agricultural Advisory Services

Also, the Farm Manager maintains the farm plan, particularly with respect to crop rotation and farm record keeping. The Farm Manager makes his plans of work available to the coordinator who is to monitor, implementation and ensure that the laid down procedure is followed.

Apart from seed production, DDS operates a training school which is also under the management of the farm manager. The training school is a training ground for imparting new practices to the rural farmers. The trainee farmers are usually willing young men with at least first school leaving certificate and with the desire to live in the rural areas on completion of their training. The trainee farmers upon completion of their training, are provided with basic farm equipment by the DDS and some loan to commence farming in their various villages. These trained young farmers are considered as innovators among other farmers in the rural areas. With the skills acquired while on training, these category of farmers function as a medium through which the DDS technologies are carried on to the grassroot levels. These trained farmers provide expert assistance to other farmers in their localities especially in highly technical farm operations like mixing and spraying of chemicals.

In order to maintain the purity of seeds received from International Institute for Tropical Agriculture (IITA) and those produced in DDS farm, DDS employs the services of a seed technologist. The technologist conduct test on the seed to ascertain their viability, vigour, purity, moisture content and quality. This is to ensure that seeds distributed through the extension farmers (EF) to the farmers are of high quality.

The distribution of seeds to the farmers by the DDS is carried out in a systematic manner. DDS areas of operation are divided into project areas. Each project area is headed by a project assistant. There are at present four project areas in Igala land. They are, Idah, Ayangba, Ankpa and Akpanya project areas. Project assistants (PAs) work in close

cooperation with the project leaders in charge of the Farmer Self-Reliance programme (F.S.R.P) and Agricultural Innovation Programme, providing feedback at every level. They facilitate and encourage participation of local leadership in DDS activities and the administration of the project areas. They work in conjunction with the technical assistants (TAs) who distribute agricultural inputs to the extension farmers.

The extension farmers play a key role in DDS programme. They are trained farmers who participate in the activities of DDS on a part time basis. They benefit from the DDS by having access to the new technology it promotes. They help out with management of farmers' level Agricultural Innovation Response (FLAIR) which is the DDS' version of On-farm Adaptive Research. In turn, the extension farmers, under the supervision of PAS, distribute and practically demonstrate to other farmers how best to carry out FLAIR operation. The extension farmers also take feedback from the farmers to the PAS and through him to the head office in Idah from where TAs could be sent out to rectify any problem faced by the farmers.

The DDS gets to the farmers through farmers council. This is a council of farmers within a geographical zone who voluntarily associates with one another so as to be able to have access to the DDS technology. This council is usually made up of men and women who meet once in a month with the DDS extension farmers in attendance thus, representing the DDS organization. This council forms a medium of contact between the DDS and the general farmers within the locality. DDS does not deal with individual farmers but does so through the farmers council.

The DDS officials in various project areas, namely; the project assistants, technical assistants and extension farmers converge at the head office every month for a review of activities and technical training. The technical training is

an in-house training to keep the officials conversant with new ideas and procedures. The outcome of the monthly meeting and training of the officials are discussed with the farmers in zonal meetings. The practice of monthly review and training is useful because it helps to merge sound principles with creative thinking and practices at the farmers' level.

4.1.2 MONITORING AND EVALUATION

Monitoring and evaluation of the DDS on-going projects is done at departmental levels. That is, each unit within the organization monitors and evaluates its own project. Ideally a corporate unit should have been established to monitor and evaluate all the projects of the organization independently. This could produce more objective and accurate monitoring of the projects.

DDS aims at making recommended practices available to its target population within a short time limit and in a simple form that can be comprehended by the farmers.

The line of authority in the organization of DDS is comparatively shorter than the public extension organization. The implication is that the flow of information from the coordinator down to the field level extension worker is much faster and vice versa. This leads to quick implementation of directives for attainment of the set goals of the organization. DDS trains its staff regularly to ensure that each staff within the organization is in a position to deal with the various types of problems arising in his/her areas of operations. This is a deviation from the Ayangba Agricultural Development Project (AADP) approach, where extension agents operated a single task extension method each agent deals only with a particular aspect of farming i.e. single tasking works very well when all other components in the system are competent and efficient, which is not the case in Nigeria.

Furthermore, DDS operates a "bottom up" development approach. It works with individuals, groups and communities to enable them achieve desirable and worthwhile targets. It does not undertake a project unless and until, there are groups responsible for planning organizing, implementing and sustaining the project. It fosters voluntary spirit and a sense of commitment to the task of promoting development at the grassroot levels.

It has a staff strength of about 200 administrative and field paid staff, less than 10% of this number had conventional training in agriculture. All the DDS staff members interviewed reported not satisfied with their condition of service. This may have a limiting effect on the attainment of the goals of the organization. The DDS places emphasis on recruiting highly committed development workers, capable of serving peasant farmers better than the highly technical bureaucratic employee in the public agency.

4.2.0 IMPACT OF DDS ON ADOPTION OF AGRICULTURAL PRACTICES, GROSS FARM INCOME AND LEVEL OF LIVING IN THE DDS OPERATIONAL AREA/IDAH LOCAL GOVERNMENT AREA

4.2.1 ADOPTION OF RECOMMENDED FARM PRACTICES

The extent of adoption of the six recommended practices by the contact and non-contact farmers is presented in Table 1.

Table 1 shows a moderately high adoption score for the DDS contact farmers. Out of the fifty contact farmers interviewed only 3 (6%) did not adopt any of the practices while 30 (60%) of the respondents had adopted no less than four of the practices. Five (10%) of the farmers adopted all the six practices. While 17 (34%) had adopted five of the practices. On the other hand, among the fifty non-contact farmers interviewed (72%) did not adopt any innovation and (28%) of the

farmers adopted between one to four innovations but none adopted more than four innovations.

Table 1: The extent of adoption of DDS recommended farm practices among contact farmers of DDS and Non-contact farmers.

	Contact farmers			Non Contact farmers		
Adoption Score	Absolute Fq	Rel. Fq(%)	cumulatives Fq(%)	Absolute Fq	Rel Fq %	Cumulative Fq %
0	3	6.0	6.0	36	72.0	72.0
1	1	2.0	8.0	4	8.0	80.0
2	5	10.0	18.0	4	8.0	88.0
3	11	22.0	40.0	5	10.0	98.0
4	8	16.0	56.0	1	2.0	100.0
5	17	34.0	90.0			
6	5	10.0	100.0			
Total	50	100.0	100.0	50	100.0	100.0

Adoption Score in this study is the total number of innovations reported used by the respondent.

Table 2 shows the distribution of respondents according to adoption of farm practices between the two categories of farmers.

Table 2: Distribution of respondents according to their adoption rate of the six farm practices among DDS contact farmers and non contact farmers.

Contact Farmers			Non contact farmers	
Recommended practices	No. of farmers	Percentage Distribution	No. of Farmers	Percentage Distribution
Improved cassava variety	21	42.0	9	18.0
Improved rice	30	60.0	5	10.0
Storage chemical	32	64.0	4	8.0
Seed dressing	36	72.0	7	14.0
Yam minisett tech.	30	60.0	7	14.0
use of herbicides	25	50.0	1	2.0

It was found that seed dressing was the most adopted farm innovation. Improved rice varieties and yam minisett technology were adopted by 60% of the contact farmers respectively, while 50% of them respondents adopted the use of herbicides. Improved cassava varieties had been adopted by 42% of the respondents.

On the other hand, among the non contact farmers only 18% of the respondents adopted improved varieties of cassava while yam minisett technology and seed dressing were adopted by 14% of the respondents respectively.

It was also found out that there were comparatively more adoption of agricultural practices by the contact farmers than the non-contact farmers. While 92% of the contact farmers interviewed adopted between two to six of the innovations, only 20% of the non-contact farmers adopted two to six of the innovations. This could be attributed to the high level of extension contact which was 100% among the contact farmers as against none among the non-contact farmers during 1992/93 farming season when this study was carried out. Furthermore, the DDS extension farmers have a mandatory meeting with the farmers once every month.

This result is consistent with the result got by Voh (1979) in his exploratory study of factors associated with adoption of recommended farm practices among Giwa farmers. The lack of contact among non-contact farmers is also consistent with the finding of Ega (1988) in his evaluation of extension activities of the Ayangba Agricultural Development Project. The probable reasons for the high adoption scores could also be due to successful application of the practice of using one farmer to influence another to adopt farm practices. It could further be due to the superiority and the cost benefit ratio of the adopted innovations over the traditional method of production

previously in use by the contact farmers in the area.

Knowledge and use of individual innovation was equally higher among the DDS contact farmers than the non contact farmers. The innovation with the highest rate of adoption was seed dressing, It was adopted by 72% of the respondents. This finding is similar to that of Akanya, (1989), in his study of the impact of agricultural extension in Borno State Accelerated Development Project. The adoption of this practice by a good number of the contact farmers may be due to a high incidence of pest during the pre-planting periods and the availability of and access to information about the chemical among the DDS extension farmers. Conversely, the non contact farmers had a low adoption rate of these technologies as shown in Table 2. The probable reason might be due to lack of extension contact.

Other practices with considerably high rate of adoption among contact farmers were storage chemical (64%), improved rice varieties (60%). Yam minisett technology and storage chemicals were adopted by (14%) and 8% of the non-contact farmers, respectively while 10% adopted improved rice varieties, improved cassava cutting (19%) and use of herbicides (2%).

The high rate of adoption of these innovations by the contact farmers can also be explained in terms of the importance of these practices to the farmers in these areas. For instance, storage chemical is highly valued by the farmers because the areas is inaccessible at harvest time, (August-October) because of flooding. To be able to preserve the crops for some time before they are marketed by November/December, and to hold crops for use in times of scarcity, require the use of storage chemicals. Herbicides are mainly used in yam, rice and maize fields to avoid labour bottleneck. Improved varieties of cassava was the least

adopted innovation (42%) among the contact farmers. Reasons given by the respondents were that they are of poor food nutrients and therefore low in market value when compared with the local varieties.

While seed dressing was the most popular innovation among the contact farmers adopted by 72% of them, only seven (14%) non-contact farmers adopted this innovation. This might be explained by the lack of extension contact and lack of knowledge about its use among the non-contact farmers.

The low adoption of the innovations among the non-contact farmers could be further explained in terms of their non membership of farmers' council of the DDS. The council provide a forum where these innovations are explained and demonstrated to the contact farmers.

4.2.2 INFLUENCE OF ADOPTION ON GROSS FARM OUTPUT

The gross farm output of four major crops were considered. The results are presented in Table 3.

Comparison of the gross farm output of the DDS contact and non contact farmers indicates a significant difference in the mean values of the major crops grown. The contact farmers recorded higher mean values with regard to yam with a mean difference of ₦4,515.00, The difference for rice was ₦1520.00 followed by maize (₦1,036.00) and lastly cassava ₦780.00.

Table 3: A comparison of mean values of gross farm output for the four major crops grown by the DDS contact farmers and non-contact farmers quantified in monetary terms.

Crops	Contact Farmers	Non contact Farmers	Diff. in Means
	₦	₦	₦
[illegible]	[illegible]	1,362.00	1,036.00
Rice	2,195.00	674.00	1,520.00
Yam	5,018.00	503.00	4,515.00
Cassava	1,768.00	988.00	780.00

The contact farmers interviewed gave the following reasons as responsible for increase in their gross farm output. These were frequent extension contact (98%), access to credit facilities (78%), use of fertilizer (72%), and increased farm size (70%). Other reasons were use of herbicides (36%), and access to improved planting materials (36%). This is shown in Table 4.

Table 4: Main reasons given by contact farmers for increased output.

[illegible]	No. of Responcents	% Respondents
Extension contact	49	98.0
Access to credit	39	78.0
Use of fertilizer	35	70.0
Increased farm size	35	70.0
Use of herbicides	18	36.0
Access to improved planting materials	18	36.0

The data further reveal that the productivity level was higher among the contact farmers than the non-contact farmers.

These findings imply that DDS has had a positive impact on the contact farmers. The comparison of the results of the

mean values of the gross farm output of the two categories of farmers showed that the contact farmers experienced higher yields and returns. Generally, greater awareness of adoption of innovations among the contact farmers have obvious beneficial impact on their output. For example, the adoption of yam minisett technology enabled the farmers to own separate plots devoted to the production of yam seed which could be used in the following planting season. The results of this study on gross farm output is comparable to the findings of Akanya (1989) which showed a positive impact of Borno state Accelerated Development Area Programme on the gross farm output of the contact farmers.

4.2.3 LEVEL OF LIVING OF THE FARMERS

This section compares the level of living of the contact farmers of the organization with those of the non-contact farmers.

Possession of Durable Goods

Data on the possession of durable consumer goods, livestock and income from the sales of farm output is presented in Table 5.

Table 5 shows that none of the non-contact farmers had possessions of worth exceeding ₦32,000.00, While 16% of the contact farmers had possessions worth above ₦32,000.00, While the possessions of the majority (74%) of the non-contact farmer ranged from less than ₦2,000.00 to ₦12,000.00, the majority of the contact farmers had possession that exceeded this range. Also, on the average, the contact farmers had ₦15000.00 worth of possessions compared to ₦7,000.00 the mean possession owned by the non contact farmers. In effect, the contact farmers have more durable consumer goods and farm income than the non-contact

farmers, implying that the DDS programmes has a positive impact on the contact farmers.

Table 5: The Distribution of respondents according to the monetary values of durable consumer goods, livestock and income from the sales of farm output of the contact and non contact farmers of DDS.

	DDS contact Farmers		Non Contact Farmers	
Income (₦)	No. of farmers	% of Farmers	No. of Farmers	% of Farmers
Less than 2000	1	2.0	12	24.0
2001 7000	4	8.0	15	30.0
7001 12000	6	12.0	10	20.0
12001 17000	10	20.0	5	10.0
17001 22000	13	26.0	6	12.0
22001 27000	5	10.0	0	0.0
27001 32000	3	6.0	2	4.0.
32001 37000	3.	6.0	0	0.0
37001 42000	2	4.0	0	0.0
Above 42000	3	6.0	0	0.0
	50	100.0	50	100.0

Expenses on Children Education

The other aspects of level of living considered for this analysis were number of children in school, amount of money spent on children's education and money spent on food per day as well as the number of months food stuff were held in store. Results on these are presented in Tables 6 and 7. This was to further bring to focus the influence of income distribution on the socio-economic characteristics of the farmers.

Table 6: Distribution of respondents according to the amount of money spent in children's education among contact and non contact farmers of DDS programmes.

Category of Money spent	Contact Farmers No. of farmers	(%)	None contact farmers No. of Farmers	(%)
0	0	0	13	26.0
Less than 600.00	6	12.0	17	34.0
601 1200	5	10.0	9	18.0
1201 1800	2	4.0	3	6.0
1801 2400	2	4.0	4	8.0
2401 3000	8	16.0	1	2.0
3001 3600	2	4.0	1	2.0
3601 4200	4	8.0	1	2.0
4201 4200	4	2.0	0	5.0
4201 4800	1	2.0	0	0.0
4801 5400	5	10.0	1	2.0
5401 6000	5	10.0	0	0.0
Above 6000	10	20.0	0	0.0

Table 6 indicates that the contact farmers spent more money on the education of their children than non contact farmer. Twenty six percent of the non-contact spent nothing on their children's education, while all the contact farmers spent some money on education, with 88% spending between ₦601 and above ₦6000.0. In contrast, only (74%) of the non-contact farmers spent some money on the education of their children, with none exceeding ₦5400. Indeed, the majority of them (78%) spent less than ₦1200 only on education of their children.

The impact of DDS on the level of living of the contact farmers could be said to have resulted from the agricultural innovations introduced, their adoption and resultant increased production to the individual farming family. This would have led to higher income and the ability of the farmers to purchase durable goods and livestock which have been used as indicators

of level of living. This is similar to the finding of Akanya (1989) in his study of the impact of Borno state accelerated Development Area Programme.

Scudder (1989) noted that in assessing impact of an intervention on standard of living, efforts must be made to assess what the increased income is used for and what the developmental implications of that use are.

Duration of Storing Food Item

Table 7: The Distribution of number of months food were held in store after harvest for contact and non-contact farmers of DDS.

No. of Months with food stuff in store after harvest	Contact farmers No. of farmers	% of farmers	Non contact farmer No. of farmers	% of farmers
0			7	14.0
2	0	0.0	26	52.0
3	3	6.0	17	34.0
4	30	60.0	0	0.0
5	3	6.0	0	0.0
6	14	28.0	0	0.0

The food security of a farming household depends largely on the amount/quantity of food it can produce and hold in store after harvest till the next harvest periods.

Number of months with food in store after harvest is presented in Table 7. The Table shows that all the contact farmers had food in store as a security against hunger for periods ranging between three to six months after harvest. Twenty eight percent of the contact farmers held surpluses for a maximum of six months. In contrast, all the non contact farmers had surpluses for periods ranging between 2-3 months only, Fourteen percent holds nothing in store after harvest and may be said to be food-insecure most soon after harvest.

The study clearly indicates that contact farmers had better food security than the non-contact farmers both in

terms of farm output and income. That is, as the contact farmers experienced increased yield and income, they could afford to hold enough surpluses for use in bad times while non contact farmers might had to dispose all they had to be able to meet other needs as a result of poor yield and income.

Respondents were asked further to indicate the amount of money spent on food per day to further determine how the extra income were spent. (Table 8).

Money Spent on Feeding/Pay

Table 8: Distribution of respondents according to the amount of money spent on food per day.

Category of Money spent per day N	Contact Farmers No. of Farmers	% of farmers	Non Contact Farmers No. of Farmers	% of Farmers
0			3	6.0
Less than N50	17	34.0	46	92.0
50.00	27	54.0	1	2.0
51 100.00	4	8.0	0	0.0
Above 100.00	2	4.0	0	0.0

Table 8 shows that 92% of the non contact farmers spent amount not exceeding ₦50 per day while only 34% of the contact farmers were in the same category. Indeed, the majority of the contact farmers (66%) spent over ₦50 and above par day. The observed differences in terms of expenditure on food per day could be a result of differential in income status of the two categories of farmers. Usually there would be increase in the amount and quality of food taken in relation to income (Ega, 1983).

It can therefore be concluded that DDS extension programmes have had a positive impact on the standard of living on the target population in Idah Local Government Area.

4.2.4 Comparisons of the mean values of average income of the farmers

In an attempt to bring to focus the disparity between the contact and non-contact farmers, the mean values of the average incomes of the two categories of farmers were compared in Table 9.

Table 9: Comparisons of the mean values of the average income of contact and non contact farmers of DDS extension programme.

	Mean values	STD	Level of sign. 5%
Contact farmers	₦29,680.00	15,696	Real 37.68
Non contact farmers	12,680.00	11,680	Real 3.92

Table 9 shows that contact farmers had mean values of durable consumer goods and income from farm output (average income) of ₦29,680.00 while non contact farmers had ₦12,680.00. The analysis shows that DDS contact farmers have better level of living than the non contact farmers. Indeed, there was a significant difference between the average income of the contact farmers and non contact farmers. This result is supported by the finding of Atonza II (1989), in his study of the impact of Kaduna State Agricultural Development Project on income of small scale farmers.

DDS extension activities have had a positive impact on the standard of living and income. The DDS concept of agricultural development depending on contact farmers may result in income disparity. This development could further lead to an unequal access to the benefit of the DDS programmes and therefore may keep some segment of the population in perpertual poverty.

In conclusion, data on impact indicated that farmers reached by DDS extension programmes adopted more agricultural innovations than the non contact farmers. Generally, adoption

was comparatively highest for seed dressing, storage chemical, yam minisett technology, improved rice varieties and use of herbicides in descending order. However, the adoption rate for improved cassava was least among the recommended innovations. With respect to non-contact farmers, adoption was extremely low. There was also a considerable increased output, level of living, food security among contact farmers in contrast to the non-contact farmers.

4.3.0 FACTORS ASSOCIATED WITH THE LEVEL OF SUCCESS ATTAINED BY DDS EXTENSION PROGRAMMES

This portion examines statistically the factors associated with increased farm output and tests the hypothesis that there was no significant relation between gross farm output, and extension contact, agricultural credit and adoption of recommended practices and level of living. The results are presented in Tables 10 and 11.

Table 10: Pearson correlation analysis of the relationship between selected variables and gross farm output of the DDS contact farmers.

Variables Cross classified	Correlation Coefficient	Test results Sig. at 0.05 level
Use of fertilizer	.421	Supported
Credit activities	.274	Supported
improved planting materials	.295	Supported
Extension contact	.214	Supported
use of herbicides	.159	Not supported
Yam Mini sett tech.	.159	Not supported

The statistical analysis indicates that out of the six institutional variables, four were significantly and positively correlated with gross farm output. These in order of importance, were use of fertilizer, use of credit facilities, improved planting materials and extension contacts. Use of herbicides was positively related to gross farm output but at insignificant level.

Result of stepwise regression analysis presented in Table 11 shows that the six independent variables accounted for 37% of the explained variance. Use of fertilizer accounted for 20% of the increased output, extension contact (7%) of the explained increased output, improved planting materials (6%) credit facilities (2%), yam minisett technology (2%) and use of herbicides (0%). The data show that the highest contributor in observed change on gross farm output was use of fertilizer. The least predictor was use of herbicides.

Table 11: Stepwise regression analysis on gross farm output of contact farmers and institutional factors.

Variables Cross classified	Coefficient of Determination (R^2)	R^2 Change
Use of Fertilizer	.1957	.1957
Extension contact	.2618	.0661
Improved planting material	.3229	.0611
Credit facilities	.3411	.0182
Yam Minisett tech.	.3573	.0162
Use of herbicides	.3590	.0017

The result of correlation analysis on gross farm output revealed that use of fertilizer, extension contact, credit facilities and improved planting materials were positively and significantly related to gross farm output. This means that

farmers who had contacts were likely to adopt agricultural innovations and improve their yields. (Akanya 1989, op. cit). Yam minisett technology was positively but insignificantly related to increased yield, while use of herbicides was negatively and significantly related to gross farm output. The insignificant relationship of yam minisett technology and increased output could be explained by a traditional preference of the farmers for conventional yam seed sett, considering the intensive nature of management required in yam minisett plots as well as the risk of crop failure associated with this technology in years of insufficient rainfall. Use of herbicides was negatively and insignificantly related to increased yield implying farmers' choice of cultural weeding method instead of herbicides. The probable reason for the choice could be because of the cost and problems associated with the use of this chemical such as lack of spraying equipment and water for mixing the chemicals on the farms.

Stepwise correlation analysis of the result further showed that the six independent variables combined accounted for (37%) of the explained variance. Other variables not included in this study that are possibly responsible for (63%) unexplained variance could include soil and ecological factors.

4.3.1 STATISTICAL ANALYSIS OF FACTORS ASSOCIATED WITH IMPROVED LEVEL OF LIVING AMONG DDS CONTACT FARMERS

This section shows statistical analysis of the relationship between extension contact, agricultural credit, improved technology. It tests the hypothesis that the improved level of living is not related to extension activities of DDS. The results are presented in Tables 12 and 13.

To determine statistically the contributory factors associated with the level of success, Pearson correlation analysis was used and the result presented in Table 12.

Table 12: Pearson correlation analysis of selected variables and level of living of ADP contact farmers.

Variables Cross classified	Correlation coefficient	Test result sig. of .05 level
Use of Fertilizer	.223	Supported
Credit facilities	.283	Supported
Improved planting material	.205	Supported
Use of herbicides	.121	Not supported
Extension contact	.569	Supported
Yam minisett technology	.092	Not supported

Results from this analysis shows that there was significant relationship between level of living and the institutional variables. Out of the six independent variables, four were positively and significantly related to level of living. These variables were use of fertilizer, credit facilities, extension contact and improved planting materials. The relationship between yam minisett technology and use of herbicides was positive but insignificant. Thus, the hypothesis that there was no significant relationship between level of living and extension contact, agricultural credit and improved technology is rejected.

Results of stepwise regression analysis further showed that the combined effects of all the independent variables accounted for (40%) of the observed change in the independent variables.

Table 13: Stepwise analysis of farmers level of living and institutional factors.

Variables cross Classified	Coefficient of Determination (R^2)	R^2 Change
Extension contact	.1820	.1820
Use of fertilizer	.2817	.0997
Improved planting material	.3762	.0645
Credit facilities	.3711	.0249
Yam minisett technology	.3871	.0015

Stepwise regression analysis revealed that extension contact alone accounted for (18%) of the observed change in the dependent variable while use of fertilizer explained (10%) improved planting materials accounted for (7%), credit facilities (3%) and finally yam minisett technology (2%). Use of herbicides did not contribute to the observed change.

The findings of this study are consistent with the theoretical logic of the study and the findings of Atala, (1980), D'Silva and Raza (1981). In their independent studies of Funtua Agricultural Development Projects, they reported that the extension agents served as significant channels of communication. A logical explanation of this finding could be that exposure to extension agents may result in adoption of recommended practices leading to increased output, income and purchase of household items. Extension contact influenced as much as 18% of the explained variance. It was the best predictor of the explained change in the level of living and second best in gross farm output contributing 7%. The importance of extension contact ran through all the dependent variables. The positive and strong relationship between extension contact and the indicators of level of living is not surprising. The ultimate goal of extension organization as a change agency is to better the level of living of the target population. This is supported by the work of Akanya (1989),

Omata (1991). Generally, the results of this study are consistent with most previous studies on impact of extension as well as being in line with the theoretical expectations.

4.3.2 CONSTRAINTS FACED BY THE FARMERS

In order to determine the problems faced by farmers in their farming operations, all the farmers were asked to indicate their individual problems. This is shown in Table 14.

Table 14: Major problems facing the two categories of farmers.

Contact Farmers	% of respondents	Non contact farmers	% of respondents
lack of access to tractors	98.0	Lack of Extension contact	100.0
Lack of herbicides	32.0	Lack of access to herbicides	100.0
Spraying equipment	30.0	Lack of tractors	90.0
Inadequate capital	28.0	Lack of fertilizer	90.0
Lack of fertilizer	28.0	Poor yield at harvest	90.0

The two categories of farmers were faced by about the same kinds of problems. The significance of the problems faced by each category may be inferred from the proportion of the respondents expressing such concern.

The two most important problems facing the contact farmers were lack of tractors (98%), spraying equipment (64%). Meanwhile, the non contact farmers cited five very serious problems, namely, lack of extension contact (100%), lack of credit facilities (100%), Lack of tractors (90%), fertilizer (90%) and poor yield at harvest (90%).

It may be said that the problems faced by DDS contact farmers may have a limiting effect on the total adoption of DDS technologies and hence high level of achievement of the set goals of the organization. Nevertheless, given the present cost of tractor and chemicals, an option might be the introduction of innovations like animal traction and low input technology.

The problems faced by the non contact farmers bring to focus the inherent inadequacies in the public extension organizations. It also shows that the DDS contact farmers have not been quite useful as a link in the extension system.

Table 15: Pearson correlation matrix of the variables used in this study

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8
Improved Planing material X_1	1.000							
Credit Facilities X_2	0.192	1.000						
Yam minisett technology X_3	0.257*	0.542*	1.000					
Use of fertilizer X_4	0.344*	0.418*	0.211*	1.000				
Standard of Living X_5	0.223*	0.283*	0.145	0.250*	1.000			
Extension contact X_6	0.256*	0.300*	0.060	0.200*	0.569*	1.000		
Use of herbicides X_7	-0.131	-0.262	0.062	0.327*	0.281*	0.092	1.000	
Gross farm income X_8	0.421*	0.276*	0.159	0.295*	0.312*	0.214*	0.180	1.000

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The focus of the study is on the organizational structure of the DDS, its impact on the target population, factors limiting or facilitating its impact and adjustments that can be made to enhance the performance of the organization.

The specific objectives of the study were to determine the impact of the extension activities of DDS on the adoption of recommended agronomic practices, farm output and level of living of the target farmers, as well as to assess factors that are associated with the level of success of the organization.

Basic information were collected from the organization. In addition, fifty DDS contact farmers as well as fifty non contact farmers were interviewed bringing the total number of farmers interviewed to 100.

Structured interview was conducted by the researcher among the farmers and a questionnaire was sent out to twenty DDS staff and public extension organization (ADP and Ministry) . Simple statistics, Pearson correlation, stepwise correlation analysis and One-Way Analysis of Variance were used to analyze the data and show the relationship between adoption, farm output and standard of living.

The DDS organization has a short line of authority and is using a bottom up developmental approach.

Adoption was comparatively high among the contact farmers than the non contact farmers. Out of the fifty contact farmers interviewed, 42% adopted improved cassava varieties, 64% storage chemicals, 72% seed dressing, 60% yam minisett technology and 50% use of herbicides. On the other hand, 18% of the non

contact farmers adopted improved cassava, 18% adopted seed dressing, 10% adopted improved rice, 14% adopted yam minisett technology 21% adopted herbicides and 8% adopted storage chemical. The DDS contact farmers had much more farm output and average income than the non contact farmers.

The result of correlation analysis showed that credit facilities (.274), extension contact (.214) use of fertilizer (.421), improved planting material (.295), herbicides (.159) were positively related to increased farm output, standard of living.

While, Stepwise Regression Analysis showed that the six independent variable combined accounted for 37% of the explained variance on gross farm output; and 40% observable variance on standard of living was accounted for by the six independent variables. The result of the one way analysis of variance showed that the DDS contact farmers had a better average income than the non-contact farmers.

The DDS contact farmers face two most important problems. These were lack of tractors (98%) and Spraying equipment (64%). The non-contact farmers were faced by five very important problemss these were lack of extension contact (100%), credit facilities (100%), tractors (98%), poor yield at harvest (90%) fertilizer (90%).

5.2 CONCLUSION

From the study, the following conclusions were made. The Diocesan Extension Services has a Management Board headed by the Catholic Bishop of Idah Diocese. The day to day management of the organisation is being carried out by a co-ordinator who is answerable to the Bishop. In addition to agricultural

development, the organisation operate other projects such as village development project, water development project and primary health care, among others. It operate "Botton Up" development approach and has a short line of authority which facilitate quicker implementations of directives.

Adoption scores and rates of the contact farmers were higher than those of the non-contact farmers. Also the gross farm output were higher for the contact farmers. The contact farmers had a better level of living than the non-contact farmers.

The study revealed a positive impact of the Diocesan Development Services on the target farmers. Furthermore, the contact farmers spent more money on the education of their children, had a better food security than the non-contact farmers.

More than half of the independent variables were positively associated with gross farm output and level of living. Extension contact and use of fertilizer were the most important contributory factors in the observed change in the level of living of the target farmers.

The study therefore has shown clearly the importance of agricultural extension in agricultural development of the country.

5.3 RECOMMENDATIONS

A great number of NGOs are involved in rural Nigeria as a result of their concern for the deteriorating rural life and their hope of achieving sustainable development among rural populace who constitute the majority of the country's population.

The findings of this study indicated a comparatively high adoption rate among the DDS contact farmers. The hallmark of agricultural extension organization is to influence farmers to adopt improved farming technologies so as to improve their income and standard of living with minimum government efforts (Maunder, 1973).

Before a farmer adopts an innovation he has to be convinced that the innovation is economical and the source of information reliable and dependable. It was revealed in this study that over 50% of the DDS staff interviewed are not properly equipped with adequate training. This could affect their performance and the adoption behaviour of the farmers. Furthermore, all the staff interviewed were not satisfied with their conditions of service. Experience shows that when workers are not properly compensated their commitment to their jobs would be low.

Workers would exhibit positive attitudes towards their organization when they consider the reward system to be fair. The more the workers are made to feel that their roles are important in meeting the objectives of the organization, the more committed they will be (Akinbode et al, 1978).

The present practice where extension agents of public organizations live in urban areas and only visit the farmers once in a while, and sometimes not at all, create a gap between extension and the farmers. Furthermore, most of the visits of public extension agents are for some other social reasons other than extension visits (Ega, 1983).

Considering the role of extension agents as change agents within a social system, extension agent should reside among his clients as a practicing farmer, as done by the DDS extension

farmers. Also, government agents should be placed on part time job so as to enable them view their farming activities with every seriousness in the localities where they work. This practice will create a leaning environment for the farmers.

The finding of the study revealed that the DDS point of contact with the farmers was through the farmers' council. It was absolutely obvious that the DDS had positive impact on the contact farmers.

To avoid a situation whereby some segment of the target farmers are denied access to the DDS technology as was the case with Funtua Agricultural Project Area (Atala, 1981 op cit) DDS as a matter of urgent need, should have several of such farmers councils within the same geogrphical setting so as to involve as many farmers as possible since the organization does not deal with individual farmers.

It was revealed from the study that the major constraints faced by the farmers were lack of tractor hiring services and inavailability of fertilizer. It is recommended that animal traction be introduced as an option for tractor and also the promotion of technology that require less external inputs like chemical fertilizer considering the cost of fertilizer as currently done in the training school at Iyegu.

In addition, fertilizer are more available during the off seasons, the DDS could purchase them and made them available to the farmers during the on-season periods.

Finally, from the study, it was revealed that the organization lack a corporate monitoring and evaluation unit. It is therefore recommended that one be established and maned by competent hands. This is urgently needed because the present

practice where by each unit monitors its project does not allow for objective and independent reporting of the progress of the project. This will help in needed adjustments and generate data that could be used as bench mark data for future evaluating purposes. This will go a long way to bridge the gap between the present dearth of data within the organization. For after twenty three years of existence as an organization in Idah Diocese, the present absence of baseline data create a gap of information with the result that little is known about the organization.

References

Aquah, B. (1987). Strategies for effective rural development in Nigeria. Paper presented at the proceeding of the 4th National Conference of Nigerians Rural Sociology, Zaria.

Alao, J. A. (1971). communication structure and modernization of agriculture: Analysis of factors influencing the adoption of farm practice among Nigerian farmers. Unpublished Ph.D. dissertation. Ithaca, New York: Cornell University.

Akanya, B.A. (1989). The impact of Agricultural Extension Programmes on farm products and Standard of Living. Unpublished M.Sc Thesis, A.B.U., Zaria.

Akinbode, I.A. (1980): "A critical analysis of management and supervision of agricultural extension in Nigeria" In B.B. Wudiri and Anaso (eds) Proceedings of the 2nd Agricultural Extension Workers in the Western State of Nigeria.

Akinbode, I. et al (1979). A comparative analysis of job commitment of Field Extension workers in South and Northern Nigeria, Department of Extension Education and Rural Sociology, Univ. of Ife, Ile-Ife.

Alubo, S.O. (1987). Rural Development in Contemporary Nigeria: A Dialectical critique Paper presented at the 4th National Conference of Nigeria Rural Sociological Association, A.B.U. Zaria.

Arensberg, O.M. et al, (1968). Introduction to social change. A Manual for American overseas (Chicago: Aldine Inc.).

Atala, T.K. (1981). Agricultural Extension in Nigeria and Green Revolution Programme. Paper prepared at 1st National Seminar on Green Revolution in Nigeria, A.B.U., Zaria.

Atala, T.K. (1986). Needed contribution of Industrial Sector to agricultural development through extension services organization in Zaria. Paper presented at 22nd Annual Conference of Agricultural Society of Nigeria, A.B.U., Zaria.

Atala, T.K. (1986). The role and impact of Extension Agent in Kaduna State. Unpublished M.Sc thesis, Iowa State University, U.S.A.

Atala, T.K (1980). Factors Affecting Adoption of Agricultural Innovation usage of Information and Level og Living in Nigeria. Unpublished M.Sc. Thesis Iowa State University, U.S.A.

Atonza II, C.A. (1989). Impact of Kaduna State Agricultural Development Project on incomes of small-scale Farmers: A case study of Anzere and Sabon-Gida Villages. Unpublished M.Sc Thesis, Ahmadu Bello University, Zaria.

Atsu, S.Y. (1974). The focus and concentrate programme in the Kpando and Ito Districts. Evaluation of an Agricultural Extension programme. Technical Publication Series No. 3a, Institute of Statistical, Social and Economic Research, Legon.

Baldin, K.D.S. (1957). The Niger Agricultural Project: An Experiment in African Development Oxford: Basil Blackwell.

Bonat, A.Z. (1990). The role of Non-Governmental Grassroot Agencies (NGGRA) in rural development in Kaduna state. A Project of the Directorate of Food, Roads and Rural Infrastructure, National Headquarters. Zaria: ABU Uni press

Brumback Gary B., Clifford P. Hahn and Dorathy S. Edward (1978). Reading and Teaching. A Nation wide Job analysis of County Extension agents' Work. Washington D.C. American institute for Research.

Campbell, B.I. and J. C.and Stanley (1966). Experiment and Quasi experimental Design for Research, Chicago: Rand McNally.

Chambers, R. (1992) Farmers Appraisal: Participatory Research. A review of concepts and practices. ODI. Discussion Paper No.19 London.

Clarke R. C:, L. A. Akinbode (1968). Factors associated with adoption of three farm practices in Western state of Nigeria. Research Bulletin No.1. Faculty of Agriculture, Univ. of Ife Nigeria.

Coen Reitze, (1992). Farming for the future: An introduction to low external input and sustainable Agriculture. Box 64 NL-3830, Abdeuslen: Macmillan ILEIA.

Daramola, B. (1988). Adoption of improved production Technology in Nigeria: A case study of Oyo State Farmers. Paper presented at N.F.S.R. Workshop held in Jos 26-29 1988.

Diocesan Development Services: (1990) Vol. 3. Functional Guidelines. Ayangba; The Pastoral Centre, Diocese of Idah Benue State Nigeria.

Directory of activities of international voluntary agencies in Rural Development in Africa Second (edition 1975) and (third edition 1977). New York: UN.

D'Silva & Raza, M.R. (1980). "Integrated Rural Development in Nigeria. The Funtua Project. Food Policy 282-297.

D'Silva B.C. & Raza, M.R. (1980). The Funtua Agricultural Development Project, its impact on farming system paper presented at Seminar on Changes on Rural Hausaland, A.B.U., Zaria.

Ega, L.A. (1988). "Experience of world Bank Assistance in Agriculture in Ayangba, Nigeria" Science and Public policy 15, 91-98.

Ega, L.A. (1983). Food production and Nutritional Status of Nigeria. Dept. of Agric. Economics and Rural Sociology, A.B.U, Zaria. Lecture delivered at the workshop for field workers, organized by field office of the Federal Dept. of Rural Development Jos. July (5-8)

Eicher C. et al, (1969). Growth and Development of the Nigerian Economy, East Lansing: Michigan State University Press.

Ekpere, J. A. (1974). A comparative study of job satisfaction under two Approaxhes to Agricultural extension organization. ITC Research Paper No.61, University of Wisconsin, Madison.

Etzioni, A. (1975). A comparative analysis of Complex Organizations New York: The Free Press.

Famoriyo, S. et al (1974). Voluntary Agency and Integrated Rural Development in Nigeria. Paper presented at the 3rd Subregional workshop on International Cooperation in Rural Development in Africa, Accra, Ghana, Nov. (22 - 27).

F.A.O., (1977). Report on the F.A.O/SIDA. Experimental Consultation for rural development print report on the Colombia, Sri Lanka 20-30, October 1975, Djakata Indonesia, 2-12 December 1975, Vol. 1, F.A.O. of the U.N. Rome.

F.A.O/FFHC (1987). NGOs in Latin America their contribution to participatory Development. Journal of the Society for International Studies. Vol. 1.

Farqular, R.N. (1962). Australian Agricultural Extension Conference Review Papers and Report.

Farrington, J. and Martin A. (1984). Farmers' participatory technology: a review of concept and practices. Agricultural Administration Research and Extension Discussion. Paper 19 London (Odi).

Forest, A.G. (1979). Agricultural Policies in Nigeria 1900-1978. Paper presented for political science Seminar, A.B.U., Zaria.

Gana, J.A. (1982). Regional Development alternative in Predominantly Rural Society: Proceeding of a Seminar held at A.B.U., Zaria, Centre for Economic and Social Research.

Gomez E. and Echenique J. (1988). NGOs and Farmers organizations in Agricultural Research and Extension in Chile Network Paper 19, December 1990.

Frankenburger, T.R (1987). Methodologies for Assessing the impact of Agricultural and Rural Development Projects. A dialogue programme design and evaluation methodology No.11. (Centre for Development Information and Evaluation, AID).

Jibowo A. A. et al, (1978). Characteristics of the neighbouring Community and impact of Isoya Rural Development Project. Journal of Rural Economy and Development 12(2) 79-89.

Kanter, Moss (1981). Organizational Performance Recent Development in measurement. Annual Review of Sociology 7:321-349.

Katz, Robert L., (1966). The Social Psychology of organization. New York John Wiley & sons.

Katz D., B. A. Gutek, R. L. Kahn and E. Barton, (1975). Bureaucratic Encounter: A Pilot Study in evaluation of government Services Institute for Social Research, University of Michigan, Ann arbor Michigan.

Krishna, (1987). Methodologies for Assessing the Impact of Agricultural and Rural Development Projects. A Dialogue: Programme design and evaluation methodology report No. 11. (center for Development information and evaluation, AID).

Ladewig, (1983). Measurement of the Organizational effectiveness of the co-operative extension services. Paper presented at the Annual Meeting of the Rural Sociological Society lexington Kentueky.

Larry, M. (1987). NGOs today: Participation of development strategies and advocates for the poor. Journal of the society for international development 1987:4.

Leagan, J. P. (1964). The role of extension Education in rural development (Cornell - International Bulleting 3) Ithaca.

Lele Uma, J. (1975). The Design of Rural Development Lession from Africa. Baltimore. The John Hopkins University Press.

Lionberger, H.F. (1960). Adoption of new ideas and practices. Ames Iowa, Iowa State University Press.

Mabogunje, L.A. (1972). Changes in Socio-economic and Cultural patterns caused by the industrialization of Nigeria. A Regional Differentiation, Africa Spectrum Deutsches institute for Africa Forschung Hanburg.

MacNamara, N. (1980). Progress in self motivated change (1973-1980) EALEIS: A Journal of Igalaland Vol. 2, No. 1, pp. 34-35.

Malton, J.P. (1978). The size, Distribution structure and Determination of personal income among Farmers in Northern Nigeria. An unpublished Ph.D Thesis of Cornell Univesity, U.S.A.

Maunder, A.H. (1973): "Agricultural Extension". A reference manual FAO.

Minear, S. (1987). The role of African NGOS as a tool for change. Journal of the Society of International Development 1987:4.

Mosher, A.T. (1972). Project of integrated rural development. The Africa Development Council, N.Y. Reprint.

Mulford C.L.R.D. Warren, G.E. Klonglan, W.D. Lawson and P.C. Morrow, (1972). Organizational effectiveness and impact: A planning guide Sociological Report No. 136, Dept. of Sociology and Anthropology, Iowa State University, Iowa.

Nelson, H. (1982). A Countryside; Washington D.C. Headquarters Dept. of Army.

Nwankwo, J.C. (1987). Nigeria: Rural Development or preservation of rural inequality. Paper presented at the 4th Conference of Nigerian Rural Sociology, Zaria.

Nweke, F.I. (1981). Determination of agricultural Progressiveness in small holder cropping system of South Eastern Nigeria and consequences of Research and Extension Administration. Agricultural Administration 8(3), 163-176.

Obibuaku, L.O. (1983). Agricultural Extension: A Strategy for Agricultural Transformation Nssuka: UNN Printing Press.

Okanabu, S. (1980). "The Role of the Idah Diocesan Development Services in Community Development". Paper presented at a seminar by the Community Development Unit of Idah L.G.A. 15, October, 1990.

Omata, P. A. (1991). Impact of Training and Visit Extension system on adoption of recommended farm practices and farm output of the farmers in Maigana zone of Kaduna State Agricultural Development Project. Unpublished M.Sc thesis, Zaria Ahmadu Bello University.

Plindskog A., (1992).The Relationship Between Research Institutes and NGOS in the Field of soil and water conservation in Burkina Faso. International Institute for Environment and Development. Paper No.39 Dec. 1992.

Reynolds, J. (1970). A Framework for the Design of family planning programme evaluation system. Manual No.2 of Manual for the Evaluation of family Planning and population programme. New York: Columbia University.

Rogers, E.M. (1962). Characteristics of Agricultural Innovation and other adopter category: in Wilber Schramm Studies of innovation to the public California Standard Uni.Inst. for Communication Research.

Rogers E.M., Shoemaker F. and Kelvin J.E.(1966). Modernization among Peasants the impact of communication New York: Holf Rineheart and Winston Inc.

Rogers E.M. (1983). Diffusion of innovation 3rd (ed) New York: The Free Press.

Saville, A.H. (1965). Extension in rural communities. A manual for Agriculture and Home Extension Oxford: O.U.P.

Scudder, (1989). Methodologies for Assessing the Impact of Agricultural and Rural Development Projects A-Dialogue: Programme design and evaluation methodology report No.11. (Centre for Development Information and Evaluation (AID).

Smith, O.M. (1977). Human Geography: A Welfare Approach. London Edward Arowld Publisher.

Thomas, M. P., (1993). Getting it Right. Linking concepts and action for improving the use of natural resources in sahalian West Africa. International Institute for Environment and Development. Paper No.40 March.

United Nation (1971). Integrated Approach to Rural Development in Africa New York: U.N. Publication.

Esman, J. M. (1978). Landless and near landless in developing countries. Rural Development Committee: Cornell University.

Vermillion, D.L. (1989). Designing irrigation for Farmer *Management on the Primacy of Process over criteria.* Paper presented on irrigation theory and practice University of Southurpton, U.K. 12-15 September.

Voh, J.P. (1980). A study of factors associated with the Adoption of recommended Farm practices in a Nigerian village Dept. of Agricultural Economics and Rural Sociology, Zaria: IAR/ABU.

Williams, S.K.T. (1973). Rural Poverty to Rural Posterity. A Strategy for Development in Nigeria Inaugural lecture, University of Ife Press.

Williams, S.K.T. (1980). The role of Extension in Agricultural Development. Paper presented at the Conference of Agricultural Extension and Research Liaison Services, A.B.U., Zaria.

World Bank (1990). World Bank Annual Report., Washington, D.C.: World Bank.

World Bank (1975). Rural Development sector Policy. Policy Paper World Bank. The Plukett Foundation for Co-operation Studies, London.

World Bank (1984). Kaduna State Agricultural Development Project, Appraisal Report Staff Working Paper No. 1.

Yazidu I. (1983). Agricultural Development and Extension Services in Nigeria. Paper presented at Seminar on Agro-based Industries Ascon Lagos.