

Fadama III Additional Finance Project and Sustainable Agricultural Development in Akure, Ondo State, Nigeria

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ABSTRACT

This study sought to assess the effect of the Fadama III AF project on sustainable agricultural development in Akure, Ondo State, Nigeria. The study adopted survey research design using well-structured questionnaire to achieve the objectives of evaluating the project's effects on productivity, livelihood, and environmental sustainability. Multistage sampling technique was used to select a sample size of 220 cassava farmers who benefited from the project. Data were presented in tables and the corresponding values in percentages. The hypothesis was tested with multiple linear regression along with paired sample t-test. The study found that Fadama III AF project has significant effect on productivity of the beneficiaries. However a significant decrease in livelihood with most pronounced aspects being electricity supply by 1.13, health care services by 1.08 while least decrease in transportation by 0.60 was noted. The multiple linear regression results showed that at 95% confidence level, all constructs of Fadama III AF project does not have significant effect on environmental sustainability with most noted being asset acquisition ($\beta=0.253$) followed by "advisory service" ($\beta=0.174$). The study concluded that Fadama III AF project has had a mixed effect on sustainable agricultural development in Akure, enhancing productivity but offering limited benefits in terms of environmental sustainability and comprehensive livelihood enhancement. The study recommended the need for the early release of funds and inputs, enhanced capacity building, and greater emphasis on environmental management practices to bolster the project's holistic contribution to sustainable agricultural development.

Keywords: Fadama III AF project; sustainable agricultural development; productivity; environmental sustainability; livelihood.

INTRODUCTION

Agriculture serves as the cornerstone of development, economic expansion, and poverty alleviation in emerging economies. The agricultural sector played a vital role in Nigeria's social and economic advancement, as a significant portion of the population depends on farming for their livelihoods (Osabohien *et. al.*, 2019). Historically, Nigeria's economy heavily relied on agriculture, and it was recognized as the primary driver of economic growth in the early 1960s. To underscore the importance of the agricultural sector in Nigeria's economy, it was included in the country's Millennium Development Goals aimed at reducing poverty (Sertoglu *et. al.*, 2017). Despite years of neglect, the decline in crude oil prices had compelled the nation to refocus on agriculture as the engine of economic development. In many developing nations, both low and middle-income economies, the agricultural sector remains the primary source of food, employment opportunities, inputs, and raw materials for the industrial sector. Additionally, it contributed significantly to foreign earnings through the exportation of surplus products and, critically, adds substantial value to various production processes (Moguluwa *et. al.*, 2021).

Essentially, numerous other sectors depend on agriculture for their growth, making it a crucial player in overall industrial activities. Nigeria's agricultural sector had long been marked by small-scale farming, insufficient financial support, meager yields, and constrained earnings (Osondu *et. al.*, 2014).

The National Fadama Development Project is a development intervention programme primarily crafted to provide small-scale farmers with essential inputs, assets, and rural infrastructure to enhance food production and, ultimately, elevate rural livelihoods. This initiative, the Fadama development project, represented one of Nigeria's agricultural strategies intended to enhance food production to satisfy the requirements of the expanding populace. The central objective of establishing Fadama in Nigeria was to foster collaboration between smallholder and commercial farmers, in collaboration with the Federal Government of Nigeria, thereby enhancing their earnings and enhancing productivity efficiency, and ensuring an adequate domestic food supply while also having a surplus for export (Williams, 2015). Over the years, successive Nigerian governments had consistently worked through various intervention programme to enhance agricultural production and bridge the expanding gap between food demand and supply. "Fadama," derived from the local Hausa language, denotes the periodically inundated regions employed for cultivation in the dry months, known as "Akuro" in Yoruba and "Ani-Nmiri" in the Ibo dialects. These areas are typically low-lying floodplains, frequently saturated during the wet season but retaining moisture during the dry season due to easily accessible shallow groundwater, making them conducive for year-round farming (Oyeniyi, 2019). These areas were characterized by alluvial lowlands formed through erosion and the deposition of materials by rivers, wetlands, and streams. Notably, the soils in these regions are highly conducive for optimal agricultural development, especially in coastal areas. To facilitate irrigation, water was sourced in several ways: firstly, through pumping from underground sources using wells; secondly, by harnessing the natural course of streams; and thirdly, by controlling the flow of streams through damming or other methods (Williams, 2015). Water for irrigation were applied to crops through methods such as fording, channeling, spraying, or the use of drip systems. In the context of World Bank-assisted projects, the term "Fadama" had been adopted in the form of Fadama I, II, and III, resembling a successive agricultural diversification program. The World Bank had embraced the concept of "Fadama" as a framework for agricultural project interventions in rural communities.

The Fadama III Additional Financing (AF) project aimed to build upon the achievements of Fadama III by extending its impacts which includes increasing the income of rural land and water resource users, reduce rural poverty, increase employment opportunities and facilitate rural economic development.

The components of F3AFP include:

1. Capacity Building, Communications and Information Support
2. Small-Scale Community-Owned Infrastructure

Advisory Services and Input Support

1. Support to the ADPs and Adaptable Research and on Farm Demonstrations
2. Assets Acquisition
3. Project Management, Monitoring and Evaluation

Fadama III (AF) project comprises six (6) components that bring substantial benefits to the beneficiaries. These components includes: Capacity Building, Communications and Information Support; Small-Scale Community-Owned Infrastructure; Advisory Services and Input Support ; Support to the ADPs and Adaptable Research and on Farm Demonstrations ;Assets Acquisition; Project Management, Monitoring and Evaluation.

Sustainable agricultural development encompasses the capability of both present and future generations to meet their agricultural needs (Amaechi, 2018). FAO (2020), defined sustainable agricultural development as

the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations.

Sustainable agricultural development necessitated the nurturing of healthy ecosystems and the promotion of sustainable land, water, and natural resource management, all while ensuring global food security (Food and Agricultural Organization FAO, 2014). The rural inhabitants, marked by their limited economic resources and substandard living conditions, exhibited deficiencies in sanitation, limited healthcare access, reliance on rudimentary tools, meagre earnings, and minimal to no formal education. These economic factors significantly restricted their ability to surpass the threshold of low income (Muhammad et. al., 2011).

Successive administrations in Nigeria have launched various initiatives aimed at boosting earnings and output of small to medium rural farmers, hence assuring food security. Unfortunately, the majority of these initiatives fell short of realizing their intended goals due to their top-down approach in both design and execution, resulting in many of the programs being unsustainable (Adebisi *et. al.*, 2019, Ogunjobi et al., 2020). Furthermore, the agricultural industry in Nigeria has been plagued by a history of inadequate management, erratic and ineffectively executed state initiatives, oversight insufficiency, and an absence of essential amenities. The National Fadama Development Project was introduced as a strategic initiative to revitalize agriculture by enhancing the productivity and livelihoods of small-scale farmers through improved resource use and management. However, while the Fadama projects have shown potential, there remains a gap in understanding the full effect of these initiatives on sustainable agricultural development, particularly at the micro-level in specific communities like Akure in Ondo State. Moreso, various authors have separately explored the concepts of the National Fadama Development Project and sustainable agricultural development in distinct studies, there is scarcity of research that examined their interconnectedness within a single study. Given these challenges, there is a critical need to evaluate the effectiveness of the F3AFP in fostering sustainable agricultural development in Akure, Ondo State. This study aims to bridge the knowledge gap by assessing the project's effect on productivity, livelihood enhancement, and environmental sustainability among the beneficiaries. This research is essential to inform future policies and ensure that interventions like the F3AFP can lead to tangible improvements in the agricultural sector and rural development in Nigeria. This study will also enlighten Fadama users about the importance of embracing future National Fadama Development Projects, highlighting their potential in harnessing the benefits of Fadama land. The findings of this research will serve as a foundational resource for enhancing and sustaining agricultural development initiatives, which would ultimately contribute to addressing issues related to food security, poverty, and hunger in the country.

The aim of this study was to assess the effect of Fadama III Additional Finance Project (F3AFP) on Sustainable Agricultural Development in Akure, Ondo State, Nigeria.

The specific objectives of the study were to:

1. evaluate the effect of Fadama III Additional Finance Project (F3AFP) on the productivity of beneficiaries in the Akure, Ondo State, Nigeria;
2. investigate the effect of F3AFP on the livelihood of beneficiaries in the study area; and to assess the effect of F3AFP on environmental sustainability in the study area.

METHODOLOGY

Survey research design was adopted for this study because it enhances the systematic description of existing situation and objectives to be addressed in this study. Akure, situated as the capital city of Ondo State, was chosen for this study because Ondo State is one of the intervention states of the project. The study population comprises the entirety of beneficiaries, specifically crop farmers who were part of the Fadama III Additional Finance Project in Akure, Ondo State. In Nigeria, Fadama III AF intervention was channeled

towards crop farmers only while in Ondo State, cassava and rice farmers were the sole beneficiaries. According to State Fadama Coordinating Office (SFCCO) (2019), the total beneficiary population consists of 485 crop farmers (cassava and rice). Multistage sampling technique was employed for this study. The first stage was the purposive selection of Cassava farmers. The second stage involved stratified sampling technique for division of the population based on the production clusters and groups. The third stage involved random sampling of 10 farmers from each production group statistically determined using Yamane (1973) formula as shown in Table 1 below. Data collection was carried out using questionnaires, which were self-administered by the researcher to cassava crop farmers.

Table 1: Sample size

Production Clusters	Production Groups	Sample size (Cassava farmers)
Iju	Temidire	70
	Ifedapo	
	Oluwaseun	
	Oloruntobi	
	Agbelere	
	Ifesowapo	
	Arokobodunde	
Isanlu	Zenith	30
	Agbeloba	
	Agbedunse	
Toluwa	Morning star	60
	Faith	
	Progress	
	Young shall grow	
	Ayonitemi	
	Ibukunoluwa	
Obatedo	Iranlowo	30
	Oluwalolere	
	Opeyemi	

Isinigbo	Amedari Ajose Okolere agbe	30
Total: 5	Total: 22	Total: 220

Source: SFCO, 2019

RESULT AND DISCUSSION

Paired sample t- test and multiple linear regression were used to achieve the objectives of this study. 220 copies of questionnaire were distributed to cassava farmers who were beneficiaries of the Fadama III AF project in Akure. Out of a total of 220 copies of questionnaire distributed, 207 copies were retrieved from the respondents and fit to be analysed.

Demographic Characteristics of Respondents

Table 2 showed the demographic characteristics of the respondents, that is, beneficiaries of Fadama III AF project in Akure North, Ondo State. Descriptive statistics showed that majority of the respondents were male (71.5%) while female folks represents (28.5)% which showed that men were more involved in the project than women. The respondents between the age bracket 41-50years (38.2%) formed the highest showing the active and productive years of respondents, while 21-30 years (3.4%) formed the lowest implying that about three out of every hundred Nigerian youths are interested in agriculture. Information on marital status revealed that majority of the respondents were married (79.7%), widow (16%), single (4.3%) which implied the use of family labour for farming. A significant majority of the surveyed participants were found to be married individuals, indicating that married individuals are the primary recipients of the project in Akure.

Figures on education qualification likewise revealed that SSC (48.8%) was the highest educational qualification attained by the respondents, FSLC (29.5%), JSC (1.4%), NCE/ND (15.0%), University degree (5.3%) implied that majority of the respondents could read and write. Furthermore, statistics showed that most of the respondents had been in farming business for over 20 years (38%). Another fraction of the respondents claimed that they have been farming between 15-20 years (23.7%), 10-15 years (22.2%) and 5-10 years (16.1%) implying most of the respondent had enough experience in farming. This also suggests that the majority of farmers have gained familiarity with agricultural activities and possess a certain level of experience in the Fadama project, including its associated processes. The majority of respondents reported that their highest household size fall in the range 6-10 (54.3%) while the least household size fall in range above 15 (3.2%). It was gathered that 27.5% of the labour used by the respondents were hired labour while 72.5% consisted of both hired labour and the farmers' household working as labour on the farm. Statistics on farm size of respondents revealed that majority of the respondents have farm size 1-2ha (68.6%), 3-4ha (23.2%) and less than 1ha (8.2%). Also, figures on duration in cooperative showed that 10-20 years (52.7%) having the highest representation for this study, above 20 years (6.7%) and 1-10 years (40.6%). Finally, figures on income per annum (N) of the respondents showed that majority of the respondent earned between 200,000-400,000 (75.4%), less than 200,000 (19.3%) and over 400,000 (5.3%).

Table 2: Demographic Information of Respondents

Characteristics	Frequency	Percent
Gender of the Respondent		
Male	141	71.50%
Female	66	28.50%

Total	207	100%
Marital Status		
Married	165	79.70%
Single	9	4.30%
Widowed	33	16.00%
Total	207	100%
Highest Educational Qualification		
FSLC (First School Leaving Certificate)	61	29.50%
JSC (Junior School)	3	1.40%
SSC (Secondary School)	101	48.80%
NCE/ND	31	15.00%
B.Sc/B.Ed	11	5.30%
Total	207	100%
Age of Respondents		
21-30 years	7	3.40%
31-40 years	58	28.00%
41-50 years	79	38.20%
Above 50 years	63	30.40%
Total	207	100%
Household Size		
5-Jan	39	20.40%
10-Jun	111	54.30%
15-Nov	48	22.10%
Over 15	9	3.20%
Total	207	100%
Years of Experience		
5-10 years	34	16.10%
10-15 years	46	22.20%
15-20 years	49	23.70%
Above 20 years	78	38.00%
Total	207	100%
Source of Labour		
Hired	57	27.50%
Both	150	72.50%
Total	207	100%
Farm Size		
Less than 1ha	17	8.20%
1-2ha	142	68.60%
3-4ha	48	23.20%
Total	207	100%
Duration in Cooperative		
1-10 years	84	40.60%
10-20 years	109	52.70%
Above 20 years	14	6.70%
Total	207	100%
Income Per Annum(N)		

Less than 200,000	44	19.30%
200,000-400,000	149	75.40%
Above 400,000	14	5.30%
Total	207	100%

Source: Researcher’s Survey, 2023

Effect of Fadama III AF Project on Productivity of Beneficiaries.

This objective looked into the effect of the Fadama III AF project on productivity of crop farmers in the study area in terms of output (average tonnes per annum), farm size (number of Ha) and input (cost per annum of labour, seedling, fertilizer and pesticide). This was with the view to determine whether the Fadama III AF intervention project had actually made or marred crop production activities of the farmers in the study area. As such, this objective was achieved using paired sample t-test to determine if there was statistical significance in productivity of the beneficiaries prior Fadama III AF project (before 2017-2019) and post Fadama III AF project (after 2020 – 2022). Statistical significance exists between this two period if P-value is less than .05 at 95% confidence interval and vice versa.

The column, labelled Sig. (2-tailed) has probability P value of .000 for all constructs of productivity. Therefore, it was concluded that there was a significance difference between farmers’ productivity before 2017-2019 and after 2020-2022.

Hence the study affirmed that Fadama III AF project had significant effect on beneficiaries’ productivity in the study area. Furthermore, in establishing the nature of the difference (increase or decrease), the Pair Samples Statistics were considered. It was observed that there was an increase output by 0.35tons (pair 1), with mean before 2017-2019 (1.39) and after 2020-2022 (1.73). This conformed to the study of Idris & Jabo (2021) which revealed a substantial rise in crop yield among farmers who engaged in the Fadama III AF Intervention. This was a positive outcome, as it signifies the project’s success in empowering rural farmers by boosting their crop yields, consequently leading to higher incomes for the beneficiaries.

This study also agrees with the findings of Isah & Muhammad (2017) which revealed that the participation of farmers in Fadama III (AF) Interventions led to a noteworthy increase in crop yields and Solomon (2020) who pointed that though these efforts yielded elevated income levels and the resultant reduction in poverty among the recipients signify progress. However, there could still be room for improvement, as Fadama users had not fully harnessed their potential.

Similarly, there was an increase in farm size by 1.09ha (pair 2) with mean before 2017-2019 (1.57) and after 2020-2022 (2.65). In the same vein, an increase in input was likewise observed in per input supply by 0.78 that is N780 worth of input supplies per annum. The Column Eta squared ascertained the magnitude of the intervention’s effect. According to Cohen 1988, eta squared .01-.05 =small effect; .06-.09=moderate effect; above .14=large effect. The eta squared value for all constructs of farmers’ productivity were above .14 hence it was ascertained that there was a large effect, with a substantial difference in beneficiaries’ productivity before 2017-2019 and after 2020-2022 due to Fadama III AF project in the study area.

The implementation of the F3AFP had a significant effect on farmers in the study area, resulting in a substantial increase in the size of their farms.

Table 3: Effect of F3AFP on productivity of beneficiaries

Pair	Category	Period	Mean	N	Std. Deviation	Std. Error Mean
1	Output	2017-2019	1.3913	207	0.64351	0.04473

1	Output	2020-2022	1.7391	207	0.79413	0.05520
2	Farm Size	2017-2019	1.5652	207	0.71350	0.04959
2	Farm Size	2020-2022	2.6522	207	0.56154	0.03903
3	Input	2017-2019	1.0435	207	0.20443	0.01421
3	Input	2020-2022	1.8261	207	0.63757	0.04431

Statistical Analysis Summary

Pair	Category	Mean Difference	Std. Deviation	95% CI Lower	95% CI Upper	T	Eta Square	Sig. (2-tailed)
1	Output	-0.34783	0.70006	-0.44376	-0.25190	-7.148	0.20	0.000
2	Farm Size	-1.08696	0.71880	-1.18546	-0.98846	-21.757	0.70	0.000
3	Input	-0.78261	0.58798	-0.86318	-0.70204	-19.150	0.64	0.000

Source: Researcher’s Survey, 2023

Effect of Fadama III AF Project on Livelihood of Beneficiaries

This objective looked into the effect of the Fadama III AF project on livelihood of beneficiaries in the study area with regards to the social and infrastructural benefits accrued to them by the intervention project. Paired sample t-test was used to compare the livelihood proxy by household feeding, transportation, education, health, job opportunities, water supply, electricity and assets owned before and after Fadama III AF project.

Considering Paired Samples test table, the column, labelled Sig. (2-tailed) has statistical probability P value of .000 for all constructs of livelihood. Therefore it was concluded that there was significant difference in livelihood of beneficiaries before and after Fadama III AF project. The Pair Samples Statistics table was considered in establishing the nature of the difference, either positive or negative. The study observed that there was a decrease in household feeding by 0.82 (pair 1), with mean before (3.13) and after (2.30). Similarly, there was a decrease in transportation by 0.60 (pair 2) with mean before (3.00) and after (2.39). In the same vein, a decrease in education for children was likewise observed by 0.82 (pair 3) with mean before 2.69 and mean after 1.86. Moreover, the study observed that the most significant decrease was noted for electricity supply by 1.13 (pair7). This followed by health care services by 1.08 (pair 4), water supply by 1.04 (pair 6). The least difference was observed in transportation by 0.60 (pair 2).

This agrees with Sanusi & Gado (2021), in their observation that the project did not yield a significant impact on certain facets of the beneficiaries’ livelihoods, including their limited capacity to acquire household assets and their access to social services. These results stand in contrast to the research conducted by Adesiji *et. al.*, (2015), which reported that a significant majority (84.3%) of respondents strongly concurred that they were able to enroll their children in school, while 74.6% claimed to have ample food stored, and around 66.5% strongly agreed that Fadama III had provided them with employment opportunities.

Table 4: Effect of Fadama III AF Project on Livelihood of Beneficiaries Paired Samples Statistics

		Mean	N	Std. Deviation
Pair 1	HOUSEHOLD FEEDING BEFORE	3.1304	207	.44872
	HOUSEHOLD FEEDING AFTER	2.3043	207	.46125

Pair 2	TRANSPORTATION BEFORE	3.0000	207	.29560
	TRANSPORTATION AFTER	2.3913	207	.48923
Pair 3	EDUCATION FOR CHILDREN BEFORE	2.6957	207	.68912
	EDUCATION FOR CHILDREN AFTER	1.8696	207	.61328
Pair 4	HEALTH CARE BEFORE	2.1304	207	.53734
	HEALTH CARE AFTER	1.0435	207	.20443
Pair 5	JOB OPPORTUNITIES BEFORE	1.9565	207	.20443
	JOB OPPORTUNITIES AFTER	1.0870	207	.28245
Pair 6	WATER SUPPLY BEFORE	2.0870	207	.40885
	WATER SUPPLY AFTER	1.0435	207	.20443
Pair 7	ELECTRICITY BEFORE	2.1739	207	.37995
	ELECTRICITY AFTER	1.0435	207	.20443
Pair 8	ASSEST OWNED BEFORE	2.1739	207	.37995
	ASSEST OWNED AFTER	1.3478	207	.47744

Source: Researcher’s Survey, 2023

Table 4: Effect of Fadama III AF Project on Livelihood of Beneficiaries (Cont’d) Paired Samples test

Pair	Mean Difference	Std. Deviation	Std. Error Mean	t-value	Sig. (2-tailed)
HOUSEHOLD FEEDING BEFORE – AFTER					
TRANSPORTATION BEFORE – AFTER	0.82609	0.70277	0.04885	16.9120	
EDUCATION FOR CHILDREN BEFORE – AFTER	0.6087	0.48923	0.034	17.901	0
HEALTH CARE BEFORE – AFTER	0.82609	0.63757	0.04431	18.641	0

JOB OPPORTUNITIES BEFORE – AFTER	1.08696	0.65521	0.04554	23.868	0
WATER SUPPLY BEFORE – AFTER	0.86957	0.44872	0.03119	27.881	0
ELECTRICITY BEFORE – AFTER	1.04348	0.55129	0.03832	27.232	0
ASSETS OWNED BEFORE – AFTER	1.13043	0.44872	0.03119	36.245	0
ASSETS OWNED BEFORE – AFTER	0.82609	0.63757	0.04431	18.641	0

Source: Researcher’s Survey, 2023

Effect of Fadama III AF Project on Sustainable Agricultural Development

This objective was achieved through multiple linear regression which determines the relative contribution of constructs of independent variables to the dependent variable. The independent variable, Fadama III AF project measured by capacity building, asset acquisition, advisory services, input support received and community owned infrastructure on the dependent variable, sustainable agricultural development proxy by environmental, livelihood and productivity dimensions. Table 5 presents the model summary which showed R² values of 0.141, 0.065 and 0.231 for environmental, livelihood and productivity dimensions of sustainable agricultural development. These indicated that the productivity dimension explains much variance (23.1%) in sustainable agricultural development than livelihood and environmental dimensions with 6.5% and 14.1% respectively

Environmental Sustainability

The coefficient table presented the relative contribution of each of the constructs of Fadama III AF project on dimensions of sustainable agricultural development in the study area. Table 5 revealed that all the constructs of Fadama III AF project were all insignificant P-values at 95% confidence interval. This implied that Fadama III AF project does not have significant contribution to environmental sustainability of the beneficiaries in the study area. Also, the Standardized beta value for environmental dimension showed “asset acquisition” had the greatest relative contribution with a beta value ($\beta = 0.253$). This is followed by “advisory service” ($\beta = 0.174$). This was attributed to the fact that waste management, soil and land management, pest control techniques, use of fertilizer and machinery have over time had negative effect on environmental sustainability in the study area.

This research aligned with the discoveries made by Hamadina & Hamadina (2015), which indicated that there were no apparent negative effects of Fadama III sub-projects on the social and environmental aspects

of the recipient communities. However, it was noted that specific critical factors could potentially pose a risk to the project’s long-term sustainability.

Livelihood Dimension

Similarly, all the constructs of livelihood dimension of sustainable agricultural development had insignificant P-value at 95% confidence interval. This likewise means that Fadama III AF project does not have significant contribution to livelihood of the beneficiaries in the study area with “community owned infrastructure” ($\beta = 0.269$) and “asset acquisition” ($\beta = 0.115$) having the most relative insignificant contribution to livelihood of the beneficiaries of Fadama III AF project. This aligned with the research findings of Sanusi & Gado (2021), who concluded that the Fadama III project did not have a substantial impact on certain aspects of the beneficiaries’ livelihoods, including their inability to acquire household assets and their capacity to engage in social service delivery.

Productivity Dimension

Finally, considering the productivity dimension of sustainable agricultural development, “capacity building” had the only significant P-value of 0.011 with relative significant contribution to sustainable agricultural development. This interprets that farmers have benefited from the group trainings on use of fertilizers, herbicides, planting of improved seedlings; market information on peak sales period, location and as well as linkages with financial agencies brought about by Fadama III AF project. However, figures revealed that “input support” ($\beta = 0.48$) and insignificant P-value of 0.741. This implied that the quantity and quality of input support of Fadama III AF project had not made valuable contribution to the productivity of the beneficiaries of Fadama III AF project in the study area. In this same vein “community owned infrastructures” ($\beta = 0.169$) and insignificant P-value of 0.227 signified that access road, drainage structures and water pumping stations were unimpressive.

Table 5: Multiple Linear Regression on Effect of Fadama III AF Project on Sustainable Agricultural Development

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Predictors	Dependent Variable
1	0.376	0.141	0.060	0.42747	(Constant), Capacity building, Asset Acquisition, Advisory service, Input Support, Community Owned Infrastructure	ENVIRONMENTAL1
2	0.481	0.231	0.158	0.48244	(Constant), Capacity building, Asset Acquisition, Advisory service, Input Support, Community Owned Infrastructure	PRODUCTIVITY2
3	0.255	0.065	-0.023	0.39829	(Constant), Capacity building, Asset Acquisition, Advisory service, Input Support, Community Owned Infrastructure	LIVELIHOOD3

Model	ENVIRONMENTAL DIMENSION		LIVELIHOOD DIMENSION		PRODUCTIVITY DIMENSION	
	Standardized Beta	Sig.	Standardized Beta	Sig.	Standardized Beta	Sig.
(Constant)						
Capacity building	.015	.921	.063	.696	.382	.011
Asset Acquisition	.253	.065	.141	.317	.020	.874
Advisory service	.174	.268	.014	.930	.110	.460
Input support Community	.101	.514	.115	.475	.48	.741
Owned infrastructures	-.163	.269	.209	.176	-.169	.227

Source: Researcher’s Survey, 2023

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concluded that Fadama III AF project had made partial contribution to the beneficiaries of the scheme. It was gathered while livelihood of the beneficiaries’ standard of living leaves much to be desired, productivity and environmental sustainability were quite commendable as mild positive changes were recorded in these aspects. The intervention led to a noticeable rise in cassava farmers’ yields compared to their pre-intervention output. The project has also motivated rural farmers in the study area to achieve higher crop yields, greater income, and larger farm sizes. Nevertheless, the project’s effect on healthcare, access to electricity, and rural infrastructure was observed to be comparatively limited.

Recommendation

Sequel to the findings from this study, the following recommendations were made:

- i. Officials of Fadama project should ensure that while assisting the farmers with farm inputs, farmers should be given agricultural inputs as grants or at subsidized rates so as to encourage more production and increase farmers’ revenue.
- ii. Early and timely release of funds and inputs would enable timely achievement of objectives as planned as it would also establish trust in the project. The capacity of the local institutions (such as FCA/FUG) should be further enhanced to improve the effectiveness demonstrated in current implementation through efficient training.
- iii. To boost and maintain agricultural community projects, it’s crucial to give greater priority to developing rural infrastructure and creating a conducive environment for development initiatives within the state.
- iv. More training on environmental management practices should be done in order to conserve and preserve the environment as this will mitigate the adverse effects resulting from the misuse and potential mismanagement of the environment.

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