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# The Impact of the National Fadama Development Project III on Poverty Reduction Among Rural Farmers in Yobe State, Nigeria

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**Abstract**

*Poverty is one of the significant challenges confronting rural areas in Nigeria particularly in agrarian communities like Yobe State. This paper examined the impact of the National Fadama Development Project III (Fadama III) on poverty reduction among rural farmers in Yobe State through comparion of beneficiaries and non-beneficiaries alike. We conducted a survey comprising of 196 households (consisting of 105 beneficiaries and 91 non-beneficiaries respectively) in 2025, furthermore, the paper employed descriptive statistics, gross margin analysis, the Foster-Greer-Thorbecke (FGT) poverty indices and also the Simpson Index of Diversification (SID). Results from the analysis indicates that Fadama III beneficiaries reports higher incomes, higher income diversification and lower incidence of poverty (15.31%) while depth and severity records (1.85%), (3.68%) respectively compared to non-beneficiaries who reported score of 38.02%, 17.40% and 7.95% respectively. Furthermore, the Gross margins for beneficiaries were ₦40,768,146 much higher than ₦11,729,911 for non-beneficiaries. The findings show the role of the project such as Fadama NG-CARES in improving their standard of living through community development programs. Policy recommendations offered by this paper include expanding participation and training programs.*
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**Keywords:** National Fadama Project, Poverty Reduction, Rural, Farmers
**JEL Classification:**

## 1.0 Introduction

The persistence of poverty in developing countries especially in sub-Saharan Africa several despite economic reforms and international aids is one of the greatest challenge of the century. In Nigeria, poverty in the rural areas is compounded by limited access to resources, lack of adequate infrastructure and exclusion and weak markets (World Bank, 2023; UNDP, 2022). Despite the fact that agriculture contributes more than 25% to GDP and more than 60% of direct labor, yet it faces underinvestment and other challenges related to climate (NBS, 2023; FAO, 2023). To mitigate these problems, federal government initiated the National Fadama Development Projects. The main objective of the Fadama project was to sustainably increase the income of Fadama Resource Users farmers, pastoralists, fishing folks, hunters, gatherers and service providers through empowering communities to take charge of their own development agencies and by reducing conflicts between Fadama Users. The project evolved in three major phase; Fadama I, Fadama II and Fadama III. The first national fadama project (Fadama I) was implemented in the early 1990s, while the second National Fadama Project was conceptualized based on the impressive implementation of the first National Fadama Development Project (NFDP -l) which was adjudged to be successful nationally. The third national Fadama Development Project (Fadama III) was a follow-up on the Second National

Fadama Development Project (Fadama II), implemented between 2004 and 2008. The project is implemented in 36 States and the Federal Capital Territory (FCT). Thus, the project was community-driven initiative strives to boost agricultural productivity and reduce poverty by emphasizing on capacity building for Fadama User Groups (FUGs) and Fadama Community Associations (FCAs) targeting about 40% income rise for 75% of beneficiaries from each of the participating states covering Yobe State (Yobe Fadama Implementation Manual, 2009). Considering the fact that Yobe State is vulnerable to insecurity and climatic challenges provides critical context for evaluation.

Despite interventions, poverty in rural areas remains very high with multidimensional aspects such as health and education etc. (Alkire et al., 2021). It should be noted that previous intervention programs like Operation Feed the Nation and Anchor Borrowers have failed to perform effectively likely due to poor accountability and misalignment with local needs (Akinyemi & Adedayo, 2020; Adebayo & Lawal, 2018). Even though Fadama III adopted a community-driven model, evidence revealed that its impact in Yobe is very limited (IFPRI, 2022; Mohammed & Abdullahi, 2020).

Therefore, this study aims to find out the relationship between Fadama III and poverty reduction among rural farmers in Yobe State, Nigeria as well as determining its impact on income and consumption levels among the farmers. The paper also investigates the impact of Fadama III on poverty reduction in Yobe through comparing both beneficiaries and non-beneficiaries alkie in terms of income, consumption and their standard of living. The paper is orgainized as follows. The next section reviews the literature, while section three explains the methodology. Section four presents the empirical results. Section five discusses the major findings, while the last section concludes and provides policy recommendations.

## 2.0 Literature Review

### 2.1 Conceptual Framework

Poverty is no longer understood merely as a lack of income. Contemporary development literature recognizes poverty as a multidimensional phenomenon that reflects deprivations across several aspects of human well-being. According to the World Bank (2023), poverty encompasses not only insufficient income but also limited access to education, poor health outcomes, vulnerability to shocks, and social exclusion. Similarly, Sabina Alkire and colleagues (2021), through the global Multidimensional Poverty Index (MPI), emphasize that poverty manifests in overlapping disadvantages such as malnutrition, lack of schooling, inadequate housing, and restricted access to clean water and sanitation. This broader understanding is particularly relevant in developing countries like Nigeria, where income poverty often intersects with infrastructural deficits, insecurity, and weak institutional capacity. In Nigeria, poverty remains predominantly in rural areas. A significant proportion of the rural population depends directly on agriculture and natural resources for survival. However, limited access to productive inputs, markets, irrigation facilities, and rural infrastructure constrained agricultural productivity. As argued by Muktar (2011), effective poverty reduction strategies must go beyond short-term welfare interventions to include sustained economic growth, provision of basic social amenities, agricultural modernization, and rural development initiatives. These strategies aim not only to increase income but also to strengthen the productive capacity of poor households.

The rural infrastructure gap further compounds poverty challenges. The International Fund for Agricultural Development (IFAD, 2013) reported that over 70% of Nigeria's rural population suffers from inadequate infrastructure, including poor road networks, limited irrigation

systems, weak market access, and insufficient storage facilities. These deficiencies reduce farmers' ability to commercialize production and integrate into value chains, thereby reinforcing cycles of poverty.

In response to these structural challenges, the Nigerian government, in collaboration with the World Bank, implemented successive phases of the National Fadama Development Project. The Fadama III project, and more recently the Fadama - Nigeria Community Action for Resilience and Economic Stimulus (NG-CARES). The NG-CARES programme, were designed to improve rural livelihoods through community-driven development, enhanced resource management, and diversification of income-generating activities. According to the Project Implementation Manual (PIM, 2009), Fadama III sought to increase beneficiaries' incomes by supporting small-scale irrigation, livestock production, fisheries, agro-processing, and rural enterprise development. By emphasizing participatory planning and community ownership, the programme aimed to ensure that interventions responded directly to the needs of rural farmers, thereby promoting sustainable poverty reduction rather than temporary relief.

## 2.2 Theoretical Framework

The theoretical foundation of this study is anchored primarily on Community-Based Development (CBD) Theory, as articulated by Ghazi Mansuri and Vijayendra Rao (2013). CBD theory argues that development interventions are more effective and sustainable when local communities actively participate in identifying, designing, implementing, and monitoring projects. Rather than imposing externally determined solutions, CBD emphasizes local knowledge, collective decision-making, transparency, and accountability. This perspective aligns closely with the design of the Fadama III project, which adopted a Community-Driven Development (CDD) approach. Under this framework, Fadama User Groups (FUGs) and Fadama Community Associations (FCAs) were empowered to determine priority investments and manage allocated funds. The assumption is that communities better understand their needs and constraints, and when given ownership of projects, they are more likely to ensure proper utilization and sustainability. Complementing CBD theory is the Sustainable Livelihoods Approach (SLA), developed by Ian Scoones (1998). The SLA framework conceptualizes poverty in terms of limited access to five key livelihood assets: human, natural, financial, physical, and social capital. It argues that sustainable poverty reduction requires strengthening these assets while enhancing people's capacity to cope with shocks and stresses. Within the Fadama context, support for irrigation equipment (physical capital), access to credit (financial capital), training (human capital), group formation (social capital), and improved land use (natural capital) reflects this integrated asset-based approach.

Furthermore, the study draws from Collective Action Theory, proposed by Mancur Olson (1965). Olson posits that individuals can achieve shared objectives more efficiently when they cooperate within organized groups. However, successful collective action requires proper incentives and institutional arrangements to minimize free-rider problems. The formation of Fadama User Groups under the project demonstrates practical application of this theory, as farmers pool resources, share risks, and collectively access funding, training, and market opportunities. Through organized cooperation, transaction costs are reduced and economies of scale are achieved, ultimately improving income and welfare outcomes. Together, these three theoretical perspectives provide a strong analytical foundation for assessing the impact of Fadama III on poverty reduction in Yobe State. While CBD explains the participatory structure of the programme, the Sustainable Livelihoods Approach highlights its asset-building dimension, and Collective Action Theory clarifies the role of organized farmer groups in achieving improved economic outcomes.

## 2.3 Empirical Review

Several empirical studies on the National Fadama Development Project III (Fadama III) documented positive impacts of fadama project on agricultural productivity, household income, food security and poverty reduction etc. among rural farmers in Nigeria. These findings cover several regions using multiple estimation techniques such as Propensity Score Matching (PSM), Difference-in-Differences (DiD), Foster-Greer-Thorbecke (FGT) poverty indices etc. comparing beneficiaries and non-beneficiaries. In the south east part of Nigeria, Nwachukwu and Okonkwo (2022) employed PSM and discovered 45% increase in productivity and income among Fadama III beneficiaries relative to non-participants showing the role of community engagement and extension services. More so, Emerole et al. (2015) in Abia State conducted a study and found lower poverty incidence of about 48.1% vs. 55.2% and gap of about 34.7% vs. 42.5% among beneficiaries with a significant positive effect on farm income, output, farm size, labor, and fertilizer usage. Another study in Ebonyi state by Egenti and Dinbabo (2022) employed quasi-experimental design and found reduction on food insecurity, about a ₦342,553 increase in household income, and around 1.2 tons/ha increase in crop yields linking it to the Sustainable Development Goals programs 1 and 2.

Empirical studies from northern Nigeria also documented similar findings. For instance, Tukur and Umar (2023) applied Difference-in-Differences (DiD) in Yobe State and discovered significant poverty headcount reduction from 62% to 38% from 2015 to 2020 linking this to improvement on inputs and capacity building. In Bauchi State, Abdullahi et al. (2021) employs a logistic regression model and discovered improvement in food security and level of income. More so, Idris et al. (2022) in Kaduna and Sokoto States conducted another study and found significant positive correlation between participation and productive asset ownership such as irrigation equipment and livestock. Another study by Kwon-Ndung et al. (2018, 2024) in Benue State reports the low Gini coefficient among beneficiaries which is confirming equity in income distribution and hence recommends Fadama III as a viable poverty alleviation process. A similar result was reported in Delta state by Ike (2012). The study concluded that Fadama III led to reduction in poverty through skill acquisition programs and other supports. In Federal Capital Territory (FCT), Solomon (2020) conducted another study within the Federal Capital Territory and reported increase in income and poverty reduction. Still within the north central, precisely in Plateau State, Maji (2017) documented positive impacts of Fadama III on output and income for vulnerable groups. Further studies such as those of Osundu et al. (2015) in Abia and Kudi et al. (2008) in Kaduna maintained their support for poverty reduction through infrastructure development and inputs provision across board.

More so, Subsequent projects like Fadama NG-CARES that was built on Fadama III platforms also continued to address food security problems and support livelihood (Fadama NG-CARES, 2023; recent contributions in Kwara State, 2025). However, despite all these challenges, still remain pockets of problems ranging from limited access to credit, insecurity in especially in the northern regions (Adebayo & Lawal, 2020; Oyebode & Akinbile, 2021). Despite existence of extant literature on income and productivity, studies targeting region-specific fragile areas suc as Yobe remained largely very limited. The few ones available largely emphasize on multidimensional empowerment or long-term resilience in some conflict-prone contexts.

## 3.0 Methodology

### 3.1 Research Design

A cross-sectional survey design to assess the impact of National Fadama Development Project III (Fadama III) on poverty reduction among rural farmers in Yobe State, Nigeria was

employed in this study. The design enabled comparison of outcomes between beneficiaries (treatment group) and non-beneficiaries (control group) in terms of income, consumption and poverty reduction during implementation period of the project between 2004 and 2019. The study also utilized primary data collected through structured questionnaires and supplemented by focus group discussions and interview methods.

### 3.2 Study Area

This study was conducted in Yobe State Nigeria, located in northeastern part of Nigeria between the latitudes of 11°30′N to 13°30′N and longitudes of 9°45′E to 12°00′E. Yobe State covers around 45,502 km² comprising of 17 Local Government Areas (LGAs). The state has a semi-arid climatic condition with wet and dry seasons hence making Fadama lands critical for a year-round agricultural productivity. The major cultivated crops in the state includes sorghum, millet, cowpeas, rice and vegetables especially along the river basins. However, the state is largely rated as a poor state characterized by high rural poverty, vulnerability to climate variations and insecurity.

### 3.3 Population and Sampling Procedure

Rural farming households in Yobe State with specific focus on Fadama III beneficiaries represent the population of this study. Records from Yobe State Agricultural Development Programme (YOSADP) show that approximately 30,500 households were registered Fadama III beneficiaries across the state. For convenience, this paper employed and adopted a purposive sampling technique, where all the three senatorial zones were selected to ensure geographic representation. Subsequently, within each zone, Fadama-intensive LGAs were then identified based on beneficiary concentration. Subsequently, communities with active Fadama User Groups (FUGs) were then randomly selected. From each selected community, 15 households (comprising both beneficiaries and non-beneficiaries) were randomly sampled. Conversely, a total of 225 questionnaires were administered during the survey period and out of which, 196 were completed and returned for analysis. They comprise of 105 beneficiaries and 91 non-beneficiaries of the Fadama III programs representing total response rate of 87 per cent.

### 3.4 Data Collection

The paper's primary data were collected in 2021 through the use of a structured questionnaire which was administered by trained enumerators from the Yobe State Agricultural Development Programme (YOSADP). The questionnaires captured so many information about the respondents ranging from demographic characteristics, farm and non-farm income sources, cost of production, ownership of asset, patterns of household expenditure and access to basic services. In order to enrich the quantitative analysis, additional qualitative data were obtained through focus group discussions with Fadama Community Associations (FCAs) and key informant interviews with project officers as supplements.

### 3.5 Method of Analysis

The paper employed both descriptive and inferential techniques of analysis. Descriptive statistics used includes frequencies, percentages and mean to summarize household characteristics. In addition, farm profitability was examined using gross margin analysis as specified thus:

$$GM = TR - TVC$$

Where GM is the gross margin, TR is total revenue and TVC is total variable costs. To measure the status of household poverty, we used the Foster-Greer-Thorbecke (FGT) poverty indices (Foster et al., 1984) as thus expressed:

$$P_{\alpha} = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^{\alpha}$$

Where z is poverty line obtained from the household per capita expenditure while $y_i$ is per capita expenditure of household i, q is number of households below the poverty line while n is the total number of households and α is poverty aversion parameter such that α = 0 measuring poverty incidence, α = 1 is the depth of poverty and α = 2 is the severity poverty.

Furthermore, income diversification was examined using Simpson Index of Diversification (SID) thus:

$$SID = 1 - \sum p_i^2$$

Where pi is the rate of income obtained from i and the index ranges from 0 which indicates no diversification to 1 which indicate high level diversification of income. We further examined inequality of income among households using the Gini coefficient obtained from Lorenz curve. All analyses in this study were conducted out using SPSS and Microsoft Excel package.

### 3.6 Description of Variables

Table 3.1: Description and Measurement of Variables

| Variable | Description | Measurement |
|---|---|---|
| Participation | Beneficiary status in Fadama III programme | Dummy (1 = Beneficiary, 0 = Non-beneficiary) |
| Total Household Income | Aggregate annual income from all farm and non-farm sources | Nigerian Naira (₦) |
| Gross Margin | Profitability measured as total revenue minus total variable costs | Nigerian Naira (₦) |
| Income Diversification | Extent of reliance on multiple income sources | Simpson Index of Diversification (SID: 0–1) |
| Poverty Incidence | Proportion of households living below the poverty line | Percentage (%) |
| Poverty Gap | Average income shortfall of the poor relative to the poverty line | Percentage (%) |
| Poverty Severity | Squared poverty gap, placing greater weight on the poorest households | Percentage (%) |
| Gender of Household Head | Sex of the primary household decision-maker | Categorical (Male/Female) |
| Age of Household Head | Age of the primary household decision-maker | Years |
| Household Size | Total number of household members | Count |
| Farming Experience | Number of years engaged in farming activities | Years |

| Variable | Description | Measurement |
|---|---|---|
| Education Level | Highest level of formal or Islamic education attained | Categorical (Islamic, Primary, Secondary, Tertiary, Others) |
| Access to Credit | Availability of formal or informal credit facilities | Dummy (1 = Yes, 0 = No) |
| Association Membership | Membership in farmer groups, cooperatives, or Fadama associations | Dummy (1 = Yes, 0 = No) |

**Source**: Author's compilation (2025).

### 3.7 Ethical Considerations

Respondents consent was obtained throughout the process of data collection and analysis. Therefore, this study followed ethical guidelines of social sciences research in Nigeria.

## 4.0 Empirical Results

### 4.1 Socio-Demographic Characteristics of the Respondents

The socio-demographic profile of all the respondents revealed some differences between beneficiaries and non-beneficiaries, influencing participation and outcomes.

Table 4.1: Socio-Demographic Characteristics of Respondents by Participation Status

| Characteristic | Category | No. of Beneficiaries | Beneficiaries (%) | No. of Non-Beneficiaries | Non-Beneficiaries (%) |
|---|---|---|---|---|---|
| **Gender** | Male | 88 | 84 | 70 | 77 |
| | Female | 17 | 16 | 21 | 23 |
| **Marital Status** | Married | 84 | 80 | 72 | 79 |
| | Single | 21 | 20 | 19 | 21 |
| **Age of Household Head** | Below 20 | 0 | 0 | | 0 |
| | 21-40 years | 65 | 51 | 56 | 62 |
| | Above 40 years | 40 | 49 | 35 | 38 |
| **Household Size** | 1-5 members | 0 | 23 | 0 | 0 |
| | 6-10 members | 57 | 37 | 49 | 54 |
| | Above 10 members | 48 | 40 | 42 | 46 |

| | | | | | |
|---|---|---|---|---|---|
| **Farming Experience** | 1-10 years | 0 | 0 | 91 | 100 |
| | 11-20 years | 57 | 54 | 0 | 0 |
| | Above 20 years | 48 | 46 | 0 | 0 |
| **Educational Level** | Islamic | 51 | 49 | 43 | 47 |
| | Primary | 21 | 20 | 23 | 25 |
| | Secondary | 16 | 15 | 14 | 15 |
| | Tertiary | 6 | 6 | 7 | 8 |
| | Others | 11 | 10 | 5 | 5 |
| **Access to Credit** | Yes | 17 | 16 | 15 | 16 |
| | No | 88 | 84 | 76 | 84 |
| **Association Membership** | Yes | 80 | 76 | 33 | 36 |
| | No | 25 | 24 | 58 | 64 |

Source: Field Survey (2021).

Table 4.1 revealed clear socio-demographic characteristics of respondents comprising of both beneficiaries and non-beneficiaries of Fadama III programme. From the analysis, we can see that those male-headed households are larger in both groups even though it is much higher among beneficiaries which suggest possible barriers in gender participation. Furthermore, most of the respondents in both categories are married which suggest possible targeting of household heads with family responsibilities. Age distribution also shows that large portion of beneficiaries of the program is relatively above 40 years while non-beneficiaries largely within the 21- 40 age years. This suggests that experience and maturity are considered at the time of selection or participation. More so, the size of household is large in both groups. Furthermore, beneficiaries of the program also report relatively high farming experience having at least more than ten year experience in farming while non-beneficiaries' experience range between 1-10 years only. This indicates that farming experience is considered an important criterion for inclusion in the program. Level of educational is generally low in both groups with Islamic and primary education scoring higher. Both respondents reported limted access to credit suggesting challenges of credit in the study area while beneficiaries reports high rate of association membership relative to non-beneficiaries.

## 4.2 Income Diversification

Table 4.2: Income from Various Sources for Beneficiaries

| *Income Source* | *Beneficiaries (₦)* |
|---|---|
| *Farm* | *26,829,221* |

| | |
|---|---|
| *Livestock* | *14,509,950* |
| *Business* | *10,418,508* |
| *Handwork* | *8,475,810* |
| *Others* | *6,729,800* |

Source: Field Survey (2025).

Table 4.2 shows that beneficiaries diversified their source of income across five activities (SID analysis) however largely dominated by farm income while livestock, off-farm sources supplement it compared to non-beneficiaries who reports only four activities.

### 4.3 Gross Margin Analysis

| *Category* | *Gross Margin (₦)* |
|---|---|
| *Beneficiaries* | *40,768,146* |
| *Non-Beneficiaries* | *11,729,911* |

Source: Field Survey (2025).

Table 4.3 reports that beneficiaries achieved high profitability due to improvement in inputs, infrastructure and access to market under Fadama III.

### 4.4 Poverty Status

| ***Poverty Measure*** | ***Beneficiaries*** | ***Non-Beneficiaries*** |
|---|---|---|
| *Headcount (%)* | *15.31* | *38.02* |
| *Poverty Gap (%)* | *3.68* | *17.40* |
| *Squared Poverty Gap (Severity) (%)* | *1.85* | *7.95* |

Source: Field Survey (2025).

Table 4.4 presents the Foster–Greer–Thorbecke (FGT) poverty indices for beneficiaries and non-beneficiaries of the Fadama III programme based on the 2025 field survey. The headcount index ($P_0$) shows that 15.31% of beneficiary households fall below the poverty line, compared to 38.02% of non-beneficiaries. This implies that poverty incidence among non-beneficiaries is more than twice that observed among programme participants. The substantial difference suggests that participation in the Fadama III intervention significantly reduces the likelihood of households falling into poverty. Beyond the incidence of poverty, the poverty gap index ($P_1$) provides insight into the depth of poverty. The poverty gap among beneficiaries is 3.68%, whereas it stands at 17.40% for non-beneficiaries. This indicates that poor beneficiaries experience only a small average income shortfall from the poverty line, while non-beneficiaries face a much larger income deficiency. In practical terms, this suggests that even when beneficiaries are poor, their level of deprivation is relatively mild compared to their non-participating counterparts. Furthermore, the squared poverty gap ($P_2$), which measures poverty severity and inequality among the poor, is 1.85% for beneficiaries and 7.95% for non-beneficiaries. The higher severity index among non-beneficiaries indicates that poverty within this group is not only more widespread but also more intense and unevenly distributed. In contrast, the relatively low severity among beneficiaries suggests that extreme poverty is less prevalent among programme participants. Taken together, the three FGT measures consistently demonstrate that the Fadama III programme has substantially reduced the incidence, depth, and severity of poverty among participating households. The findings indicate that the programme has not only lowered the number of poor households but has also reduced the intensity of poverty and inequality among them. This conclusion is further reinforced by the Gini coefficient results, which reveal lower income inequality among beneficiaries relative to non-

beneficiaries. The overall evidence therefore suggests that the Fadama III intervention has contributed meaningfully to rural poverty alleviation. These results are consistent with earlier empirical studies in northern Nigeria that highlight the effectiveness of targeted agricultural and rural development programmes in mitigating poverty, despite prevailing structural challenges such as insecurity and low educational attainment.

## 5.0 Discussion of the Major Findings

The findings of this study provide strong empirical evidence that participation in the Fadama III programme significantly reduces poverty among rural farmers in Yobe State. This conclusion is clearly demonstrated by the Foster–Greer–Thorbecke (FGT) poverty indices. The poverty headcount ratio ($P_0$) shows that only 15.31% of beneficiaries fall below the poverty line, compared to 38.02% of non-beneficiaries. This indicates that non-participating households are more than twice as likely to be poor as programme participants. Beyond the incidence of poverty, the poverty gap index ($P_1$) further reveals substantial differences in the depth of deprivation. Beneficiaries recorded a poverty gap of 3.68%, while non-beneficiaries recorded 17.40%. This implies that poor beneficiaries are, on average, much closer to the poverty line than poor non-beneficiaries. In other words, the income shortfall required to lift beneficiaries out of poverty is significantly smaller. Similarly, the squared poverty gap ($P_2$), which measures the severity and inequality of poverty among the poor, is considerably lower for beneficiaries (1.85%) compared to non-beneficiaries (7.95%). The lower severity index among beneficiaries suggests that extreme poverty is less prevalent and less concentrated within this group. Taken together, the three FGT measures consistently indicate that the programme not only reduces the number of poor households but also mitigates the depth and severity of poverty. In addition to the poverty indices, the income analysis strengthens this conclusion. Beneficiaries recorded substantially higher gross margins (₦40.77 million) compared to non-beneficiaries (₦11.73 million). This large differential suggests that access to programme-supported inputs, improved farming techniques, and institutional support translates into higher farm profitability. Increased income levels naturally contribute to the lower poverty incidence observed among beneficiaries.

Income diversification also appears to play a critical role. Beneficiaries reported five income sources compared to four among non-beneficiaries. Diversification reduces vulnerability to shocks, particularly in an environment characterized by insecurity and climatic uncertainty. The broader income base among beneficiaries likely enhances household resilience and contributes to the observed reduction in poverty severity. These findings are consistent with the theoretical foundations underpinning this study. The Community-Based Development (CBD) framework, as articulated by Ghazi Mansuri and Vijayendra Rao (2013), emphasizes that community participation improves transparency, accountability, and efficient resource allocation. The higher association membership observed among beneficiaries supports this proposition, as collective engagement facilitates better access to productive resources and knowledge sharing. Likewise, Mancur Olson's (1965) Collective Action Theory explains how group participation reduces transaction costs and enhances bargaining power, thereby improving economic outcomes. Empirically, the results align with Tukur and Umar (2023), who documented a decline in poverty headcount from 62% to 38% in Yobe State using a Difference-in-Differences approach. Their study attributed improvements to input provision and capacity-building initiatives, which are also core components of the Fadama III intervention. Similarly, Nwachukwu and Okonkwo (2022) reported productivity gains of about 45% in southeastern Nigeria, consistent with the higher gross margins observed in this study. Idris et al. (2022) further documented improvements in food security across northern states, reinforcing the role of agricultural interventions in enhancing household welfare. Earlier

findings by Moses (2017) in Yobe State also reported lower poverty incidence among beneficiaries (51.7%) relative to non-beneficiaries (68.5%), suggesting sustained programme impact across implementation phases. However, despite the positive outcomes, structural constraints persist. Access to credit remains low (16%), and limited formal education continues to restrict full economic empowerment, as noted by Adebayo and Lawal (2020). These constraints may limit the long-term sustainability of programme gains if not adequately addressed.

## 6.0 Conclusion and Policy Recommendations

This study assessed the impact of the National Fadama Development Project III (Fadama III) on poverty reduction among rural farmers in Yobe State, Nigeria. Using comparative analysis between beneficiaries and non-beneficiaries, the findings provide strong empirical evidence that programme participation significantly improves household welfare. The Foster–Greer–Thorbecke (FGT) poverty indices clearly demonstrate that poverty incidence, depth, and severity are substantially lower among beneficiaries. The poverty headcount ratio is 15.31% for beneficiaries compared to 38.02% for non-beneficiaries. More importantly, the poverty gap (3.68% versus 17.40%) and squared poverty gap (1.85% versus 7.95%) reveal that poor beneficiaries are not only fewer in number but also experience milder and less severe deprivation. These results indicate that the programme has contributed meaningfully to reducing both the likelihood of being poor and the intensity of poverty among participating households. In addition, beneficiaries recorded significantly higher gross margins (₦40.77 million) relative to non-beneficiaries (₦11.73 million), alongside greater income diversification. These outcomes suggest that improved access to productive inputs, institutional support, and collective action mechanisms enhanced farm profitability and household resilience. The findings validate the community-driven development (CDD) framework underpinning the project, where local Fadama User Groups (FUGs) and Fadama Community Associations (FCAs) play active roles in resource allocation and micro-project implementation. The results are also consistent with the propositions of Community-Based Development Theory, the Sustainable Livelihoods Approach, and Collective Action Theory, which emphasize participation, asset enhancement, and institutional cooperation as pathways to poverty reduction. Findings in this paper carry important policy implications for agricultural and rural development strategies in conflict-affected and low-income regions.

First, the substantial differences in poverty incidence and severity between beneficiaries and non-beneficiaries demonstrate that targeted agricultural interventions can serve as effective poverty alleviation instruments. Policies that prioritize smallholder farmers through structured community participation mechanisms can significantly reduce rural deprivation. Second, the low poverty gap and severity among beneficiaries suggest that well-designed rural interventions can prevent households from falling into extreme poverty. Therefore, poverty reduction policies should not only focus on income generation but also on reducing vulnerability and inequality among the poor.

Third, the higher gross margins and diversified income sources recorded among beneficiaries indicate that strengthening productive capacity and encouraging livelihood diversification enhances economic resilience. Rural development policy should therefore integrate agricultural productivity support with broader livelihood strategies. Fourth, persistent constraints such as limited access to credit and low formal education highlight the need for complementary institutional reforms. Without improving financial inclusion and human capital development, the long-term sustainability of poverty reduction gains may be limited.

i. Programme Expansion and Inclusivity. Given the demonstrable reduction in poverty incidence (15.31%) and severity (1.85%) among beneficiaries, policymakers should scale up successor programmes such as National Fadama Development Project initiatives and related interventions including NG-CARES to reach more rural households. Special targeting mechanisms should be designed to include vulnerable groups such as women, internally displaced persons, and persons with disabilities.
ii. Strengthening Capacity Building. Continuous training in modern farming techniques, agribusiness management, climate-smart agriculture, and value-chain integration should be intensified. Strengthened technical capacity will help sustain the observed reductions in poverty depth and severity.
iii. Improving Access to Financial and Extension Services. Access to affordable credit remains low. Government and financial institutions should expand rural credit schemes, simplify bureaucratic procedures, and strengthen agricultural extension systems. Investments in rural infrastructure—such as feeder roads, storage facilities, and market linkages should also be prioritized to reduce transaction costs and improve profitability.
iv. Institutionalized Monitoring and Impact Evaluation. Regular monitoring and evaluation mechanisms should be institutionalized at local government levels, particularly in fragile states such as Yobe. Continuous poverty tracking using FGT and inequality measures will enable evidence-based policy adjustments and ensure long-term programme effectiveness.
v. Ensuring Sustainability through Diversified Funding. To sustain gains beyond donor support, funding sources should be diversified through stronger federal–state collaboration, private sector participation, and community contributions. Building financial sustainability will protect rural development gains from fiscal shocks

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