Assessment of Beneficiaries Satisfaction with FADAMA III/SEEFOR Funded Rural Infrastructures and Productive Assets

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Abstract

The study sought to ascertain productive assets provided by FADAMA III/SEEFOR project to beneficiaries and the proportion of beneficiaries that are satisfied with operation, maintenance and utilization of the productive assets. It also identified the rural infrastructural subprojects provided by FADAMA III/SEEFOR project and the impact of these subprojects on beneficiaries' income. A sample of 170 respondents, comprising of 120 direct project beneficiaries and 50 non beneficiaries were drawn from the five local government areas under study. Data were generated with the use of structured questionnaire and analyzed through the use on descriptive statistics and the Difference in Difference method. Results indicate that 119 respondents representing 70% of the respondents were males while 38.82% were aged between 30 and 39 years; and 84.71% are married. Three enterprises including snailry, pepper and cassava processing enterprises were not satisfied with operation, maintenance and utilization of the productive assets provided to them. Average annual income of beneficiary households before the project implementation in the local government areas was N174,785.00 while that of non beneficiaries was N177,015.00 prior to the establishment of rural infrastructural subprojects. With the implementation of the project, the average income of all type of respondents' enterprises rose to N186,306.17 while that of non participants averaged to N178,662.17 implying an increase in income by 6.59% and 0.09% for participants and non-participants in the project respectively. It is recommended that the project should entrench proper measures towards ensuring that service providers execute projects to specification as this will improve the interest of the project to beneficiaries.

Key Words: SEEFOR, Fadama III, Satisfaction, Beneficiaries, Income

1. Introduction

Nigeria is a country blessed with potentially good land and water resources required for sustainable agricultural development. It is a known fact that many government agricultural intervention development programmes in Nigeria have not had lasting impact on agricultural development and many have not yielded the expected results of sustained increase in food production (Baba and Singh, 1998). Agricultural production methods have remained undeveloped despite many years of efforts on technology generation and transfer in Nigeria. Rural financial supports are scarce and most rural finance policies implemented previously have impaired rather than assisted in improved agricultural production (Simonyan and Omolehin, 2012).

However, in an attempt to alleviate poverty among rural Nigerians and also to increase the incomes and productivity of the rural inhabitants as an approach of meeting up with the millennium development goals (MDGs) of food sufficiency and poverty eradication, the

Federal Government of Nigeria through the pooled World Bank loan came up with Fadama project, to finance the development of fadama lands by introducing small-scale irrigation in states with fadama development potentials (Yunana et al, 2013). This was the first phase of the project which was subsequently followed by the second phased called Fadama II.

The Fadama I and II projects successfully refined approaches for improved utilization of these lands. Fadama II implemented an innovative local development planning (LDP) tool and building on the success of the community-driven development mechanisms initiated in the first Fadama project. Subsequently, following the successes recorded Fadama II project, the World Bank in conjunction with the Federal government introduced the Fadama III project. Fadama III project supported the financing and implementation of five main components designed to transfer financial and technical resources to the beneficiary groups in: (i) institutional and social development; (ii) physical infrastructure for productive use; (iii) transfer and adoption of technology to expand productivity, improve value-added, and conserve land quality; (iv) support extension and applied research; and (v) provide matching grants to access productive assets for income-generation and livelihood improvements

Fadama III project implementation in Delta State was launched on 3rd November 2009 and was implemented in 20 out of 25 local government areas of the State (Delta SFCO, 2011). The project was meant to end by June 2013. The five local government areas that did not benefit from the implementation of the project in the State were Bomadi, Burutu, Warri south, Warri south west and Udu.

Following the effective performance of Fadama III project in rural development strategy among the participating local government areas the State Employment and Expenditure for Result (SEEFOR), which is an establishment of the Federal government and World Bank, adopted Fadama III Project in Delta State to execute her agricultural sector of rural development strategy.

The State Employment and Expenditure for Result (SEEFOR) is being implemented in four States of Nigeria including Bayelsa, Edo, Delta and Rivers. The project which is funded by both World Bank and European Union emphasizes youth employment, good governance, and public sector capacity building as her foundation strategies in achieving the set goals. The project structure has been designed to strengthen the three pillars of Nigeria country partnership strategy anchored on good governance, maintaining non oil growth and human development. This is critically aligned with the Federal Government job creation and infrastructure development.

In line with its mandate, the FADAMA III/SEEFOR funded project in the five local government areas has been implementing rural development activities among which are provision of rural infrastructural subprojects, provision of improved agricultural technology including seeds, fertilizer etc and providing matching grants to access productive assets for income-generation and livelihood improvements.

The project has established a number of rural infrastructure subprojects in the communities and has also provided large quantities of productive assets to different farming enterprise groups benefiting from the project intervention.

Whether the benefiting project participants are satisfied with the operation, use and maintenance of these rural infrastructural subprojects as well as the productive assets provided by the project remains an issue which should be examined as this will ensure

sustainability anticipated benefits after the intervention period. There is also the need to establish if these rural infrastructural subprojects have any impact in beneficiaries' income. Hence, this study which seeks to:

(i) ascertain productive assets provided by FADAMA III/SEEFOR project to beneficiaries

and the proportion of beneficiaries that are satisfied with operation, maintenance and utilization of the productive assets,

(ii) identify the rural infrastructural subprojects provided by SEEFOR/FADAMA III project and the impact of these subprojects on beneficiaries income.

2. Research Methods

Delta state – the project area was created in 1991 and has 25 local government areas. The State is divided into three agricultural zones of Delta north, Delta south and Delta central. This study is located in the coastal areas of the State covering five local government areas that are riverine. The local government areas are Bomadi, Burutu, Udu, Warri South, and Warri South West. The locations of these local government areas are in the south agricultural zone apart from Udu which is in the central zone. The five local government areas have a combined population of about

Study Population and Sampling Techniques

To analyse the beneficiary satisfaction with FADAMA III/SEEFOR funded infrastructure and assets as well as project impact on income, the sampling frame was divided into two strata; (1) Direct project participants, and (2) Non project participants. The stratification is designed to allow for estimation of the direct effects of FADAMA III/SEEFOR projects by comparing project beneficiaries to similar households in similar communities not included in the project.

The LGAs participating in the SEEEFOR funded Fadama III project are Bomadi, Brutu, Udu, Warri south and Warri-south west. These LGAs did not participate in the earlier Fadama III project carried out in the State between 2009 and 2013 (SFCO, 2011). The five LGAs participating in the project were not randomly selected, implying placement bias (NFCO, 2011). Purposive sampling is common with many government-funded programmes in developing countries (Duflo et al, 2006).

All the participating LGAs were included in the study. Three Fadama Community Associations (FCAs) were selected from each of the five LGAs and this gave 15 FCAs. Eight households belonging to different Fadama User Groups (FUGs) were randomly selected from each of the FCAs to give a total of 120 households. Selection of non project participants involved random selection of 10 households from each LGA and this gave a total of 50 households utilized as the control group. In all, 170 households were selected for this study.

Data Collection and Analysis

Data for this study were collected by well trained enumerators through the use of well structured and pre-tested questionnaire. The data generated were analyzed through the use of Descriptive and Inferential statistical tools. The descriptive tools used were mean, percentages, and tables. A four point Likert-type scale was constructed for each of the questionnaire item to elicit the level of satisfaction or otherwise in the operation, maintenance and utilization of productive assets and rural infrastructures executed by the SEEFOR funded Fadama III project in the area. The four-point likert type scale was designed in the form of: Highly satisfied, Satisfied, Not Satisfied and Highly not satisfied. Weights were assigned responses as follows: Highly unsatisfied = 1, Not Satisfied = 2, Satisfied = 3, Highly satisfied = 4. The responses to an item for each variable were multiplied by the weight attached to obtain response scores.

The Inferential statistical tool adopted to ascertain the increase in income of beneficiaries since the subprojects became functional (i.e. impact analysis of the subprojects on participants income) was the difference in difference estimator commonly called the Double Difference method. This was used to determine the changes in income of the project beneficiary households.

Conceptual and Analytical Framework

Difference in Difference Estimator (Double Difference) Method

The cross-sectional comparisons of project beneficiaries' income with that of the non project beneficiaries cannot completely attribute difference in income to programme intervention. As such this study employed a quasi-experimental method known as Difference in Difference Estimator (Double Difference) method to assess the impact of FADAMA III/SEEFOR funded project on income of beneficiary farmers. This quasi-experimental tool is one of the impact assessment methods which involve the selection of respondents that participated in a program (beneficiaries) and the non-participant (non-beneficiaries) from the same location who have similar observable characteristics (Baker, 2000; Chen et al, 2006; Philip et al, 2009).

The double-difference analytical tool is a quantitative method often used to estimate and compare change in outcome pre and post program for participants and non-participants (Chen et al., 2006). In order to use the estimator in question, there must be information on both participants and non-participants and all individuals must be observed both before and after the program (Verner and Verner, 2006).

Table 1: Socio-Economic Characteristics of Palm Oil Processors and Marketers

Variable	Frequency	Percentages (%)
Gender (Years)		
Male	119	70
Female	51	30
Age		
30 – 39	66	38.82
40 – 49	62	36.47
50 – 59	16	9.41
60 – 69	21	12.35
70 and above	5	2.95
Marital status		
Single	7	4.12
Married	144	84.71
Divorced/Separated	2	1.18
Widows	15	8.82
Widowers	2	1.18
Level of Education		
No formal education	18	10.59
Primary education	56	32.94
Secondary education	51	30.00
Tertiary education	45	26.47
Household Size		
1 – 3	29	17.06
4 – 6	77	45.29
7 – 9	29	17.06
10 and above	35	20.59

The advantage of using the double difference method is that it nets out the effects of additive factors that have fixed (time-invariant) impacts on income indicator, or that reflect common trends affecting project participants and non-participants equally such as changes in prices (Ravallion, 2005). A positive and significant income difference value implied project intervention impact on beneficiary otherwise no impact (Verner and Verner, 2006).

Double Difference Estimation model version was adapted as:

$$DD = \left[\frac{1}{p}\sum_{t-1}^{p}\left(Y_{1ia} - Y_{1ib}\right)\right] - \left[\frac{1}{c}\sum_{j=1}^{c}\left(Y_{0ja} - Y_{0jb}\right)\right]$$

Where:

DD = Income difference between the respondents; P = number of participants; C = number of individual control group (non – participants); Y_{1ia} =Income variable of participants after the programme.; Y_{1ib} = Income variable of participants before the programme; Y_{0ja} = Income variable of non participants after the programme. Y_{0jb} = Income variable of non participants before the programme.

The level of significant of the income difference was tested using paired t-test.

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3. Results and Discussion

Socioeconomic Profiles of the Respondents

The gender distribution shows that 119 respondents representing 70% of the respondents are males while 66 respondents representing 38.82% were aged between 30 and 39 years closely followed by respondents who are aged between 40 and 49 years as they formed more than 36% of the project participants in the study area (Table 1).

Majority of the respondents are married (84.71%) indicating that there is support from spouses in carrying out various agricultural activities. Widows constitute the vulnerable group in the project and they formed 8.82% of the project participants. Over 89% of the respondent project participants attained one form of formal education or the other. This will help them to carry out various enterprise activities smoothly.

While 62.35% of the respondents had a moderate family size of between 1 and 6 members more than 37%% of respondents have family members of 7 to 11 and above. The implication of a large household in the field of agriculture can be viewed from two angles. It can provide a cheap source of labour as it can bring about the use of small amount of hired labour while it can as well negatively affect the family if most of the household members are not of productive age and hence cannot contribute to family labour in farming activities. In such a situation there will be high consumption expenditure on food and this is one of the predisposing factors to poverty among rural farming households in Nigeria (Ike and Uzokwe, 2015).

Analysis of Beneficiaries Satisfaction with Productive Assets

The SEEFOR funded Fadama III project in the five local government areas under study has

provided productive assets to different Fadama User Groups (FUGs). The productive assets were

provided based on the enterprises engaged in by the user groups. Among the enterprises engaged in by the beneficiaries are crop, livestock, agro-processing, fisheries, agro-forestry and vulnerable groups. The various enterprise groups and the productive assets provided to them are presented in Table 2.

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Table 2: Productive Assets Provided by SEEFOR/Fadama III Project to Beneficiaries on Enterprise Basis

S/N	Category of Enterprise	Productive Assets Provided
1	**Crop Enterprise**	
	(i) Cassava	Rain boots, Rain coats or Coverall, Cutlasses, Wheel barrows, Boats or wooden canoe, Files, Life jackets, Hoes, Knapsack sprayers, Head pan, Hand gloves, Nose masks, Axe, Sign board, Spade, Shovel, Fertilizer, Agro chemicals, cassava stick bundles
	(ii) Plantain	Life jackets, Sprayers, Cutlasses, Shovels, Wheel barrows, Nose masks, Hoes, Rain boots, Sacks, Axe, Sign post, Wooden canoe, Out board engine, Tricycle, Files, Diggers
2	**Livestock Enterprise**	
	(i) Poultry	Poultry pen, Safety boot, Hand gloves, Wheel barrow, Coverall, Feeders, Drinkers, Nose masks, Shovel, Lamp, Stove, Buckets, yards of Tarpaulin, Borehole with tanks and Tank stands, Generators, De-beaking machine, tricycle
	(ii) Piggery	Safety boots, cutlasses, Hand gloves, Wheel barrow, Iron bucket, Nose mask, Shovel, Head pan, Rake, Generator
3	**Fisheries**	
	(i) Aquaculture	Weighing scale, Plastic basins, Wire gauze, Cutlasses, Wheel barrow, Sucking hose, Sign post, Spades, Iron bucket, ph meter, Coverall, Rain boot, Hand gloves, Pumping machine, Earthen ponds, Tarpaulin ponds, Borehole
	(ii) Artisanal fishing	Drag net, Fishing trap, basket, Raincoat, Fishing spear, Fishing hook, Boat, Engine, Wooden canoe, Paddle, Life jackets
4	**Agro-forestry**	
	(i) Snailry	Wheel barrows, Shovel, Cutlasses, Water engine, Hand gloves, Nose mask, Drinkers, Signboard, Coverall, Head pan, Rain boot,
5	**Agro-processing**	
	(i) Palm oil processing	Processing mill shade, Diesel engine (fly horse power), Drums, Spade, Wheel barrow, Presser
	(ii) Pepper processing	Grinding machines, Hand gloves, Nose masks,
	(iii) Cassava processing	Frying pans, Big plastic basins,

Table 3: Level of Satisfaction with Operation, maintenance and Utilization of Productive Assets

S/N	Category of Enterprise	Mean value of level of satisfaction	Remark
1	**Crop Enterprise**		
	(i) Cassava	2.86	Satisfied
	(ii) Plantain	2.75	Satisfied
2	**Livestock Enterprise**		
	(i) Poultry	2.72	Satisfied
	(ii) Piggery	2.81	Satisfied
3	**Fisheries**		
	(i) Aquaculture	2.67	Satisfied
	(ii) Artisanal fishing	2.83	Satisfied
4	**Agro-forestry**		
	(i) Snailry	1.96	Not Satisfied
5	**Agro-processing**		
	(i) Palm oil processing	2.65	Satisfied
	(ii) Pepper processing	2.01	Not Satisfied
	(iii) Cassava processing	2.15	Not Satisfied

Table 4: Rural Infrastructure Subprojects established by SEEFOOR/Fadama III Project in the Study Area

S/N	Rural Infrastructure Subprojects	Community Located	LGA
1	Mini water scheme (Borehole) Generator and Water Reticulation	Okolor Inland	Udu
2	Open market stalls, Toilet, Waste disposal facilities and Generator	Oghior	Udu
3	Market stalls with borehole and toilet	Okpaka	Udu
4	Acquisition of Cargo boat	Deghelle	Warri south west

The major reason adduced by respondents engaged in snail rearing for their unsatisfactory observation is that they have not received proper training on management process for snail production. Pepper and cassava processing enterprises are operated by widows. The pepper grinding FUG complained that they are yet to take off many months after the commencement of the project hence their unsatisfactory remarks.

Rural Infrastructural Subprojects established by FADAMA III/SEEFOR Projectral Infrastructural subprojects were established in some of the benefiting communities. These projects were Community Driven Development (CDD) projects in the sense that the communities chose them and participated in their construction. Among the functional subprojects established are Market stalls, Mini water schemes, Toilets and acquisition of cargo boat. The various subprojects as well as the communities and local government areas where they are located are presented in Table 4.

Findings reveal that there has been a significant increase in the number of residents who have accessed the services of projects supported by FADAMA III/SEEFOR in targeted communities. Specifically in Okolor Inland more than 85 households throng the water borehole on daily basis to access clean water for use at homes. In the same vein, residents of Oghior and Okpaka communities all in Udu local government area enjoy the benefits of water schemes and modern small markets constructed in the area. The presence of market-related infrastructure (especially rural access roads) not only reduced delivery costs but also made it easy for traders to reach farmers in rural areas. This invariably will enhance farmers' bargaining power. For example, the non-participants benefit from access roads and markets, water schemes and toilets constructed by the project. Such other rural infrastructures as the acquisition of cargo boat is one infrastructure that is expected to have wider spillover benefits on even non-participating riverine communities.

Rehabilitated rural roads exert positive impact on the waiting time for vehicles, waiting time for tricycles and motorcycles, access to farm land, easy transportation of goods, easy access to market, easy access to community, reduced spoilage of farm produce, reduction in transportation cost, access to social amenities, increase sales and increased patronage.

Impact of SEEFOR/FADAMA III Funded Rural Infrastructure Project on Income

(a) Income Level of Beneficiary and Non Beneficiary Households before the

Establishment of SEEFOR/Fadama III Rural Infrastructure Project

Findings show that over 33% beneficiaries and 30% of non beneficiaries had an income range of between N101,000.00 to N200,000.00 prior to project intervention. The range of income of different beneficiary and non-beneficiary households prior to FADAMA III/SEEFOR project is as shown in Table 5.

Analysis of the data generated indicate that the average per capita income of the sampled FADAMA III/SEEFOR beneficiary households before the project implementation in the local government areas was N174,785.00. Similarly, the non beneficiary sample had an average per capita income of N177,015.00 prior to the establishment of rural infrastructural subprojects in the LGAs.

The findings indicate that over 40% of the sampled households participating in FADAMA III/SEEFOR project have an average income of not more than N50,000.00, while only six respondent households (5.00%) have income level of between N201,000.00 to N300, 000.00. Comparatively, 48 % of the sampled non beneficiaries are within the income range of N50,000.00 while the highest income was between N151,000.00 and N200,000.00..

(b) Income Level of Beneficiary and Non Beneficiary Households after the Establishment of SEEFOR/Fadama III Rural Infrastructure Project

Findings reveal that the average annual income of project participants since the implementation of FADAMA III/SEEFOR project in the five local government areas for all type of respondents enterprises ranged from N141,850.00 to N192,000.00 with an average of N186,306.17 while that of non participants ranged from N131,560.00 to N196,100.00 with an average of N178,662.17 (Table 6). From the foregoing it implies that the average income of project participants have increased from N174,785.00 to N186,306.17 (N11,521.17 or 6.59%) while that of non-participants increased from N177,015.00 to N178,662.17 (N1,647.17 or 0.09%).

Based on the result of the Double- Difference

Table 5: Income Level of Respondent Households before FADAMA III/SEEFOR **Subproject**

	Beneficiaries		Non-Beneficiaries	
Level of Income (N)	**Frequency**	**%**	**Frequency**	**%**
Less than N50,000	49	40.83	24	48.00
N51,000 – N100,000	31	25.83	11	22.00
N101,000 – N150,000	22	18.33	7	14.00
N151,000 – N200,000	16	13.33	8	16.00
N201,000 – N250,000	6	5.00	-	-
N251,000 – N300,000	2	1.67		
Total	**120**	**100.00**	**50**	**100**

Estimation, the increase in income of beneficiaries is attributed to their participation in the FADAMA III/SEEFOR project.

Considering the income of beneficiaries before and after the project (without controlling for other reasons for income to change), more than 30 percent of the beneficiaries increased their incomes by at least 19.05

percent in the first year of SEEFOR/Fadama III operation in the five local government areas. This finding is in tandem with that of Yunana et al (2013) which established that Fadama III project had a positive impact on income and wealth of participants in Federal Capital Territory of Nigeria and also Iwala 2014 who found a positive economic impact of Fadama III small scale community owned infrastructure on beneficiaries in Ondo State.

4. Conclusion

The relevant productive assets provided by FADAMA III/SEEFOR project in the study area has been properly identified and documented. The proportion of project beneficiaries that are satisfied with the operation, maintenance and utilization of productive assets has also been determined. It is established that FADAMA III/SEEFOR project has impacted positively on the income of project participants. Based on the findings the study recommends that the project should entrench proper measures towards ensuring that service providers execute projects to specification as this will improve the interest of the project to beneficiaries.

Table 6: Distribution of Beneficiary Enterprise Groups and Non Beneficiary Groups according to Current Income Level

	SEEFOR/Fadama III Beneficiaries		SEEFOR/ Fadama III non-Beneficiaries	
Enterprise Category (FUG)	**Income Level (₦)**	**Av. Income Level (₦)**	**Income Level (₦)**	**Avg. Income Level (₦)**
Crop Farmers:				
Cassava farmers	157,182.00		154,625.00	
Plantain farmers	148,800.00		144,187.00	
		152,991.00		**149,406.00**
Livestock Farmers:				
Pig farmers	168,960.00		150,564.00	
Poultry farmers	177,663.00		170,050.00	
		173,311.50		**160,307.00**
Agro-forestry:				
Snail farming	141,850.00		131,560.00	
		141,850.00		**131,560.00**
Vulnerable Groups:				
Pepper processing	141,260.00		132,860.00	
Cassava processing	147,109.00		140,100.00	
		144,184.50		**136,480.00**
Agro processing:				
Palm oil processing	168,500.00		150,120.00	
		168,500.00		**150,120.00**
Fisheries: (Artisanal & Aquaculture)	181,000.00	**1 81,000.00**	176,100.00	**176,100.00**
		$\bar{X}$ **=160,306.17**		$\bar{X}$ **=150,662.17**

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