

Effect of agricultural programmes on the livelihood of the vulnerable group: a case study of the Fadama III programme in Kwara State, Nigeria

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Manuscript received March 20, 2015; revised April 25, 2015; accepted May 29, 2015

Abstract: This study examines the contribution of the Fadama III programme to the livelihood of the vulnerable group in Kwara State, Nigeria. Results revealed that the group was made up of mainly old, less-educated, small-scale farmers, with many years of farming experience. Benefits derived from the programme by the group include input support, asset acquisition, rural infrastructure, advisory services, capacity building, increased output, and income. The major constraints faced by the group were illiteracy, pests and diseases, inadequate inputs, and untimely funding. This study suggests policy measures on how to better the livelihood of the vulnerable group of farmers.

Keywords: contribution, benefits, constraints, measures

1. Introduction

With 173.6 million inhabitants, Nigeria is the most populous country in West Africa and constitutes 52.4% of West Africa's population [1]. Agriculture is the mainstay of the country's economy, accounting for about 40% of the gross domestic product (GDP) and providing employment to over 60% of the labour force and 90% in rural areas [2, 3]. Nigeria is blessed with good arable land, a friendly agricultural climate, a large consumer market – as indicated by the huge population –, as well as the ever-increasing world market for reaping the potentials

that agriculture can offer any economy [4]. Despite these plentiful agricultural potentials, Nigeria continues to experience widespread food insecurity and poverty, with 68% of the population living on less than \$1.25 a day [5]. The vulnerable group is the worst hit in this regard [6].

One viable way of helping the vulnerable group is through interventions such as creating jobs or means of improving their livelihood [7]. Thus, in an attempt to improve the condition of the vulnerable group of its population, the Nigerian government most often includes this group of people in its agricultural intervention programmes. This group of individuals includes among others the disabled, the low-income group, the aged, unskilled population, isolated elderly people, widows, and orphans [3].

One of such agricultural-based intervention programmes is Fadama III. The programme is a tripartite intervention funded by the World Bank, the Federal Government of Nigeria, and participating States with objectives aimed at improving the livelihood of the beneficiaries (also known as Fadama User Groups – FUGs) in a sustainable manner. Though the primary focus of the project is targeted at involvement in food production, there is a tangential part involving social and economic support to vulnerable groups, such as widows, physically handicapped, the aged, and orphans, based on their identified needs.

Though many studies have focused on a generalized assessment of intervention programmes in Nigeria [8, 9, 10, 11, 12], none of them has paid specific attention to the vulnerable group as an important component of such programmes. This was the research gap which the study intended to fill. Knowledge about the clear picture of the assessment of the programme on vulnerable groups is desirable to provide agricultural policy makers an insight into the areas where the vulnerable groups require better assistance in order to improve their livelihood. In the light of this, the general objective of this study was to assess the influence of the Fadama III Development Programme on the livelihood of vulnerable crop farmers in Kwara State, Nigeria. The specific objectives were to:

1. examine the socio-economic characteristics of the vulnerable groups in the programme;
2. identify activities/services rendered by the programme to the vulnerable users;
3. determine the influence of the programme on the livelihood of vulnerable users;
4. identify the constraints confronting the group *vis-à-vis* their participation in the Fadama III programme.

2. Material and methods

Study area

The study was carried out in Kwara State, North Central Nigeria. The state is referred to as the “State of Harmony” and is one of the 36 states that make up the Federal Republic of Nigeria. It is located between latitude $8^{\circ}51' - 10^{\circ}41' \text{ N}$ and longitude $4^{\circ}55' - 6^{\circ}51' \text{ E}$, covering an estimated land area of 36,825 square km with a population of about 2.37 million (NPC, 2006). The state was created in 1967 and is made up of 16 Local Government Areas (LGAs). It shares national boundaries with Niger, Oyo, Kogi, and Osun states and international boundaries with the Republic of Benin.

Kwara State is within the rain forest and the woody savannah areas. The state enjoys a tropical climate with an average rainfall ranging between 1,000 mm and 1,500 mm, lasting from eight to nine months of the year and a maximum temperature range of $30^{\circ}\text{C} - 35^{\circ}\text{C}$. It experiences two climatic seasons: dry and wet seasons. Agriculture is the main source of the state’s economy.

The 16 LGAs in the state are grouped by the state’s Agricultural Development Project (ADP) into four zones – A, B, C, and D – with their headquarters at Kaima, Patigi, Malete, and Igbaja respectively. The grouping was done in consonance with the ecological characteristics of the various parts of the state and for the effective administration of agricultural intervention programmes. The Fadama III programme covers all the four zones in the state. The beneficiaries of the programme were classified into groups otherwise called Fadama User Groups (FUGs) based on their enterprises.

Sampling procedure and sample size

The population for the study comprised vulnerable FUG crop farmers in Kwara State, Nigeria. Four-stage sampling technique was employed in the selection of respondents for this study. The first stage was a random selection of two (2) ADP zones from the four (4) ADP strata in the state. These were Zones C and D. The second stage involved a random selection of four (4) LGAs, two (2) from each selected ADP zone. These were Asa and Ilorin East LGAs in Zone C and Ifelodun and Irepodun LGAs in Zone D. Thirdly, with the assistance of the Fadama Community Facilitators, a list of vulnerable FUGs was compiled in each of the four LGAs, from which eight (8) vulnerable crop farmer FUG groups were randomly selected. Lastly, 185 vulnerable crop farmers were randomly selected from the eight FUGs based on the proportion of the vulnerable crop farmers in each group (*Table 1*).

Table 1. Sample design outlay for the study

Selected ADP Zone	LGAs	FUGs by communities	No of respondents
C	Asa	Alapa/Bakasse	21
		Lasoju	20
	Ilorin East	Agbayangi	21
		Iponrin	22
D	Ifelodun	Owa-Onire	24
		Idera	27
	Irepodun	Oro	24
		Ajase	26

Source: Authors' design

Sources of data and instrument for data collection

Data for the study were obtained from both primary and secondary sources. The primary data were collected with the use of interview schedule. Also, Focus Group Discussions (FGD) were conducted to make the study more interactive and participatory to determine the opinion of the groups about the context of the survey. Secondary data were also sourced from published and grey literature.

The instrument for data collection was structured questionnaire, the content of which was properly validated to ensure that the questions were relevant and without bias. The pre-testing of the instrument was carried out on 20 vulnerable FUG members in Bakasse (one of the FUG communities in Asa LGA of the state). The data collected include socio-economic characteristics of the respondents, services rendered by FADAMA III, benefits accrued from participating in the programmes, and constraints faced by the respondents vis-à-vis their participation in the programme.

Data analysis

Both descriptive statistics and Likert-type scale were used for this study. Descriptive statistics involving the use of frequencies, percentages were employed to analyse the socio-economic characteristics of the farmers and present the results of the findings. Likert-type scale was also used to assess the opinion of the farmers on how well the programme had improved their livelihood and the factors militating their ability to access the benefits of the programme. As regards the effects of the project on the farmers' livelihood, a five-point Likert scale was used and coded as follows: Strongly agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly disagree (1). Also, a four-point Likert scale was used to assess the view of the farmers on the intensity of possible constraints facing the groups vis-à-

vis their participation in the programme. This was rated as Very severe (4), Severe (3), Less severe (2), and Not severe (1).

3. Results and discussion

Socio-economic characteristics of the respondents

The distribution of the respondents according to their socio-economic attributes is shown in *Table 2*. *Table 2* shows the socio-economic profile of the respondents. The majority of the respondents (41.1%) were in the 56–60 years of age-bracket. About 68.9% of the respondents were within the range of 61–75 years. The mean age of the respondents was 62.5 years. These results suggest that the group mostly consists of aged adults.

Also 68.1% of the respondents were male, while 31.9% were females. This indicates the dominance of male individuals in the group. The majority (76.8%) of the respondents were married, while just 0.5% was single. This suggests that crop farming is a means of catering for the family by the group.

Education is an important socio-economic factor as it determines the degree of innovativeness among farmers. About 35.7% of the respondents had no formal education, 22.7% attained primary education, and 15.7% attended secondary schools, while 3.2% and 1.6% had tertiary and adult education, respectively.

Household size is an important socio-economic variable as a large household size may determine the level of food security and poverty among farm households [11, 13]. The household size of the respondents ranged from 1 to 10 persons. The modal group is 4–6 persons, accounting for 59.5% of the respondents. Further analysis of the data revealed that the average household size of the respondents was about six persons.

Most (98.9%) of the respondents had been in farming for more than ten years. Also, the mean farming experience of the respondents was 13.2 years. This suggests that crop farming is an age-long venture for the respondents.

Regarding secondary occupation, 47.6% of the respondents had no other job except crop production, 30.8% engaged in trading, while 11.4% reported that they were artisans. This stresses the fact that crop production is a means of meeting the livelihood needs of this group of farmers.

Table 2. Distribution of respondents' personal characteristics (n = 185)

Variable	Category	Frequency	Percentage
Age (years) (Mean = 62.5years)	56–60	76	41.1
	61–65	64	34.6
	66–70	34	18.4
	71–75	11	5.9
Sex	Male	126	68.1
	Female	59	31.9
Marital status	Single	1	0.5
	Married	142	76.8
	Widow	37	20
	Separated	3	1.6
	Widower	2	1.1
Education	No formal	66	35.7
	Quranic	39	21.1
	Primary	42	22.7
	Secondary	29	15.7
	Tertiary	6	3.2
	Adult education	3	1.6
Household size	1–3	2	1.1
	4–6	110	59.5
	7–9	72	38.9
	≥10	1	0.5
Farming experience (years)	≤10	2	1.1
	11–15	7	3.8
	16–20	33	17.8
	21–25	36	19.5
	26–30	77	41.6
	> 30 years	30	16.2
Secondary occupation	None	88	47.6
	Trading	57	30.8
	Artisan	21	11.4
	Others	11	10.3
Contact with Fadama facilitator		185	100
Frequency of contact with facilitator	Regularly	137	74.1
	Occasionally	48	25.9
	Rarely	0	0
	Never	0	0
Farm size (hectares)	< 1.0	73	39.5
	1.1–2.0	86	46.5
	2.1–3.0	26	14
Source of farmland	Inheritance	169	91.4
	Lease/rent	5	2.7
	Purchase	11	5.9
Source of labour	Both family and hired	10	5.4
	Family labour	110	59.5
	Hired labour	65	35.1

Source: Authors' computation from field data

All the respondents had contact with Fadama facilitators, who served as extension agents between the farmers and the programme's co-ordinating office. However, 74.1% of the respondents had contact with facilitators on a regular basis, while the remaining 25.9% had this contact just occasionally.

About 46.5% of the respondents operated between 1 and 2 hectares, while 39.5% operated on less than 1 hectare of farmland. The average farm size of the respondents was 1.44 hectares. These results indicate that this group of farmers were mainly smallholders. Ninety per cent of the respondents acquired their farmland through inheritance, 2.7% through lease/rent, while 5.9% acquired theirs through purchase. The major source of labour to the farmers was family labour, and this served as a source of labour to 59.5% of the farmers.

Activities/services benefited from the Fadama III programme by the respondents

Table 3 shows the activities/services rendered by Fadama to vulnerable aged users. The Table shows that in terms of asset acquisition all the respondents had knapsack sprayer, wheel barrow, and protective wears. Forty per cent benefited from irrigation tools, 81.6% benefited from agro-processing facilities, while 38.9% and 2.2% benefited from storage facilities and power tilling equipment, respectively. Also, regarding rural infrastructure, the majority (73.5%) of the respondents benefited from potable water, 46.5% benefited from marketing facilities, but only 11.4% benefited from rural access roads.

Table 3 also indicates that all the respondents had access to input support, such as fertilizers, agrochemicals, and improved seeds, by virtue of participating in the programme. As regards advisory services, 98.4% of the respondents were trained on pest and disease control, 44.3% were trained on soil management, and 23.8% were trained on afforestation, while all the respondents were trained on sound agronomic practices. Regarding capacity building, 96.8% of the respondents were trained on how to resolve conflicts among users and non-users of the programme, 13% were trained on how to source market information, while all the respondents were trained on how to save and keep a proper record of their farming activities.

Table 3. Distribution of respondents according to activities/services benefited from the Fadama III programme (n = 185)

Category of benefit	Benefits derived	YES		NO	
		Freq.	%	Freq.	%
Asset acquisition	Storage facilities	72	38.9	113	61.1
	Irrigation facilities	74	40	111	60
	Agro-processing facility	151	81.6	34	18.4
	Knapsack sprayer	185	100	-	-
	Wheel barrow	185	100	-	-
	Protective wears	185	100	-	-
	Power tiller	4	2.2	181	97.8
Rural infrastructure	Marketing facilities	86	46.5	99	53.5
	Rural access road	21	11.4	164	88.6
	Potable water	136	73.5	49	26.5
Input support	Fertilizers	185	100	-	-
	Agrochemicals	185	100	-	-
	Improved seeds	185	100	-	-
Advisory services	Agronomic practices	185	100	-	-
	Soil management	82	44.3	103	55.7
	Afforestation	44	23.8	141	76.2
	Sustainable land management	2	1.1	183	98.9
	Pest and disease control	182	98.4	3	1.6
Capacity building	Conflict resolution	179	96.8	6	3.2
	Savings/record keeping	185	100	-	-
	Market information	24	13	161	87

Source: Authors' computation from field data

Influence of FADAMA III on the livelihood of the respondents

Table 4 shows farm production by the respondents before and after participating in the programme. The majority (57.8%) of the respondents cultivated between 0.6 and 1.0 ha of land for maize, 43.3% cultivated between 0.21 and 0.35 ha for cassava and 73% cultivated between 0.36 and 0.50 ha for yam. The output of most of the respondents were 1.1–1.5 tons/annum for maize, 2.1–4.1 tons/annum for cassava, and 3.1–4.5 tons/annum for yam, and this was obtained by 73.5%, 41.6%, and 73.0% of the respondents, respectively. The annual income of most of the respondents ranged from ₦51,000 to ₦100,000 for maize and cassava and from ₦101,000 to ₦150,000 for yam before the Fadama III intervention (Note: 1US\$ = ₦165).

Tab. 4: Status of the respondents before and after the Fadama III intervention

Period	Crop	Farm size (Ha)	Freq.	%	Output (Tons)	Freq.	%	Total Amount (₦'000)	Freq.	%
Before Fadama III intervention	Maize	0.1 – 0.5	74	40	0.6 – 1.0	45	24.3	1 – 50	3	1.6
		0.6 – 1.0	107	57.8	1.1 – 1.5	136	73.5	51 – 100	181	97.9
		1.1 – 1.5	4	2.2	1.6 – 2.0	4	2.2	101 – 150	1	0.5
	Cassava	0.06 – 0.20	77	41.6	0 – 2.0	65	23.2	1 – 50	3	1.6
		0.21 – 0.35	80	43.3	2.1 – 4.1	77	41.6	51 – 100	144	77.8
		0.36 – 0.50	28	15.1	4.2 – 6.2	43	35.2	101 – 150	38	20.6
	Yam	0.06 – 0.20	28	15.1	0.1 – 1.5	27	14.6	1 – 50	23	12.4
		0.21 – 0.35	22	11.9	1.6 – 3.0	23	12.4	51 – 100	40	21.6
		0.36 – 0.50	135	73	3.1 – 4.5	135	73.0	101 – 150	122	66.0
After Fadama III intervention	Maize	0.1 – 1.0	5	2.7	1.0 – 2.0	4	2.2	10 – 100	5	2.7
		1.1 – 2.0	179	96.8	2.1 – 3.0	178	96.2	110 – 200	176	95.1
		2.1 – 3.0	1	0.5	3.1 – 4.0	3	1.6	210 – 300	4	2.2
	Cassava	0.1 – 0.5	43	23.3	0.1 – 4.5	43	23.3	1 – 100	3	1.6
		0.6 – 1.0	53	28.6	4.6 – 9.0	40	21.6	101 – 200	142	76.8
		1.1 – 1.5	89	48.1	9.1 – 13.5	102	55.1	201 – 300	40	21.6
	Yam	0.1 – 0.5	8	4.3	0 – 3.0	27	14.6	150 – 200	3	1.6
		0.6 – 1.0	26	14.1	3.1 – 6.1	32	17.3	201 – 250	5	2.7
		1.1 – 1.5	151	81.6	6.2 – 9.2	126	68.1	251 – 300	177	95.7

Source: Authors' computation from field data

After the Fadama III intervention, the majority (96.8%) of the farmers cultivated between 1.1 and 20 ha of maize farmland with an output of about 2.1–3.0 tons/annum (by 96.2% of the respondents) and an annual income ranging from ₦110,000 to ₦200,000 (by 95.1% of respondents). About 48.1% of the respondents cultivated between 1.1 and 1.5 ha farmland with an output of 9.1–13.5 tons/annum (by 55.1% of respondents) and an annual income ranging from ₦201,000 to ₦300,000 (by 76.8% of the respondents) for cassava production. Also, 81.6% of the respondents cultivated between 1.1 and 1.5 ha of yam with an output between 6.2 and 9.2 tons/annum (for 68.1% of the respondents) and an annual income ranging from ₦251,000 to ₦300,000 (for 95.7% of the respondents) (Note: 1US\$ = ₦165).

Effects of the Fadama III programme on the livelihood of the respondents

Table 5 presents the distribution of respondents according to the perceived effects of the Fadama III project on their livelihoods. From the study, about 87.6% opined that their income increased through participation in the programme. The majority (84.3%) of the respondents strongly agreed that they were able to enrol their children in school. This, they claimed, was due to their increased income and improvement in socio-economic status. Meanwhile, 74.6% of the respondents claimed that they had enough food available in storage and about 66.5% strongly agreed that Fadama III was a source of employment opportunity to them. Also, over 70% of the respondents claimed increased social interaction within the FUG

group and 63.8% of the respondents agreed about having access to market information, which allowed them to sell produce beyond their localities. In the same vein, 86.5% agreed that their productive assets increased coupled with an improved standard of living through their participation in the programme. Likewise, the majority (81.6%) of the respondents opined that they were able to obtain assistance from government and other donor agencies by virtue of participating in the programme.

Table 5. Distribution of respondents according to the perceived effects of Fadama III on their livelihood (n = 185)

Benefit derived from FADAMA III	Strongly agree		Agree		Undecided		Disagree		Strongly disagree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Increased income	162	87.6	23	14.4	-	-	-	-	-	-
Enrolment of children in education	156	84.3	19	10.3	-	-	10	5.4	-	-
Increased food availability	138	25.4	47	74.6	-	-	-	-	-	-
Provide employment opportunity	123	66.5	62	33.5	-	-	-	-	-	-
Increased social interaction	47	25.4	130	70.3	-	-	8	4.3	-	-
Access to market information	-	-	118	63.8	2	1.1	56	35.1	-	-
Development of new technology	-	-	33	17.8	57	30.8	95	51.4	-	-
Increase of own productive assets	160	86.5	8	4.3	17	9.2	-	-	-	-
Assistance from community	17	9.2	16	8.6	86	46.5	66	35.7	-	-
Assistance from government/IDA	151	81.6	27	14.6	7	8.3	-	-	-	-

Source: Authors' computation from field data

Challenges faced by the respondents

The constraints limiting the respondents vis-à-vis their participation in the Fadama III programme are shown in *Table 6*. The foremost problem was the issue of pests and diseases, and this problem was faced by 85.9% of the respondents. This was followed by untimely release of funds with 87.6%, inadequate input (85.9%), limited income (73.5%), and illiteracy (65.9%).

Table 6. Distribution of respondents according to constraints faced by them in accessing Fadama benefits (n = 185)

Constraints	Strongly Severe		Severe		Less Severe		Not Severe	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Limited land	36	19.5	18	9.7	107	57.8	24	13
Pest and diseases	159	85.9	18	9.7	8	4.3	0	0
Inadequate input	159	85.9	26	14.1	0	0	0	0
Untimely release of funds	162	87.6	23	12.4	0	0	0	0
Inadequate funding	144	77.8	41	22.2	0	0	0	0
Poor access to information	34	18.4	133	71.9	18	9.7	0	0
Non-accessible roads	0	0	103	55.7	59	31.9	23	12.4
Conflicts with herdsmen	12	6.5	117	63.2	53	28.6	3	1.6
Illiteracy	122	65.9	48	25.9	15	8.1	0	0
Limited income	136	73.5	47	25.4	2	1.1	0	0
Poor attitude of users	28	15.1	135	73	22	11.9	0	0
Due process policy	67	36.2	110	59.5	8	4.3	0	0
Incompetency of service providers	0	0	0	0	74	40	111	60

Source: Computation from field survey

Another important problem was the issue of conflicts between the farmers and herdsmen, about which 63.2% of the respondents agreed as being severe. Investigations during the survey revealed that the respondents' farmland was usually invaded by nomads in an attempt to source good pasture for cattle by the pastoralists. Poor access to information and non-accessible roads also posed severe problems to the activities of the farmers, with 71.9% and 55.7% of the respondents, respectively, agreeing about these constraints as being severe.

4. Conclusions

It can be inferred from this study that the Fadama III programme improved the livelihood of the vulnerable crop farmers in the study area. The study has been able to reveal an increase in farm size, farm output, income, and improvement in the livelihood of the vulnerable crop farmers after the Fadama III intervention. The programme also assisted the farmers in accessing input support, such as improved seeds, fertilizers, and agrochemicals, which enabled them to undertake farming operations as and when due. This group of farmers was also able to access new

technology in best production practices and increased social interaction with other Fadama users. The programme also generated employment and increased food availability for family consumption and income. It also encouraged this vulnerable group to participate in agricultural development. However, this group of farmers were constrained by many factors vis-à-vis their access to full benefits from the programme. These problems include illiteracy, pests and diseases, inadequate inputs, and untimely funding, among others.

Based on these findings, therefore, there is need for government and relevant stakeholders to provide this group of farmers with education. The facilitators of the programme (and of similar programmes aimed at assisting vulnerable groups of people) could also assist them through non-formal education. This could be through adult literacy programmes and extension education. This would help in solving the problem of illiteracy this group of farmers is facing. Also, efforts should be overhauled in providing the farmers with adequate inputs. Besides, the facilitators of the programme (and of similar ones) should strengthen their efforts in giving the farmers practical training on pest and disease management as well as soil management. Moreover, agencies responsible for releasing the fund for such programmes should always make it timely, especially to this group of farmers. This is not only due to their condition but also to the seasonal nature of crop farming.

5. Acknowledgement

The authors sincerely appreciate the staff of Fadama Coordinating Office, Ilorin, Kwara State for their assistance during data collection.

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