

WORLD BANK- FADAMA III PROJECT AND INCOME OF RURAL HOUSEHOLDS IN ADAMAWA STATE (2009-2019)

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ABSTRACT

Poverty remains a significant challenge in Adamawa state with agriculture being the primary source of income for most rural households. This study assessed the impact of World Bank Fadama III Project on the income of rural household beneficiaries in Adamawa State. The study employed the use of survey research design as a plan for getting reliable answers to the research questions. The research focused on Fadama Community Associations (FCAs) and Fadama User Groups (FUGs) with a total population of 6000 and utilized the Krejcie and Morgan formula to determine reliable sample. The multi-stage sampling technique comprising of purposive sampling, cluster sampling, and simple random sampling was also used to draw a sample from the population. A total 385 questionnaires were distributed, out of which 372 were completed and returned. The data collected through structured questionnaires were analyzed using inferential statistical methods. Findings revealed that there is a significant correlation among respondents on income and poverty before and within 2009 – 2019 in Adamawa State. The study also found that the Fadama III project has significant impact on agricultural productivity through land use improvement in Adamawa State implying a positive relationship between Fadama III Project and land use improvements. The study concludes that the Community Driven Development paradigm which allows individuals and groups to participate in the planning, design and implementation of their project is a panacea to rural development. The study recommends among others the provision of more rural infrastructures by the government to serve as a complementary factor in agricultural productivity.

Key Words: Income, Poverty, Collaboration, Agricultural Productivity, Land Use,

Introduction

Poverty has assumed a frightening height at the global stage where it is estimated that over 700 million people wallow in abject poverty and unable to meet basic needs. In Africa, poverty has constituted a significant challenge as the continent continue to experience limited economic growth and low human capital development with about 429 million people living below the poverty line. While Nigeria is seen as the giant of Africa, it is also home to the highest number of people living in extreme poverty and has been tagged the poverty capital of the world (World Bank, 2022). In Adamawa state, the situation is not different as a significant proportion

of the state also experience high poverty rate, low human capital development and poor access to basic services with economic activity and household incomes on the decline. No wonder, the poverty headcount of states in 2021 placed Adamawa as the 5th poorest state in the federation with the share of people living in poverty standing at 75.41 per cent (NBS, 2021).

What is quite worrisome is that despite huge human and material resources that have been devoted to poverty reduction by successive local, states and federal governments, there appears to be a dismal success, as most of the stakeholders lack the will to execute or sustain such programmes.

Since governmental efforts alone at addressing the poverty situation of citizens has proved futile, there is a wide recognition around the world that socio-economic problems that policies address cannot be solved by government acting on their own, nor are they an exclusive domain of only one sector (Brinkerhoff & Crosby, 2002). Therefore, the ability of government to marshal as many institutional structures and agencies to collaborate in carrying out certain developmental programmes are central to the achievement of the goals of poverty reduction in the rural areas (Samuel & Wilfred, 2009). This will mean having an integrated poverty alleviation effort through collaboration for optimal execution of identified programmes.

Owing to this realization, inter-agency collaboration became a necessary policy strategy for governments in the fight against poverty since poverty reduction is a priority in development. Inter-agency collaboration is an arrangement aimed at constructively engaging relevant stakeholders in the implementation of poverty reduction strategies. It is an interaction between participants with capabilities who choose to work together within existing structures and policies, in order to find a solution to an identified problem (Okoye 2016; Menya, 2016).

Statement of the Problem

In response to challenges such as poverty, hunger, malnutrition and food insecurity, the World Bank in collaboration with the Nigerian government initiated the Fadama III project. FADAMA, a Hausa name meaning irrigable land which includes flood plains and low lying areas underlined by shallow aquifers and found along Nigeria's river system, is a Community-Driven Development project aimed at enhancing the incomes and livelihoods of rural farmers through improved agricultural practices, infrastructure development and access to markets (World Bank, 2018).

While the project has been lauded for its achievements in boosting agricultural productivity and fostering community participation, concerns remain about its overall impact on income generation in Adamawa state and Nigeria in general. For instance, Chidawa (2020) found that inadequate farm equipment, lack of capital and unavailability of fertilizers, pesticides herbicides and improved seeds varieties has been the challenges facing the Fadama Development Project. Similarly, Terwase (2018) found that insufficient input support, inadequate credit and untimely distribution of inputs affected the implementation of the project.

An evaluation of the success of Fadama I revealed that the project lagged in some key sectors of the economy. While beneficiaries experience increase in their output, they were not able to store, preserve and market their surpluses, as a result, much of the output was either not sold or

sold at low prices due to supply glut (World Bank, 2003). This in itself affected the income of beneficiaries since they were not able to maximise profit on their products.

One other point of focus is the alarming revelation that Adamawa state is ranked the 5th poorest state in Nigeria with about 75.41 per cent of people living in extreme poverty. This is coming at the same period when the Fadama III project is being implemented in the state. This shows that the target objective of reducing poverty through income generation activities may be at variance with the level of achievement to be recorded in the process. Since the Fadama III project is targeted at increasing incomes and reducing rural poverty, it is imperative to investigate the level of success or otherwise of the project more than a decade since its implementation.

Based on the foregoing problem statement, this study investigated the extent of success of Fadama III project on poverty reduction in Adamawa state with focus on income level of rural household beneficiaries of Fadama III Project and agricultural productivity through improvements in the use of Fadama lands.

Objectives of the Study

- i. Assess the impact of Fadama III Project on income level of rural households participating in Fadama III Project.
- ii. Assess the impact of Fadama III project on agricultural productivity through improvement in the use of Fadama lands in Adamawa State.

Literature Review

A major challenge that developing countries need to overcome is the reduction of poverty. Sachs (2005) notes that poverty reduction could be achieved through good economic and social policies, innovative and efficient use of resources, investments in technological advancement as well as good governance and visionary leadership with political will to prioritize the needs of the poor. This could lead to an enablement in the provision of some basic amenities such as schools, clinics, roads, electricity, soil nutrients that are basic for economic prosperity and productivity.

Ayoo (2021) has provided a comprehensive module that policy makers in developing countries need to emulate in order to combat extreme poverty and improve the standard of living of impoverished communities. These are:

Economic and Institutional Reforms: Implementing economic and institutional reforms is vital to reducing poverty in less developed countries. A step in this direction will create conditions that attract investment, enhance competitiveness, ensure increase efficiency in the use of resources, stimulate economic growth and create jobs. Page & Pande (2018) believes that these reforms if well implemented can be instrumental in strengthening governance and reducing endemic corruption and poor accountability that have contributed to the poor economic performance of several developing countries. Arndt, et al (2016) identified some of the reforms needed to include strengthening of the land tenure system to encourage risk taking and investment in productive income generating activities; improving governance to ensure

greater inclusivity, transparency, and accountability; reducing the misuse of public resources and unproductive expenditures; ensuring a greater focus on the needs and priorities of the poor; maintaining macroeconomic stability and addressing structural constraints to accelerate growth. These reforms can benefit the poor by improving their access to land and other productive resources and by adequate consideration in policy making (World Bank, 2018).

Improving the marketing system: Efficient marketing systems are vital in enabling the poor to increase their production because they permit the delivery of products to markets at competitive prices that result in increased incomes. Karnani (2017) has noted that the best way to reduce poverty is to raise the productive capacity of the poor. Thus to raise the productive capacity of the poor, there is the need to explore the ways of expanding export markets. The plight of most farmers in developing countries demonstrates the need for improving the market system. A survey of marketability of agricultural produce in developing countries by Nugroho (2021) reveals that weakness and inefficiencies in the marketing of agricultural commodities has led to the impoverishment of farmers who face problems such as damage to their harvest, low commodity prices and thus low profits and incomes, and exploitation by middle men. He maintained that by improving the markets, growers of agricultural commodities can benefit from better storage that would cushion them from price fluctuations, the pooling of their resources that would enable a reduction of their cost and the processing of their products to enable value addition and improvement on their returns. The implementation of these measures can stimulate local, regional and national economies; underpin the establishment of a robust agro-industrial sector; create jobs; increase production incomes; and contribute to equitable and sustained reduction of poverty (Ayoo, 2021).

Social inclusion: An important instrument for addressing inequality and vulnerability among the poor is social inclusion. Sen (2005) has noted that social exclusion and capability deprivation are reasons for poverty. Thus in order to maximise peoples' capability, development should focus on social inclusion that is intended at enhancing peoples' well-being and freedom of choices. For Ashman and Elkins (2014), social inclusion of vulnerable communities through the removal of social barriers is as significant as financial inclusion in the poverty reduction strategies. Social security is a set of public actions designed to reduce levels of vulnerability, risk and deprivation. It induces gender parity owing to the equal sovereignty enjoyed by both men and women in the context of economic, social and political activities (Vyas-Doorgaparsad, 2014).

According to the World Development Report (2015), poverty reduction strategies should combine enhanced economic growth with the provision of essential social services directed towards creating financial and social safety nets. This is why social safety nets programs have been featured in the blue print for reducing poverty in developing countries. These tools are public spending on social protection including social insurance schemes and social assistance payments.

Inter-agency Collaboration

Collaboration is generally defined as the process of participation through which people, groups and organizations form relationship and work together to achieve a set of agreed upon targets. Thus interagency collaboration involves the synergy among various agencies to execute a set

of project or programmes designed for the benefit of the society. It is a process that involves the exchange of information, sharing and pooling of resources for mutual benefit to achieve a common purpose (Kochhar-Bryant, 2008).

Hadna (2016) suggested that collaborative governance model is a panacea for poverty reduction. According to him, building a collaborative governance model will increase the effectiveness of poverty reduction programmes. In his effort to buttress his point, Hadna explained that collaborative governance entails uniting public institutions and related parties that is non-governmental parties, in the participation process that will result in joint borne policies effective for poverty reduction. Since many stakeholders are involved, the model is seen to have the ability to understand the root cause of poverty through policy design, programme management and implementation.

Collaborative governance is important because it provide a basis for a joint forum where various stakeholders and other public institutions are involved in a consensus-oriented decision making. The National Fadama Development Project (NFDP) in this case is seen from the perspective of cooperation between organizations who are stakeholders in the drive to improve productivity through community inclusiveness.

Addressing Rural Poverty

The causes of rural poverty are complex and multidimensional as no single cause could be adduced. Khan (2018) has summed up some of the causes to include culture, climate, gender markets and public policy. According to him, broad economic stability, competitive markets, and public investment in physical and social infrastructure are widely recognised as important requirements for achieving sustained economic growth and reduction in rural poverty. In addition, because the rural poor's links to the economy vary considerably, public policy should focus on issues such as their access to land and credit, education and health care, support services and entitlements to food through well-designed public works programmes and other transfer mechanism. Therefore, the first requirement of a strategy to reduce rural poverty is to provide an enabling environment and resources for those in the rural sector who are engaged in the agricultural production and distribution system (Khan, 2018).

Prospects for addressing rural poverty through developing the role of smallholder and related rural micro small and medium- sized enterprises (MSMEs) operating in local agro-food systems are worthy of consideration. Indeed, it is reasonable to proffer that growth originating from smallholder agriculture, and related sub-sectors providing upstream and downstream services, has both direct and indirect impacts on rural poverty reduction: direct through impacts on the incomes of the poorest but also indirect through its effects on growth in the broader rural economy. (Haggblade, 2005) This is because higher income among smallholders generates demand for: local agricultural inputs, capital and services; commercial distribution and processing infrastructure and services; and non-food consumable goods. As a result, the knock-on effects of growth that benefits local smallholders creates wider benefits to the rural economy as a whole, creating new commercial opportunities. In addition to these sectoral-based linkages are potential productivity linkages whereby, for example, increased agricultural

productivity may lead to better nutrition which leads to higher productivity amongst rural non-farm workers; or productivity-enhancing skills and knowledge learned through smallholder development may be transferred to activities in another local rural sector.

According to Beegle and Christensen (2019) addressing rural poverty entails mitigating the initial challenges of the people. They pointed out that poor initial conditions also deter progress in developing countries. The conditions may not only be limited to low human capital and access to infrastructure, but deep seated structural impediments such as natural resource dependence, gender inequality and social redistributive pressures. On the other hand, recent insight on the psychology of poverty show how lack of human capital, physical assets, and access to basic infrastructure not only reduce the earning capacity of the poor but also tax their mental capacity and undermine their ability to plan, exercise self-control and aspire behaviours associated with escaping poverty (World Bank, 2015).

It is thus imperative to note that reducing rural poverty will require a combined effort at addressing the poor initial conditions, stimulating pro-poor growth where incomes of the poor will grow substantially and simultaneously with economic growth. Getting the right growth fundamentals as well as increasing growth where the poor work and live so that they can contribute directly, while addressing the many risks to which households are exposed is a pro-poor policy agenda required to accelerate the reduction of poverty in rural areas (Beegle & Christensen, 2019).

Community Driven Development (CDD) Approach

A comprehensive policy framework for development which seeks to empower local communities through a participatory model is the Community Driven Development approach (CDD). The World Bank (2001) views community-driven development as a mechanism for enhancing sustainability, improving efficiency and effectiveness, allowing poverty reduction efforts to be taken to scale, making development more inclusive, empowering poor people, building social capital, strengthening governance, and complementing market and public sector activities. All of these could be achieved by reducing the information gap (eliciting development priorities directly from target communities and allowing communities to identify projects and eligible recipients of private benefits), expanding the resource available to the poor through credits, social funds, capacity building and occupational training, and strengthening the civic capacities of communities by nurturing organizations that represents them (World Bank, 2001, Mansuri and Rao, 2004).

A critical analysis of the aforesaid submission indicates that the community-driven development approach is a bottom-up approach to development that requires a collaborative community and government effort to up-scale activities aimed at improving the fortunes of the community. The World Bank's emphasis on the right of people to partake in actions and plans which affects their lives was borne out of the realization that non-participation approaches to development have failed to significantly change the narratives of the poor. As noted by Anietem and Abiodun (2016), the failure of the top down approaches in tackling rural poverty made the community driven development approach more popular. This was evident especially in Nigeria where the Fadama II project received an Award of Excellence in 2008 following its

outstanding performance. As also noted by Mansuri and Rao (2004), the gains from the community-driven development are monumental due to its explicit objective of reversing power relations in a manner that creates voice for the poor, allowing them to have more control over their development. This is expected to make allocation of development funds more responsive to their need, improve the targeting of poverty programmes, make government more responsive, improve the delivery of public goods and strengthen the capabilities of the citizenry to undertake self-initiated development activities (Mansuri & Rao, 2004).

The World Bank and Income of Rural Households in some selected Countries

There are growing concerns about the impact of the World Bank on income of rural households around the globe. Some scholars have attributed the proclaimed commitment to boosting rural income as empty rhetoric or overload of a coherent agenda. This section attempts an analysis of empirical studies of the World Bank's rural poverty reduction programmes in, India, Bangladesh, and Nigeria.

India

Several initiatives have been introduced by the World Bank in India with the aim of reducing rural poverty thereby enhancing economic growth. The National Rural Livelihood Mission (NRLM) is the point of focus in the discussion that follows.

The National Rural Livelihood Mission (NRLM) addresses poverty through Self Help Group (SHG) which empowers beneficiaries through long term exposure to poverty alleviation programmes which ensures economic and food security. According to Mishra (2021), the NRLM have addressed poverty through self -employment training thereby enabling participants to achieve economic security, food security and educational security. In a similar study, Kumar (2021) expressed that the uniqueness and strength of the NRLM lies in two features; building community-managed institutions for the rural poor, and creating a community cadre of SHG members. This made the NRLM to enable rural families negotiate for greater access to resources with positive impact on access to land, food security and improved school enrolment. Through its multi-sectoral approach to financial inclusion, the NRLM has had significant effect on household incomes and increased community investments (Mishra, 2021).

Despite these significant strides by the NRLM, it has been found that most SHGs remain crowded in low-productivity, primary sector activities especially agriculture are bogged down by low absorption of technology. Mishra (2022) was emphatic about this challenge when it was suggested that the NRLM would do better by raising the abilities of members to diversify into high productive activities in order to consolidate on the gains made. Notwithstanding, the NRLM has demonstrated potential in building social capital and enabling access to productive resources.

Bangladesh

In Bangladesh, Abidin (2021) found that the agricultural sector is the main source of food security, employment and poverty alleviation, where he admitted that the Rural Investment

Climate Project holds the potential of reducing rural poverty if properly implemented. The revealed that the World Bank assisted Rural Investment Climate Project have significantly reduced poverty in the agriculture dependent country stressing that the project have reduced food deficit and increased employment. The result of the study conducted by Mishra (2022) on the impact of the climate smart agriculture on food security and poverty reduction suggest that agricultural productivity have been up-scaled with the introduction of the Rural Investment Climate Project, however challenges abound. Challenges such as delay in payment of counterpart funding, loss of arable land to urbanisation, production on a local scale and growing population pose a serious challenge to sustainability of the project. While the project has proven to alleviate immediate demands, the trend of the challenges suggest that there is need to sustainably strengthen institutions, increase food production and strive for self-sufficiency in agricultural production.

Nigeria

In Nigeria, the World Bank has provided assistance on agricultural development and infrastructure improvements. The National Fadama Development Project (NFDP) was introduced to sustainably increase the income of beneficiaries thereby reducing poverty. Result of the study by Inam and Effiong (2022) on Fadama III project revealed that the project impacted positively on beneficiaries through increase in output and income. However, there was concern about the sustainability of the project due to low level of capacity acquired by beneficiaries.

Adekunle (2020) analysed the impact of Fadama III additional financing on beneficiaries' income and poverty alleviation in Abuja, Federal capital territory. The study found that the outcome of the project translated to increased income and poverty alleviation of participants, yet they are not able to operate at full capacity raising concerns about sustainability. Human capital development and infrastructure were also found to be deficit thus affecting the adoption of technologies for modern farming.

The foregoing analysis across countries reveals several common themes and divergent outcomes. Key findings include increase in income, increased food security, increase in output and challenges of sustainability due to limited knowledge by participants. The World Bank's efforts at rural poverty reduction have shown varying degree of success across different countries. While there are noteworthy achievements, particularly in India, challenges remain in Bangladesh and Nigeria. Long term impacts and adaptive strategies to local context as well as innovative solutions are paramount at poverty reduction initiatives.

Theoretical Framework

The Theory of Access was adopted for this study because it is an alternative standard economic framework for thinking about poverty and human development.

A Theory of Access was developed by Ribot and Peluso (2003) and has been employed extensively in the context of human development. This theory views access as the bundle of powers that allows people to benefit from things. The central idea of the theory is that access is

shaped by power structures, and the ability to access things is determined by a range of factors including property, social relations and other mechanisms (Ribot & Peluso, 2003).

This theory sees access as the ability to benefit from things including material objects, persons, institutions and symbols. The focus on ability is to bring attention to a wider range of social relationships that can constrain or enable people to benefit from resources without focusing on property relations alone. Thus access is conceptualised as the real beneficiary of things and the process they actualise the objectives of acquisition of things. Therefore all possible means through which a person is able to benefit from available environmental resources and opportunities could rightly be termed as access. This access according to the theory is achieved through various mechanisms as elaborated here under

- a. Access to technology: this plays a significant role in individuals' ability to harness available environmental resource. Modern farming techniques require improved technology to reap in commercial quantity. The fadama development programme requires use of modern technologies such as tube wells, water pumps, modern irrigation techniques, electricity and good road network to ease production and facilitate access (Akindele, 2019).
- b. Access to capital: this is clearly a factor shaping who is able to benefit from resources by controlling or maintaining access to them. Access to capital is generally thought of as access to wealth in the form of finances and equipment that can be put into the services of production, extraction, conversion, labour and mobilisation, and other processes associated with deriving benefits from things and people. Power structures sometimes limit this access based on factors such as affiliations and clienteles.
- c. Access to markets: the ability to commercially benefit from a resource can depend more on whether its owners have access to a viable market. This theory sees market access as the ability of individuals or groups to gain control, or maintain entry into exchange relations. Market forces of demand and supply, and their influence on prices also shape the distribution of profits from things. These forces are not always within the control of identifiable actors. Thus when prices affects how an individual profits from selling his products, greater concern may emerge from the origins of the price, whether it was fixed by the state, set individually or collusively by merchants.
- d. Access to labour and labour opportunities: this medium shapes who can benefit from resources. Those who control access to labour can benefit from resource at any stage where labour is required throughout the life of resource. Access to labour opportunities includes the ability to labour for oneself and maintain access to employment with others. Even though someone may not have access to resource, and may not have the capital to buy technology, or to engage in commercial transactions to gain right to resources, the individual may gain resource access by entering into a working relationship with the resource access controller or the market-based access mechanism.
- e. Access to knowledge: this is necessary in determining who can benefit from resources. Beliefs, ideological controls, and discursive practices as well as negotiated systems of meaning, shape all forms of access. Control over knowledge and information may have

direct benefits such as access to information in maintaining access to labour opportunities, knowledge of prices of products and specialised technical information.

Methodology

Research Design

This study employed the use of survey research design as a plan for getting reliable answers to the research questions. This method involved the collection or analysis of both quantitative and qualitative data.

Population of the Study

The population of the study comprised of all the beneficiaries and active stakeholders of the Fadama III project within the study area. The study area consists of seven local governments with a total number of 60 registered Fadama Community Associations (FCAs) and 600 registered Fadama User Groups (FUGs). Under the Fadama III project, each registered FCA has a multiple of 10 FUG while each FUG consists of 10 constituent units. (State Fadama Development Office, Yola). Based on this composition, the target population for this study comprised of 60 Fadama Community Associations (FCAs) and 600 Fadama User Groups (FUGs) with total number of 6000 registered members.

Sample of the Study

The sample size for this study was determined using the Krejcie and Morgan formula for determining reliable sample. The formula is presented as follows.

$$n = \frac{x^2 Np(1-p)}{e^2(N-1) + x^2 p(1-p)}$$

Where:

n = sample size

N = population size (6000)

e = margin of acceptable error

x^2 = Chi-square $df = 1$ ($x^2 = 3.841$)

p = population proportions (Assumed to be 0.5)

$$n = \frac{3.841 \times 6000 \times 0.5(1-0.5)}{0.05^2(6000-1) + 3.841 \times 0.5(1-0.5)}$$

$$n = \frac{5761.5}{14.96025}$$

$$n = 385$$

Based on the above derivation, the sample size that was used for this study is 385.

Sampling Technique

The sampling technique that was used for the study is the multi-stage sampling technique comprising of purposive sampling, cluster sampling, and simple random sampling. The study area was clustered into seven major units based on the existing local government areas. The

seven major units were further clustered into sub-units based on the existing political wards in each local government.

Purposive sampling was used to select sub-units that are known to have established Fadama User Groups (FUGs) and Fadama Community Associations (FCAs) from the major units. The purposive sampling technique was also used to select respondents from the state Fadama Development Office (SFDO) and Local government desk officers for interviews.

The simple random sampling technique was used to select respondents within the elements of the research population comprising of Fadama User Groups (FUGs) and Fadama Community Associations (FCAs) for administration of questionnaires.

Method of Data Collection

The data for this study was collected through the use of structured questionnaire. The questionnaire was administered to respondents by the researcher with the help of research assistants who were trained for the purpose. Responses from the respondents represented the quantitative data for the study. In order to generate qualitative data, semi-structured interview was administered by the researcher to critical stakeholders of the National Fadama Development Project comprising of officials from the State Fadama Development Office (SFDO) and Local Government Desk Officers that are directly involved in the coordination and regulation of the programme.

Methods of Data Analysis

This study employed a combined method of data analysis comprising of the quantitative and qualitative methods in order to analyse the data that were generated in the course of the study. The descriptive and inferential statistics were used as the statistical technics of data analysis for the study

Income level of rural households participating in Fadama III Project

One hypothesis was formulated in null and alternate form to test the correlation between income and poverty level before and during the implementation of Fadama III project. The hypothesis is below.

- i. Ho: Benefiting fom Fadama III has no significant effect on the income and poverty level of rural households in Adamawa State
H₁: Participation in Fadama III has significant effect on the income and poverty level of rural households in Adamawa State

Table 4.1: Rho Summary table on Income and Poverty before and during Fadama III Project.

Variable	Rating before	Rating after	D	D ²
Income level before the introduction of fadama III	6	4	2	4
Income from upland subsistence agriculture	4	8	-4	16
Availability of basic needs	2	6	-4	16
Poverty level before Fadama III	1	1	0	0

Rate of savings	5	3	2	4
Engagement in livelihood support activities	3	2	1	1
Income due to access to credit facilities	7	5	2	4
Income due to effective use of fadama lands	8	7	1	1
Source: Field Survey, 2023	$\sum D^2 = 46$			

Rho at 8df at 0.05 level of significance is = 0.74

Calculated value = 0.46

Decision: since the calculated value (0.46) is less than the critical (table) value (0.74), we reject the null hypothesis and conclude that Participation in Fadama III has significant effect on the income and poverty level of rural households in Adamawa State.

Fadama land use and improvements before and during Fadama III Project

To test the significant correlation between agricultural productivity through land use improvements before and during fadama III project, one hypothesis was formulated and tested. The result from the test of hypothesis is presented below.

- i. Ho: The Fadama III project has no significant effect on agricultural productivity through land use improvement in Adamawa State
H₁: The Fadama III project has significant effect on agricultural productivity through land use improvement in Adamawa State.

Table 4.2: Rho summary table on agricultural productivity through land use improvement in Adamawa State

Variable	Rating before	Rating after	D	D ²
Fadama lands in your community were lying fallow	8	8	0	0
There was limited access to fadama lands due to inadequate infrastructures	5	4	1	1
Irrigation agriculture provided low yield due to poor farming techniques	4	3	1	1
Low patronage of fadama lands due to inadequate farm implements	3	5	-2	4
Insufficient input support limited use of fadama lands	7	7	0	0
There was sufficient technical skills to handle fadama farming	1	2	-1	1
Productivity level was low due to minimal use of fadama lands	2	6	-4	16
The level of irrigation agriculture was low due to lack of support	6	1	5	25
Source: Field Survey, 2023	$\sum D^2 = 48$			

Rho at 8df at 0.05 level of significance is = 0.74

Calculated value = 0.43

Decision: since the calculated value (0.43) is less than the critical (table) value (0.74), we reject the null hypothesis and conclude that the Fadama III project has significant effect on agricultural productivity through land use improvement in Adamawa State.

Discussion of Findings

The study found that income of rural households participating in Fadama III project has increased significantly. This signifies that benefiting from Fadama III has significant effect on the income and poverty level of rural households in Adamawa State. This development aligns with the literature on strategies for poverty reduction where it was suggested that stimulating economic growth through investment in agriculture is a simple way to reduce poverty in rural areas. Ayoo (2021) observe that the poor in most developing countries depend on agriculture for subsistence. Thus enhancing agricultural productivity through the diversification of farming activities is chief among poverty reduction strategies. The findings also agrees with the submission of Khan (2018) who maintained that broad economic stability, competitive markets, and public investment in physical and social infrastructure are widely recognised as important requirements for achieving sustained economic growth and reduction in rural poverty.

The findings with respect to the second objective revealed that the Fadama III project has significant impact on agricultural productivity through improvements in the use of farmlands in Adamawa State. This implies that there is a positive relationship between Fadama III Project and agricultural productivity within 2009 – 2019 in Adamawa state. In a more specific term, it can be implied that the Fadama III Project has enhanced the cultivation of more fadama lands in Adamawa State. The utilization of fadama resources as indicated by improvements in land use had significant positive impact on beneficiaries' productivity level. Khan (2018) maintained that because the rural poor's links to the economy vary considerably, public policy should focus on issues such as their access to land and through rural support services. Therefore, the first requirement of a strategy to reduce rural poverty is to provide an enabling environment and resources for those in the rural sector who are engaged in the agricultural production and distribution system.

Conclusion

The study concludes that the Community Driven Development paradigm which was used as a model for the implementation of the Fadama III project by the World Bank is a panacea to rural development because it allows individuals and groups to participate in the planning, design and implementation of their projects.

Recommendations

- i. Improve mechanisms for conflict resolution. A concerted effort at conflict resolution with diverse measures is needed to address the problem of herder-farmer conflict. There is also the need to repeal the land use act in order to modernize the productive systems. According to Genyi (2017), modernization of the productive

- systems of both groups will eliminate the seemingly inherent factors underpinning contemporary contestation for land-based resources that leads to conflicts.
- ii. Efforts should be made to provide modernized farm implements to complement productivity, the use of crude implements in the cultivation process makes farming slower and less productive thereby limiting the commercial value of the farm enterprise.

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