

# Impact of National Fadama III Development Project in Alleviating Poverty of Food Crop Farmers in Abia State, Nigeria

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## Abstract

The study was conducted to examine the impact of National Fadama III Development Project on poverty status of households of participating food crop farmers in Abia state, Nigeria, with specific objectives to: determine and compare poverty levels among Fadama III and non-Fadama III participating food crop farmers and determine effects of Fadama III programme on participant's farm income, farm output, farm size, labour and fertilizer use levels. Multi-stage random sampling technique was used to select 360 respondents consisting of 180 Fadama III food crop farmers and 180 non-Fadama III food crop farmers in the three agricultural zones of the state. Instrument used for data collection was a pretested semi-structured questionnaire used in a cross-sectional survey. Data gathered were analyzed descriptively with mean, frequency distributions and inferentially with head count ratios on poverty indices and paired t-test. The result of the analyses showed that poverty incidence was 0.481 for Fadama III food crop farmers and 0.552 for non-Fadama III food crop farmers. The poverty gap was 0.347 for Fadama III food crop farmers and 0.425 for non-Fadama III food crop farmers. The paired t-test indices showed that national Fadama III Programme impacted positively and significantly on farmer participant's income and farm size at 5.0% level of significance. Increased funding of agriculture through groups such as Fadama groups would truly empower farmers to venture into new areas of investments including product processing and packaging to add value which would lead to increased net returns and reduction of household poverty level.

## Keywords

Fadama III, Farmers, Food Crop, Community Driven Development, Poverty

## 1. Introduction

Nigerian agriculture has been characterized by small scale production with poor investment, low output, and low income [1]. Local farmers have hardly afforded to embrace yield enhancing technologies with the result that poverty and hunger have prevailed [2, 3]. Poverty which is a socio-economic condition of penury is not only a state of existence but also a process that has many dimensions and complexities [4]. Living under great lack with at most a per capita expenditure of US\$1.25 daily is penurious such that a poor individual cannot afford decent food, medical care, recreation, decent shelter and cloth, or meet up with family and community obligations and other necessities of life [5].

In spite of Nigeria's vast natural and human resources

endowment, GDP per capita has remained low with high rate of unemployment, low utilization of industrial capacity and high dependence on agriculture by majority of her citizens. These are attributes of poverty and poor development [6]. The World Bank, (1996) described poverty in Nigeria as "widespread and severe" and blamed it on the low productivity of farmers. In terms of employment, agriculture remains the mainstay of Nigerian economy contributing about 42.0% to total GDP and employs more than 57.0% of the working population. Thus any policy measure aimed at alleviating poverty must take agriculture and rural development more seriously.

Many government programmes and policies in Nigeria have focused on improving living standards of Nigerians but have found it difficult to stem growth of rural poverty especially among farmers [3, 7]. Fadama programme is one

such programme that has today become a household name among farmers and state governments across the country [8]. Fadama, is Hausa word meaning, the seasonally flooded or flood able plains along major savannah rivers and or depressions adjacent to seasonally or perennially flowing streams and rivers. Fadama as a programme involves development of flood plains and low-lying areas underlined by shallow aquifers found along Nigeria's Rivers systems [3, 9, 10]. The National Fadama Development Project (NFDP) was established to guarantee all-year round growing of crops and promotion of simple and low cost improved irrigation under a World Bank financing. Food crops grown on the Fadama include rice, leafy vegetables, okra and maize to mention but a few. Fadama projects aim at reducing poverty and increasing farm productivity and income of farmer participants [11]. The projects so far (NFDP I and NFDP II) were adjudged successful by both national and international assessors culminating in Federal Government of Nigeria requesting the World Bank for implementation of the third National Fadama Development Project (NFDP III) [3, 12].

The scope of the Third National Fadama Development Project (NFDP III) was extended to involve all 36 states in the federation and the Federal Capital Territory (FCT) as a tripartite funded intervention of the World Bank, the Federal Government of Nigeria and participating States. Funding is by World Bank contributing 55.6%, Federal Government of Nigeria, 5.1%; participating States and Local Governments contributing 17.1% and 8.9% respectively. The World Bank had provided the sum of \$200m US Dollars for Nigeria Fadama III project as at August 2013 [13].

The NFDP III is aimed at sustainably increasing income of beneficiary groups such as Fadama Users Groups (FUGs) and Fadama Community Associations (FCAs) in all the states, by directly delivering resources to them, empowering them to take decisions collectively on how to effectively and efficiently allocate and manage resources for their livelihood activities [1]. By doing this the project would help reduce rural poverty, increase food security and contribute to the achievement of a key millennium development goal. The project which started from July 2008 and has an end line to June 2013 has been extended to 2017. It will end in December 2017. The programme strategy included investing in public infrastructure, asset acquisition using matching grants and advisory services on best ways of improving group management mechanisms to avoid and resolve conflict(s) within participating groups [14]. In this regard facilitators had been deployed to Nigerian communities to provide training and technical support to all categories of fadama resource users.

To improve performance of the programme in each state and ensure welfare delivery, statutory and independent assessments need to be made with evidences gathered from farmers themselves. Many similar studies [12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 25] on impact of Fadama projects on beneficiaries standard of living had been conducted in Delta State, Oyo State, Benue State, Anambra State, Imo State, Adamawa State, Ondo State, Kaduna State, Niger

State, Gombe State, Kogi State and FCT respectively. These studies revealed a significant impact of the project on participants' income, assets and/or poverty status. Others [26] and [27] conducted in Ogun and Gombe States respectively indicated that the Fadama project had no significant impact on participants' income, assets and/or poverty status. However, it is interesting to note that no such independent impact study of the project had been done in Abia State, probably because the State did not participate in Fadama I and II projects. Temporal and spatial differences in project implementation are known to yield varying outcomes on participants. Therefore, it is important to assess the performance of NFDP III towards poverty reduction in Abia state. This study was designed as an independent assessment to (i) analyze and compare poverty profile of Fadama III and non-Fadama III participating food crop farmers in Abia State Nigeria; (ii) determine effects of Fadama III programme on participant's farm income, output, farm size, labour and fertilizer use levels in the study area.

## 2. Literature Review

### 2.1. Concept of Poverty

Poverty is not a self-defining concept but a multi-dimensional social phenomenon with many definitions. Several efforts have been made over past decades to define poverty. However, till date there appears to be no single universally acceptable definition of poverty. Some definitions of poverty centred on the inability to obtain adequate food and other basic necessities. For example, poverty had been defined as lack of command over commodities in general [28]. However, some development experts, including [29], argued that this notion of economic welfare is too narrow to reflect individual well-being. More generally, [30], argued that poverty is the lack of capability to function in a given society. Nevertheless, these definitions point to poverty as a status in which a reasonable standard of living is not achieved. According to [31] three poverty concepts have evolved in the literature; based on ideas of subsistence, basic needs and relative deprivation.

Poverty according to [32] may be represented by a uni-dimensional indicator (e.g. income or expenditure) or a multi-dimensional approach (e.g. income, health conditions, family status, access to resources, etc.). In the first case, poverty or the standard of living is defined in the space of economic welfare, a narrower concept than well-being. In the second case, the concept of poverty is closer to well-being, where other welfare indicators apart from income or expenditure are used in defining poverty. Any choice however, entails additional problems [32]. In the case of the uni-dimensional approach, the appropriate single monetary indicator for standard of living is first defined. There are two natural candidates here, income and expenditures. The ability to spend is primarily determined by one's income. But spending and income are not identical since households also borrow, sell assets, or draw on savings when income is low.

Conversely, households often save when times are especially favorable. Measuring poverty as a shortfall in spending takes into account these kinds of coping mechanisms and households' general abilities to "smooth consumption" over time. Hence, total expenditures are more often used as an indicator of poverty, as they better reflect the concept of permanent income of an individual [32]. It is on this premise that the study measured poverty of participating and non-participating Fadama III farmers using mean household expenditure level.

## 2.2. Absolute Poverty and Relative Poverty

Poverty may be thought of as either an absolute or relative concept [32]. The absolute concept of poverty refers to a standard of living defined in absolute terms. In this case, poverty level is defined in terms of the minimal requirements necessary to afford minimal standards of food, shelter, clothing and health care. The intuition behind an absolute measure of poverty is that mere survival requires essentially the same amount of resources the world over. The World Bank usually measure poverty by an absolute scale of an income of \$1 USD per day up till 2008 when they came out with a new figure of \$1.25 USD revised due to inflation [33]. However, measuring poverty by an absolute scale is to some extent arbitrary, since amount of wealth required for survival is not the same in all places and time periods.

The relative concept of poverty, on the other hand, refers to a standard of living defined in relation to the position of other people in the income/expenditure distribution. In this sense, poverty is basically a phenomenon of inequality. Concept of relative poverty was first introduced by Adam Smith in 1776 [34] and is the most useful measure for ascertaining poverty rates [35, 36, 37]. It is known to be widely used by UNDP, UNICEF, OECD and the European Union to measure poverty [35, 36, 37].

Absolute and relative concepts of poverty have been widely debated in the literature. The main result of the debates on poverty is that poverty is neither a strictly absolute nor a strictly relative concept. However, this study measured poverty relatively using mean monthly expenditures of the respondents.

## 2.3. Overview of Community Driven Development (CDD) Approach

The Fadama III project takes the Community Driven Development (CDD) approach, which places beneficiaries in the driver's seat. According to [38] CDD refers more to the way a policy or a project is designed and implemented than to the content of a policy or to the components of an investment project or programme. CDD evolved as a response to the failures of earlier programs targeted towards poverty alleviation such as lending to agricultural institutions and integrated development programs for a geographical area. It is an approach that gives control of development decisions and control to community groups.

In the last decade Community Driven Development (CDD)

programs have been embraced as an effective Programme Based Approach (PBA) to delivering International Development Aid [39]. The World Bank defines CDD as 'a development approach that gives control over planning decisions and investment resources to community groups and local governments' [40]. Because CDD provides communities with a voice and control over all project stages, it is believed to (a) enhance sustainability;

(b) improve efficiency and effectiveness; (c) allow poverty reduction efforts to be taken to scale; (d) make development more inclusive; (e) empower poor people, build social capital, and strengthen governance; and (f) complement market and public sector activities [39, 40, 41, 42].

The core belief of CDD proponents according to [43] is that the poor can become the most important actors in their own development. Communities are allowed to analyze their own problems, opportunities, and constraints and develop a list of projects and activities that they would like to undertake, thereby changing from passive recipients to active managers of their destiny [43]. Participatory appraisal processes and toolkits safeguard against dominance by elites as all involved community groups are, individually, asked to develop priorities.

Owing to its many advantages, the World Bank's investment in CDD in 2000-2010 has been enormous, averaging almost USD 2 billion a year. For example, an Independent Evaluation Group review of sixty-two country (including Nigeria) assistance strategies found that CDD operations are an important part of the World Bank's strategy in more than 74% of relevant countries [42]. In 2008, the International Development Association's (IDA) lending for CDD related programs averaged 17% of its total lending; while the number of CDD programs active at the IDA for the 2007-2009 period averaged over seventy-two [44].

## 2.4. Overview of Fadama III Development Project

Though Nigeria is richly endowed with underground and surface water reserves, and favourable agro ecological conditions in the country's low-lying plains with alluvial deposit called Fadama, the country continues to experience low land productivity [25]. A situation that had resulted in widening food-supply gap and huge food import bills [45]. The National Fadama Development Project was initiated to optimally and sustainably utilize the underutilized fadama resources by the World Bank in partnership with the federal and benefitting states government. The approach used in Fadama III is Community Driven Development (CDD) approach, which is bottom-up as against past top-bottom programmes.

Fadama III Community Driven Development (CDD) approach is meant to concede project initiation, planning and implementation to the benefiting communities with the assistance of facilitators. Local communities, under the umbrella of Fadama Community Associations (FCAs) and Fadama User Groups (FUGs), oversee the design and implementation of the project and are empowered through

skills and capacity-building to improve their livelihoods by increasing income generating activities [45].

The Fadama III project is currently being implemented in 36 states, and in Nigeria's Federal Capital Territory on a budget of US\$450 million. The financing is comprised of US \$250 million from International Development Agency (IDA) credit and \$200 million counterpart fund from Nigeria's federal, state and local governments and beneficiaries [47]. The project approved by the World Bank's Board of Directors in July 2008, has six main components:

- Capacity Building, local government and communication
- Small scale community-owned infrastructure
- Advisory services and input support development
- Support to the agricultural development programs (ADPs) sponsored research and on-farm demonstrations
- Asset acquisition for individual fadama Users Groups (FUGs)/Economic Interest Groups (EIGs)
- Project management, monitoring and evaluation.

The NFDP III Project helps by giving voice to the participating communities as well as promotes the principles of transparency and accountability in planning and management of public investments within the participating LGAs [25]. The Fadama office in Abia State had disbursed 568 million as at December 2013 to 1,687 FUGs in Abia. The bulk of the money was spent on the FUGs while the rest was spent on sundry services such as advisory services, inputs and rural infrastructure.

### 3. Methodology

#### 3.1. Study Area

The study was carried out in Abia state, Nigeria. The state has 17 local Government Areas (LGAs) and three agricultural zones (Aba, Ohafia and Umuahia). It lies between latitudes 5°47' N and 6°12' North of the Equator and between longitudes 7°23' E and 8°02' East of the Greenwich Meridian [48]. This location places it within South-East agro ecological zone of Nigeria and covers a land mass of about 2,440 square kilometers. The state is bounded to the North and North-East by Anambra, Enugu and Ebonyi States respectively; to the South by Rivers State; to the East and South-East by Cross River and Akwa Ibom States respectively; and to the West by Imo state of Nigeria [49]. The population of Abia State stood at 2,833,999 inhabitants, made up of 1,434,193 males and 1,399,806 females [50]. Two seasons (rainy and dry seasons) characterize the area. The rainy season is a wet period that sets on in April and stretches on till October with a double maxima pattern of heavy rains in June-July interspersed with a temporal dry spell in August that allows another heavy rains setting on in September-October months. The annual mean rainfall of the area is about 2,190mm with mean temperature of 25.5°C. The State is drained by important water bodies including Imo River, Azumiri Blue River, and Aba River among others which are widely exploited in the Fadama III programme.

However, the state did not benefit from the two previous Fadama I and Fadama II projects. The main food crops grown by farmers in Abia State include cassava, yams, maize, rice and potatoes. Oil palm is the most important cash crop grown in the state.

#### 3.2. Sampling Technique and Data Collection

All the three agricultural zones (Aba, Ohafia and Umuahia) were involved in the study. Multi-stage random sampling technique involving four stages was used in the selection of sample. In stage one, one local government area (LGA) was selected at random from each agricultural zone. The selected LGA's were Ukwa East LGA (Aba zone); Isi-ala Ngwa South LGA (Umuahia zone) and Isuikwuato LGA (Ohafia zone). In stage two, 4 Fadama Community Associations (FCAs) were selected randomly from each of the three LGA's to give 12 FCAs. In the third stage 3 Fadama User Groups (FUGs) were selected at random from each of the 12 FCAs to give 36 FUGs. Lastly, from the selected FUGs five (5) participating food crop farmers were randomly selected to give a sample size of 180 participating food crop farmers. Finally, the non-participating food crop farmers were randomly selected from the villages where the Fadama III participating food crop farmers were selected to give a grand sample size of 360 food crop farmers (180 for participating food crop farmers and 180 non-participating food crop farmers).

A pre tested semi-structured questionnaire was used to obtain cross sectional data including demographic data of age, gender, years of formal education, farming experience, household size, and farm size, unit prices of input and output, crop yield as well as household expenditures on food, repairs, transport, toiletries, cosmetics, services and clothing and problems encountered by participants.

#### 3.3. Analytical Technique

Gathered data were analyzed using descriptive statistics of means, frequency distribution tables, standard deviation, and head count on poverty indicators. Inferentially, paired t-test was used to compare changes in outcome measures. The estimates of poverty indicators among the two groups of farmers followed the models used by [3, 51, 52] as follows:

$$H = \frac{q}{n} \quad (i)$$

Where H = Head count ratio = Poverty incidence  
q = number of poor farmers in each group (that is those living below poverty line)

Poverty line (Z) = Average household expenditure (Naira/household);

n = total number of rural farmers involved in each group;

Poverty line Z = (Y)

Where,

Z = poverty line measured in Naira (₦)

Y = mean per capita household expenditure measured in Naira (₦)

Given; Per capita expenditure= Total monthly household

expenditure

Household size

Mean capita household expenditure = Total per capita household expenditure

Total number of households

Poverty depth was measured with poverty gap index (Q);

$$Q = [(Z - Y)/Z] \quad (ii)$$

Z = Poverty line

Y = Average income of the poor rural farmers in each group

The study employed use of paired treatment test (paired t-test) developed by William Sealy Gosset [53] and extensively adopted in similar studies such as [18, 23, 26, 54) to compare changes in outcomes as follows:

$$t = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \quad (iii)$$

$n_1 + n_2 - 2$  degrees of freedom.

Where:

t = paired t statistic

$X_1$  = Mean parameters of Fadama III farmers;

$X_2$  = Mean parameters of non-Fadama III farmers;

$S_1^2$  = Variance of parameters of Fadama III farmers;

$S_2^2$  = Variance of parameters of non-Fadama III farmers;

$n_1$  = Number of selected Fadama III farmers;

$n_2$  = Number of selected non-Fadama III farmers.

## 4. Results and Discussion

### 4.1. Selected Socio Economic Characteristics of Respondents

Selected socio-economic characteristics of the respondents are summarized in Table 1. The Table showed that 53.33% of Fadama III food crop farmers and 65.00% of non-Fadama III food crop farmers were males, with 46.67% of Fadama III food crop farmers and 35.00% of non-Fadama III food crop farmers as females. The Table also shows that the mean age of Fadama III participating farmers was 42 years while that of the non-Fadama III participating farmers was 45 years. The result shows that both chosen groups of farmers were within energetic middle-age cohort, characterized with strength and commitment.

Table 1 further showed that 51.67% of Fadama III food crop farmers had household size range of 5 to 9 members while 61.67% of non-Fadama III food crop farmers had household size of 1 to 4 members. However, mean household size of both groups (Fadama III and non-Fadama III food crop farmers) was 7 and 5 members respectively. They had moderate household sizes and these had implications on provision of labour for farm work [55]. The larger the size of a household the more it could provide farm labour without having to pay wages in cash. However, large household sizes have been noted to have correlation with food insecurity and poverty especially when the household head is engaged in

agriculture as the main source of livelihood and income [56].

**Table 1.** Selected Socio-economic characteristics of Fadama III and non-Fadama III Food Crop Farmers in Abia State, Nigeria.

| Variables       | Fadama III farmers (n=180) |                | Non-Fadama III farmers (n=180) |                |
|-----------------|----------------------------|----------------|--------------------------------|----------------|
|                 | Frequency                  | Percentage (%) | Frequency                      | Percentage (%) |
| Gender:         |                            |                |                                |                |
| Male            | 96                         | 53.33          | 117                            | 65.00          |
| Female          | 84                         | 46.67          | 63                             | 35.00          |
| Age (Years):    |                            |                |                                |                |
| < 21            | Nil                        | Nil            | 3                              | 1.67           |
| 21-30           | 30                         | 16.67          | 21                             | 11.67          |
| 31-40           | 48                         | 26.67          | 33                             | 18.33          |
| 41-50           | 63                         | 35.00          | 81                             | 45.00          |
| 51-60           | 24                         | 13.33          | 18                             | 10.00          |
| > 60            | 15                         | 8.33           | 24                             | 13.34          |
| Mean            | 42                         |                | 45                             |                |
| Household size: |                            |                |                                |                |
| 1-4             | 60                         | 33.33          | 111                            | 61.67          |
| 5-9             | 93                         | 51.67          | 54                             | 30.00          |
| >9              | 27                         | 15.00          | 15                             | 8.33           |
| Mean            | 7                          |                | 5                              |                |
| Farm size       |                            |                |                                |                |
| 0.1 – 1.0       | 62                         | 34.44          | 78                             | 43.33          |
| 1.1 – 2.0       | 55                         | 30.56          | 30                             | 16.67          |
| 2.1 – 3.0       | 50                         | 27.78          | 54                             | 30.00          |
| 3.1 – 4.0       | 13                         | 7.22           | 18                             | 10.00          |
| Mean            | 2.32                       |                | 1.76                           |                |
| Education level |                            |                |                                |                |
| None            | 14                         | 7.78           | 11                             | 6.11           |
| Primary         | 45                         | 25.00          | 50                             | 27.78          |
| Secondary       | 78                         | 43.33          | 83                             | 46.11          |
| NCE/OND         | 21                         | 11.67          | 16                             | 8.89           |
| HND/BSc         | 11                         | 6.11           | 15                             | 8.33           |
| Post Graduate   | 2                          | 1.11           | 4                              | 2.22           |
| Adult Education | 9                          | 5.00           | 1                              | 0.56           |
| Total           | 180                        | 100.00         | 180                            | 100.00         |

Source: field survey, 2014

The result shows that the mean sizes of farmland cultivated by participating and non-participating food crop farmers were 2.32 ha and 1.76 ha respectively. This implies that most of the participating and non-participating food crop farmers in the study area were small holder farmers who either inherited or accessed marginal parcels of land. This is in agreement with [57] that farmers in Nigeria are mostly smallholders with average farm size of between 1 and 2 hectares. The result however does not compare favourably with [23] that obtained a mean farm size of 2.62ha and 2.39ha for Fadama III participating and non-participating rural farm women respectively in Gombe state.

It was indicated in Table 1 that secondary education recorded the highest education level among participating and

non-participating food crop farmers with 43.33% and 46.11% respectively. The result suggested that majority of the respondents are literate and could enhance transformation and innovation. Education has been shown to be a factor in the adoption of agricultural innovations. It is considered an important variable that could enhance farmers' adoption of new technology [1, 58].

#### 4.2. Poverty Profile of Fadama III and Non-Fadama III Farmers

The poverty indicators of Fadama III and non Fadama III farmers in Abia State are shown in Table 2. The Table shows that the poverty line (mean monthly household expenditure) of Fadama III farmers was ₦22045.79 per month or ₦264549.48 per annum while that of the non- Fadama III farmers was ₦16037.79 per month or ₦192453.48 per annum. The incidence of poverty otherwise called head count ratio was 0.481 for Fadama III farmers and 0.522 for non-Fadama III farmers. This implies that 48.81% of the Fadama III farmers and 52.22% of non-Fadama III farmers were poor because their incomes fell short of the mean household expenditure or the poverty line.

The coefficient of poverty depth or poverty gap, also describing income shortfall was 0.347 for Fadama III farmers and 0.4252 for non-Fadama III farmers. This implies that the poor Fadama III farmers required 34.70% of the mean income to get out of poverty while the non-fadama III farmers required 42.52% of their mean income to escape

from poverty.

**Table 2.** Poverty Indicators of Fadama III and Non-Fadama III farmers in Abia State, Nigeria.

| Poverty indicators          | Fadama III Participants | Non-Fadama III Participants |
|-----------------------------|-------------------------|-----------------------------|
| Poverty line (₦)            | 20445.83                | 16037.79                    |
| Poverty incidence           | 0.481                   | 0.522                       |
| Poverty gap (Poverty Depth) | 0.347                   | 0.4252                      |

Source: field survey, 2014

#### 4.3. Effects of NFDP III on Farm Output, Farm Income, Farm Size, Labour and Fertilizer Use Levels of Participants

The paired t-test of difference in means of farm outputs, farm incomes, farm sizes, fertilizer use levels and labour use between Fadama III food crop farmers and non Fadama III food crop farmers in Abia State, Nigeria are shown in Table 3. The Table shows that mean farm size of Fadama III farmers was 2.32 ha while that of the non-Fadama III farmers was 1.76 ha. This gave a mean difference of 0.56ha that was statistically significant at 5.0% alpha level of probability. Participants used some of the provisions of Fadama project to acquire and/or expand their farmlands. This result compared favourably with [54] who obtained similar result in Abia State of Nigeria.

**Table 3.** Estimates of Paired t-test of Farm size, farm income, Labour and Fertilizer use by Fadama III (n=180) and non-Fadama III farmers (n=180) in Abia State, Nigeria.

| Variable  | Group mean | Mean difference | Standard error | t-ratio |
|---|------------|-----------------|----------------|---------|
| Farm size of Fadama III farmers (Ha)                      | 2.32       |                 |                |         |
| Farm size of non Fadama III farmers (Ha)                  | 1.76       | 0.56            | 1.66           | 2.92**  |
| Farm income of Fadama III farmers (₦)                     | 24,066.67  |                 |                |         |
| Farm income of non-Fadama III farmers (₦)                 | 16,333.33  | 7, 733.34       | 5912.04        | 2.66**  |
| Labour use level of Fadama III farmers (Man- days)        | 9.13       |                 |                |         |
| Labour use level of non-Fadama III farmers (Man-days)     | 9.32       | -0.19           | 0.28           | -0.66   |
| Fertilizer use level of Fadama III farmers (50kg-bag)     | 4.2375     |                 |                |         |
| Fertilizer use level of non-Fadama III farmers (50kg-bag) | 3.1542     | 1.0833          | 3.47408        | 0.415   |

Source: field survey, 2014; \*\* Significant at 5.0% level of probability.

The mean monthly farm income of the Fadama III farmers was ₦24, 066.67 while that of the non-Fadama III farmers was ₦16, 333.33 with a mean difference of ₦7, 733.34. This income difference was statistically significant at 5.0% alpha level of probability. By this finding, the null hypothesis of no difference in monthly farm income was rejected. Despite the fact that the mean difference of their monthly income was significant for the average farmer, all monthly incomes below ₦50, 000.00 was classified low [59]. Since many of these farmers had low income they can rightly be classified as smallholders with low income earnings. The result compared favourably with [18, 23] who obtained similar results among Fadama and non fadama participants in Imo State and

Gombe State respectively.

#### 4.4. Problems Constraining Effective Participation of Food Crop Farmers in Fadama III Development Project

The Problems constraining against effective participation of food crop farmers in Fadama III Development project in Abia State is shown in Table 4. The result in Table 4 shows that the most important problems encountered by the Fadama III participating farmers were late arrival of farm inputs (64.44%), inadequate land for farming (45.56%), inadequate credit facility (43.89%). This is because majority of the farmers are small holders who depend solely on sourcing for

improved varieties of crops, livestock and fingerlings from the programme. In addition their small farming operation hinders them from obtaining credit from lenders.

**Table 4.** Problems Constraining Effective Participation of Food Crop Farmers in Fadama III Development Project in Abia State, Nigeria.

| Problems  | *Frequency | Percentage |
|---|------------|------------|
| Low prices of farm produce  | 46         | 25.56      |
| Poor fertility level of soil  | 60         | 33.33      |
| Pests and diseases infestation  | 56         | 31.11      |
| High cost of farm input   | 48         | 26.67      |
| Late arrival of farm inputs   | 116        | 64.44      |
| Ineffective leadership of FCA and FUG   | 56         | 31.11      |
| Non-payment of counterpart funds by state and LGAs  | 63         | 35.00      |
| Inadequate training and retraining of participating food crop farmers   | 58         | 32.22      |
| Inadequate improved seeds for planting  | 52         | 28.89      |
| Inadequate infrastructural development (access roads) by the project to evacuate or process the produce of participants | 48         | 26.67      |
| Administrative bottlenecks and bureaucracy in release of capital funds  | 71         | 39.44      |
| Inadequate credit facility  | 79         | 43.89      |
| Inadequate land for farming   | 82         | 45.56      |
| Inadequate extension service  | 50         | 27.78      |

Source: field survey, 2014

\* Multiple responses recorded

Other problems identified by the food crop farmers were administrative bottlenecks and bureaucracy in release of capital funds (39.44%) and Non-payment of counterpart funds by state and LGAs (35.00%). This supports the view of [60] that non-participation of stake holders in community-based programmes is due to non-payment of counterpart funds by government at the State and Local Government levels. A fair proportion (33.33%) and (32.22%) of participating Food crop farmers complained of the problem of poor fertility level of soil and inadequate training and re-training of participating farmers by the programme facilitators respectively.

Furthermore, pests and diseases infestation (31.11%), ineffective leadership of FCA and FUG (31.11%), inadequate improved seeds for planting (28.89%), inadequate extension service (27.78%), high cost of farm input (26.67%), inadequate infrastructural development (access roads) by the project to evacuate or process the produce of participants (26.67%) and low prices of farm produce (25.56%) were also identified as constraints faced by the participants.

## 5. Conclusions and Recommendations

The study showed poverty line of Fadama III farmers (₦20,445.83) being higher than that of the non-Fadama III farmers (₦16,037.79.92). The incidence of poverty for

Fadama farmers was thus lower, 0.481 as against 0.522 for the non Fadama III farmers narrowing the gap of poverty of Fadama III farmers to 0.347 as against 0.425 for non-Fadama farmers in the area. These indices showed greater propensity to escape from poverty amongst Fadama farmers in the area.

Farm income and farm size of Fadama III farmers was significantly higher than non-Fadama III farmers ( $P < 0.05$ ). To sustain the observed gains amongst participating farm households, the study recommend that governments at all levels (Federal, State and Local Government) should as a matter of deliberate policy initiate moves towards removing institutional, customary and traditional inhibitions to acquisition of more lands for cultivation to encourage Fadama programme. This calls for the full implementation of 1978 land use Act in the country. Under full implementation of this Act, the state Governors on whose hands the Act vested power of ownership of state land should be able to allocate more to Fadama Farmers to help boost agricultural output and reduce high level poverty amongst them. More farmers should be encouraged to join the Fadama groups (FUGs and FCAs) to enjoy the provisions of the programme and reduce poverty in their households.

Increased funding of agriculture through groups such as Fadama groups would truly empower farmers to venture into new areas of investments including product processing and packaging to add value and increase net returns.

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