



## RURAL RAPID APPRAISAL OF *FADAMA* III AF1 PROJECT IN GOMBE STATE, NIGERIA

<sup>1</sup>Kolo, A., <sup>2</sup>Makka, B. and <sup>1</sup>Sani, R. M.

<sup>1</sup>Department of Agricultural Economics and Extension, Faculty of Agriculture and Agricultural Technology, Abubakar Tafawa Balewa University, Bauchi, Nigeria

<sup>2</sup>Gombe State Ministry of Agriculture and Natural Resource

**Corresponding Authors' E-mail:** [abdulwahabkolo@gmail.com](mailto:abdulwahabkolo@gmail.com) **Tel.:** 08061572214

### ABSTRACT

The study evaluated the impact of *Fadama* III AF1 based on rapid rural appraisal survey. The Project focused on increasing the household incomes among *Fadama* production group (PG) and *Fadama* production clusters (PC) members. This study used propensity score matching (PSM) to select 120 project beneficiaries and 120 non-beneficiaries of *Fadama* III AF1 project. The result revealed that membership to *Fadama* production group (PG) and *Fadama* production clusters (PC) increases as beneficiaries of *Fadama* III AF1 received intervention. The result showed that there was increase in the proportion of male (80%), female (33.33%), youth (60%) and people with disability (50%) at rapid rural appraisal. The result showed that average household income of male beneficiaries increased to ₦83,614.77 and female beneficiaries also increased to ₦36,021.43 at rapid rural appraisal. The result of average yield of rice production was 3,507.04Kg/ha for beneficiaries and 1,796.11kg/ha for non-beneficiaries and there was significant difference at  $P < 0.001$ . The value of productive assets at the time of rapid rural appraisal was ₦30,028.04. Furthermore, increased in saving as % productive asset at baseline was 17.32% and at rapid rural appraisal was 30.47%. The result also indicated that, there was increasing change in the level of satisfaction among beneficiaries in terms of operation (90.48%), maintenance (78.57%) and utilization (96.15%) of assets. Physical verification showed that out of 11,337 productive assets acquired, 9,014 (79.51%) were in good condition and 16,404 (84.14%) of users were satisfy with the condition of assets. The findings also indicate that the capacities and abilities of the beneficiaries were enhanced through capacity building to assess their needs, participate in planning, implementation and manage economic activities. The finding also indicated that there was harmonious relationship among *Fadama* Production group (PG) and *Fadama* Production Clusters (PC) members and as such, regard themselves as partners in progress. It is recommended that Farmers should be advised through the Agricultural Development Programme to train the farmers on resource utilization and farm management skills to further boost their income and increase their efficiencies through the adoption of the best technologies.

**Keywords:** Appraisal, *Fadama*, Impact, Rapid, Rural.

### INTRODUCTION

The agricultural sector contributed about 47% of the GDP growth between 1990 and 2007 (the largest contribution from a single sector). According to 2010 estimates, the country's GDP composition by sector include: Agriculture (30%), Industry (32%) and Service (38%) while its labour force by occupation comprises agriculture (70%), industry (10%) and service (20%) (Olaolu *et al.*, 2015). Despite the above impressive economic potentials of the country, majority of its people are extremely poor. According to 2007 estimates, 70% of its people live below the international poverty line of less than \$1.25 per day, while unemployment and



inflation in the country was put at 4.9% and 9.3%, respectively. According to Emmanuel and Adebayo (2012), majority (70%) of its people lives in rural areas and is engaged in agriculture and agricultural related activities. The severity of poverty among the citizenry suggests that the economics potentials of the country are not fully exploited. In line with this premise, both the present and past administrations have taken the challenge and designed various development frameworks including the Economic Transformation Agenda (TA). The TA has ranked agricultural production on top of the major production sectors and has also allocated a substantial portion (US\$37.80 billion) of its four-year (2012 – 2015) budget of US\$667 billion to agriculture (Folayan, 2013). The Agricultural Transformation Agenda (ATA) which is part of the Transformation Agenda has as its objectives the attainment of self-sufficiency in food production, value addition through agricultural industrialization, enhanced efficiency in agricultural production and the adoption of appropriate agricultural technologies. As the TA, ATA, and other poverty reduction programs are implemented, the pertinent question is what is the most effective rural development approach that can significantly change the economic condition of the poor and vulnerable group (Olaolu *et al.*, 2015).

The government has approached the issue through several fronts. For instance, the National Economic Empowerment and Development Strategy (NEEDS) have sought to empower the poor to escape poverty by creating a favourable environment for the poor to engage in economic activities. According to the NEEDS documents, the conducive environment included investment in health, education, environment, housing, youth development and geopolitical balance (Nchuchuwe and Adejuwon, 2012). Also, the private sector participation was to be encouraged and special programs for the poor and vulnerable groups were conceived. Similarly, the Community Driven Development (CDD) approach to community development was implemented through the *Fadama* II project that was concluded some few years back with encouraging outcomes. The successful implementation of *Fadama* II project in 12 States of the federation has encouraged the federal government to expand the scope of the project to cover all the States of the federation including the FCT. This has metamorphosed in to the present *Fadama* III project. The *Fadama* III project that is currently being implemented has equally adopted the CDD approach and the evaluation of its impact on a number of outcomes forms the major theme of this report (Akinlade, 2012).

The Additional Financing (AF) is aimed at scaling up the impacts made under *Fadama* III and will therefore support clusters of farmers in six selected states with comparative advantage and high potential to increase production and productivity of cassava, rice, sorghum and horticulture value chains and link them to organized markets including the SCPZs when established (National *Fadama* Coordination Office [NFCO], 2017). It will also facilitate linkages between federation of producers and existing processors. The selected States are Kogi, Anambra, Enugu, Niger, Kano and Lagos. Provision was also made for other States that expressed interest and met the criteria to participate in *Fadama* III AF 1 that includes (Osun, Ekiti, Ondo, Oyo, FCT, Adamawa, Bauchi, Ogun, Kebbi, Sokoto, Taraba, Jigawa, Kaduna, Plateau, Ebonyi, Cross River, Benue, Katsina, Zamfara and Akwa Ibom, Cross-River, Benue, Zamfara, Katsina, Akwa Ibom, Imo, Edo, Gombe and Rivers to support the production of Cassava, Sorghum, Tomato and Rice value chains (Akinlade *et al.*, 2012). The Project is expected to close by December 31, 2019. The project document objectives were:

1. The primary Key Performance Indicator (KPI) was that at the end of the project the real income of 75% of beneficiaries would have increased by 40%. Desk work evaluation of available data showed that nominal income of beneficiaries has increased by 1,154% as a result of significant increase in yield, price, capacity building on agribusiness management,



promotion and adoption of appropriate technology, and the functional off take agreement being implemented across participating States.

2. Yield rose from a baseline of 5.27t/ha to 24.31t/ha for cassava (361.36%), from 2.83t/ha to 4.83t/ha for Rice (70.83%), sorghum remained at 1.54t/ha, and from 1.6t/ha to 26.31t/ha for tomato (1,544.61%).

3. The value of assets acquired correspondingly increased from ₦3,093,451,937 at 10<sup>th</sup> mission to ₦3,472,306,572 as at 31<sup>st</sup> May, 2019 representing 10.9% achievement. Meanwhile, the savings in FUEF Account as at 31<sup>st</sup> May, 2019 remain ₦592,880,047. It is worthy of note that FUEF Management performance is doing very well as the sustainability purpose for which it was designed is being fulfilled and the required 10% savings was over achieved.

The broad objective of the rapid rural appraisal survey is to empirically analyze the impact of *Fadama III AF1* project. Specifically, the study sought to: evaluate impact of *Fadama III AF1* on household income generation, progression and sustainability; examine the impact of *Fadama III AF1* on yield of primary agricultural products (disaggregated by crops/agro-forestry, livestock and fisheries, etc.) of participating households; describe the saving structure of the project beneficiaries for repair and replacement of productive assets; assess the level of satisfaction with operations maintenance and utilization of community-owned infrastructure and capital assets acquired through the project; and determine the impact of *Fadama III AF1* on physical verification of operations, maintenance and utilization of community-owned infrastructure and capital assets acquired through the project.

## **MATERIALS AND METHODS**

### **The Study Area**

This study was carried out in Gombe State, Nigeria. Gombe State is a successful socio-political fusion of two distinct groups of people, comprising, the Emirate of Gombe North and ethnic groups of Gombe South in the North Eastern region of Nigeria. Gombe State is located between Latitudes 9<sup>0</sup>30' and 12<sup>0</sup>30' North and Longitudes 8<sup>0</sup>45' and 11<sup>0</sup>45' east. It lies in the center of North East geopolitical zone of Nigeria and shares boundaries with all other states in the zone; Adamawa and Taraba in the South-south, Bauchi in the West, Borno in the east and Yobe in the North-east. According to NPC (2006), the population of Gombe State in 2006 census stood at about 2,365,040 while women constitute 1,120,812 and the State has an average population density of 130/km<sup>2</sup> (Oluyombo, 2010). The State has 11 local Government areas out of which 11 participated in the present *Fadama III AF 1* project (Figure 1).

### **Sampling Technique and Sample Size**

The sampling frame for the study was generated from both baseline and midline sample (beneficiaries and non-beneficiaries). Multi-stage random sampling technique was used in the selection of Local Government Areas (LGAs), *Fadama III* production cluster (PCs), *Fadama III* Production Groups (PGs) and participating farmers and non-beneficiaries of *Fadama III AF1* project. In the first stage, six (4) production clusters and four (4) production groups were randomly selected out of the eleven (11) LGAs that make up Gombe State. In the second stage, 120 farmers' beneficiaries of *Fadama III AF1* were randomly selected. Finally, 120 non-beneficiaries were randomly selected from the villages where the *Fadama III AF1* projects operate. This give a grand sample size of 240. This was a case of attrition. Furthermore, in line with the Terms of Reference of the study, there was physical verification of operation, maintenance and utilization of assets acquired by project beneficiaries at the time of the appraisal.

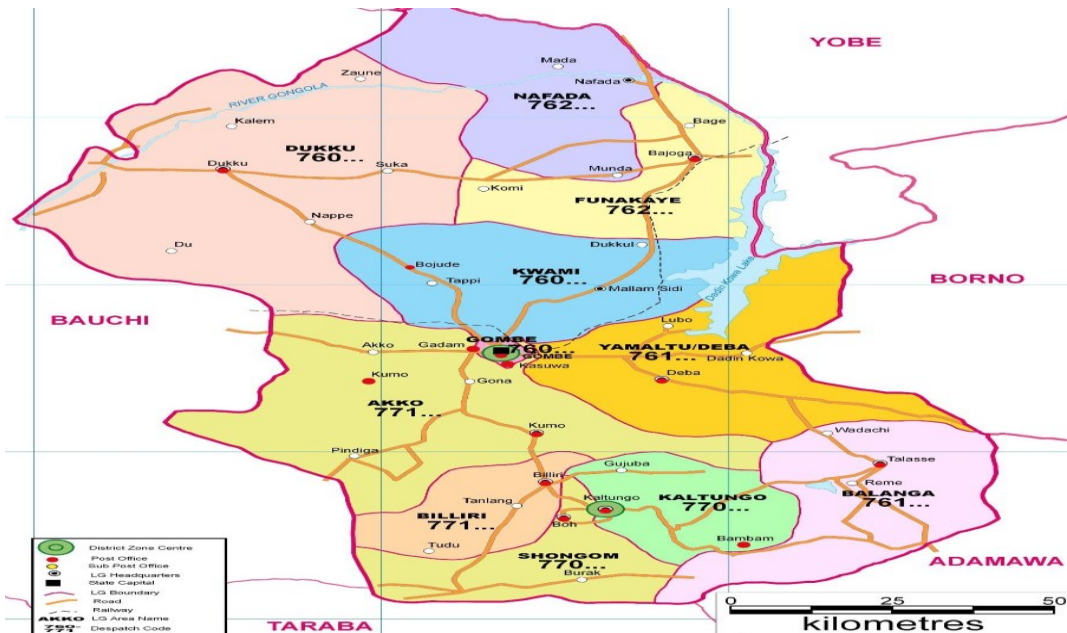


Figure 1: Map of Gombe State showing the 11 participating LGAs

### Data Collection and Processing

Data were collected using structural questionnaire. The data processing procedure for the survey covered the development of coding guide, data entry, data management (cleaning and editing) and data analysis. Data coding guide was professionally undertaken by the data Analyst. The guide provided direction to the data entry clerks on how the two questionnaires were to be coded. The guide further specified the questions from which data was derived, variable name, operational definition of the variable, coding options, variable type (numeric or alpha-numeric), the columns required by variables, as well as the measurement of each variable (scale, nominal, ordinal or string). For the binary response variables, zero and one were employed for coding, while strings were used for letters and numbers where applicable. Data coding and entry was performed using STATA version 16.

### Analytical Techniques

An experimental approach was used to construct an estimate of the counterfactual situation by randomly assigning respondents to treatment (beneficiaries) and control (non-beneficiaries) groups. Random assignment ensures that both groups are statistically similar in observable and unobservable characteristics, thus avoiding project placement and self-selection biases (Gray and Kinnear, 2011). Propensity Score Matching (PSM) and Double-difference (DD) were used in this study to address the challenges faced by rapid rural appraisal survey of this kind as outlined above to determine average treatment effect (ATE) on the beneficiaries. The PSM method matches *Fadama* III AF1 project beneficiaries and comparable non-beneficiaries using propensity score; which is the estimated probability of being included in the *Fadama* III AF1 project.

$$ATE = [E(Y_1|p = 1) - (E(Y_0|p = 0))] - [E(Y_0|p = 1) - (E(Y_0|p = 0))] \quad \dots(1)$$

where;

ATE = average treatment effect;

p = participation in the project (p = 1 if participated in *Fadama* III AF1 project, and p = 0 if did not participate in *Fadama* III AF1 project);





$Y_1$  = outcome (income, in this example) of the *Fadama* III AF1 project beneficiary after participation in project;

$Y_0$  = outcome (income) of the same beneficiary if he or she had not participated in the *Fadama* III AF1 project.

In the study, only *Fadama* III AF1 beneficiaries and non-beneficiaries with comparable propensity scores were used to determine the effect of the project. Double-difference on the other hand, compares changes in outcome from before and after the *Fadama* III AF1 project between beneficiaries and non-beneficiaries, instead of just comparing outcome levels at one point in time.

$$DD = (Y_{p1} - Y_{p0}) - (Y_{np1} - Y_{np0}) \quad \dots(2)$$

where;

$Y_{p1}$  = outcome (e.g., income) of beneficiaries after the *Fadama* III AF1 project started;

$Y_{p0}$  = outcome of beneficiaries before the *Fadama* III AF1 project started;

$Y_{np1}$  = outcome of non-beneficiaries after the *Fadama* III AF1 project started; and

$Y_{np0}$  = outcome of non-beneficiaries before the *Fadama* III AF1 project started.

To estimate the effect of the *Fadama* III AF1 project on the beneficiaries, mean values and their corresponding standard deviation were used. Statistical test (T-test) for difference between the *Fadama* III AF1 project beneficiaries and non-project beneficiaries was also used to determine statistical significance.

## RESULTS AND DISCUSSION

This section presents the results and discussion of the rapid rural appraisal survey. Specifically the impact of *Fadama* III AF1 interventions on composition of Production Groups/Production Clusters and participatory nature, productive assets, household income, yield of primary agricultural products savings, level of satisfaction with operations maintenance and utilization of community-owned infrastructure and capital assets, small-scale community owned infrastructure and physical verification of operations, maintenance and utilization of community-owned infrastructure and capital assets were presented in form of Tables and Charts to display the outcomes.

### Composition of Production Group/Production Clusters (PG/PC)

The results in Figure 2 present the impact of *Fadama* III AF1 project on the composition of Production Group/production clusters (PG/PC). The result shows that there was 80% increase in the proportion of male members in the PG/PC (15% at baseline and 27% at the time of Rapid Rural Appraisal). The increase in number of males was attributed to the intervention of *Fadama* III AF1. However, proportion of female member increased with 33.33%. Similarly, proportion of youth members also increased by 60% at rapid rural appraisal Furthermore, proportion of people with disability also increased by 50% at rapid rural appraisal. It can be concluded that, membership to PG/PC increases as beneficiaries of *Fadama* III AF1 received intervention. This demonstrates that support was more successful in targeting women and youth. The implications here is that, there should be programs for more attitudinal changes to enhance chances of women and youth to benefit and participate in PG/PC; donor agencies and major stakeholders should be encouraged to put more money into *Fadama* III AF1; more counterpart funding should be solicited from all tiers of governments (Federal, State and Local Governments) and more importantly, greater sensitization, advocacy and even diplomacy in

encouraging all ties of donors and stakeholder to support *Fadama III* AF1 and Community Driven Development (CDD) related projects/programs.

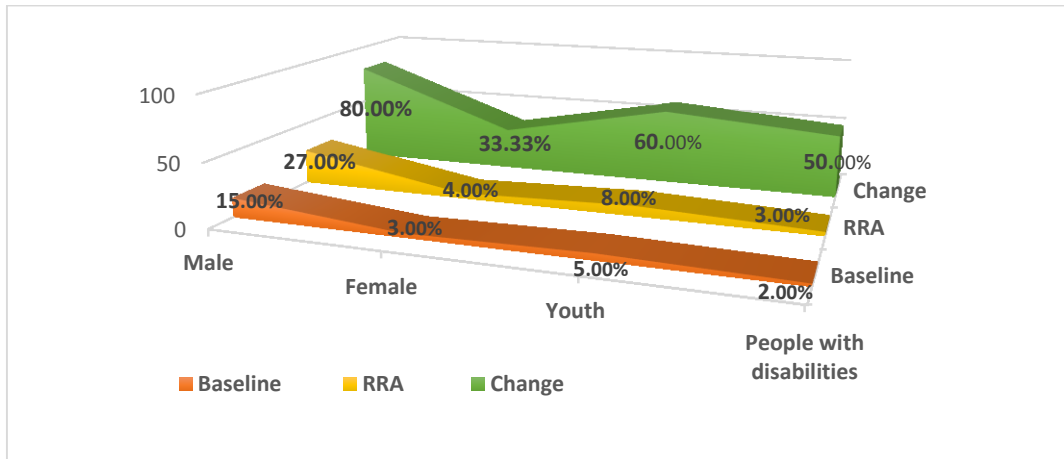


Figure 2: *Composition of production group/production clusters (PG/PC)*

**Participatory Nature of Decision-Making among *Fadama III* AF1 Beneficiaries**

The result in Figure 3 present levels of participation of beneficiaries in planning and implementation of *Fadama III* AF1 projects. The level of participation of men in decision-making among beneficiaries at baseline was 33% and at rapid rural appraisal was 93%. However similar increasing trend was also observed in the level of participation in decision-making among female beneficiaries (baseline was 25% and at rapid rural appraisal was 70%). There was also an increased in the level of participation in decision-making among youth (baseline was 19% and at rapid rural appraisal was 54%) and people with disability (baseline was 5% and at rapid rural appraisal was 20%) who benefited from the project. The implication was that beneficiaries of *Fadama III* AF1 were directly involved in the planning of development of projects conceived by them, indicating that there was bottom-up approach in *Fadama III* AF1 project planning which is typical of community-driven development.

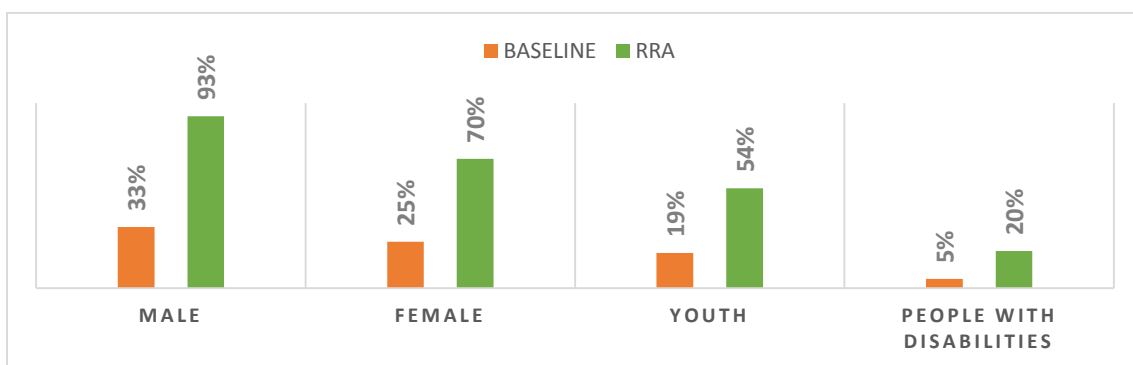


Figure 3: *Level of participation in Fadama III AF1 project*

As the field data indicates on Table 1, the estimated average treatment effect (ATE) is positive (0.715) and comparability test between beneficiaries and non-beneficiaries shows that decision-making among beneficiaries as it regards to planning and implementation of projects was significant at  $P < 0.05$ . According to Barca (2015), one of the benefits of a community-driven development (CDD) is its obvious objective of changing power relation in such a way



that it gives voice for the poor people, allowing them to take charge of the development assistance.

**Table 1:** Estimated Impact of Participation in Decision Making Process

Variable type	Beneficiaries	Non-beneficiaries	ATE	T-test
Participatory in decision making process	0.952 (1.2910)	0.242 (0.3823)	0.715	3.112***

Note: Number in bracket are standard deviation \*\*\* significant at P<0.001  
 Source: Field survey, 2019

**Change in Household Income**

Income is an important factor to the improvement of rural wellbeing and welfare. The result in Table 2 present the change in household income among male and female beneficiaries of *Fadama* III AF1, which combines all sources of income from various enterprises (rice farmers’ beneficiaries and non-beneficiaries, etc.). The average household income at baseline was ₦46,204.58 and ₦24,399.42 for male and female respectively. The result shows that average household income of male beneficiaries increased to ₦83,614.77 and female beneficiaries also increased to ₦36,021.43 at rapid rural appraisal. The result further shows that, there was 80.97% and 47.63% increase in household income from period of baseline to rapid rural appraisal for male and female beneficiaries respectively. The overall change in household income of both male and female increased by 69.45%. The change indicated that *Fadama* project III AF1 has superseded it target of 40% of 75% of all beneficiaries. This means that *Fadama* III AF1 project has succeeded in achieving its household income goal within its period of operation, and subsequently improved wellbeing among the beneficiaries.

**Table 2:** Percentage Change in Household Income of *Fadama* III AF1 Beneficiaries

Income	Baseline (A)	RRA (B)	$\% \Delta = \frac{B - A}{A} \times 100$
Male	46,204.58	83,614.77	80.97%
Female	24,399.42	36,021.43	47.63%
<b>Total</b>	<b>70,604.00</b>	<b>119,636.20</b>	<b>69.45%</b>

Source: Field survey, 2019

**Impact of *Fadama* III AF1 on Yield among Beneficiaries and Non-beneficiaries**

To estimate the impact of *Fadama* III AF1 on yield among beneficiaries and non-beneficiaries, two different kinds of analyses namely T-test and percentage change were used to evaluate impact. However, treatments were analyzed against the control group (baseline) as presented in Table 3. The result shows that, average yield of rice production was put at 1,946.02Kg/ha for beneficiaries and 1,434.08kg/ha for non- beneficiaries at baseline and t-statistic (4.2143) shows that there was significant difference at P<0.001. The result of the rapid rural appraisal also shows that the average yield of rice production was 3,507.04Kg/ha for beneficiaries and 1,796.11kg/ha for non- beneficiaries and t-statistic (3.567) shows that there was significant difference at P<0.001. Furthermore, the result indicated that there was positive impacts (increase) on yield of rice production for both beneficiaries (80.21%) and non-beneficiaries (36.20%) in Gombe State. The increase in yield of beneficiaries by 80.21% was as a result *Fadama* III AF1 interventions (input supply) while the increase in yield of non-beneficiaries by 36.20%. This was attributed to split over effect of other similar projects



undergoing in the study area. It was evident from findings that participation in *Fadama* III AF1 has made concerted effort at increasing rice production among beneficiaries. This shows that *Fadama* III AF1 project has helped the beneficiaries to utilize their productive resources effectively. It is expected that increase in yield will contribute immensely to productivity and consequently increase in income. There is no doubt that harmonious relationship enhances productivity, better output and high standard of living (Simonyan and Omolehin, 2012). The level of community cohesion, or social capital, is also expected to improve the quality and sustainability of projects.

**Table 3:** Impact of *Fadama* III AF1 on Yield (Kg/ha) of Rice Production

Treatment type	Average yield of Beneficiaries	Average yield of Non-beneficiaries	T-test
Baseline	1,946.02	1,434.08	4.2143***
RRA	3,507.04	1,796.11	3.567***
<b>% change</b>	<b>80.21</b>	<b>36.20</b>	

Source: Field survey, 2019

Note: \*\*\* significant at P<0.001

### Savings to Replace or Repair Productive Assets

The set target for savings was 10% of the value of productive asset. However, from Figure 4, it can be seen that, the value of productive assets at the time of baseline was ₦16,931.74, the value of productive assets at the time of rapid rural appraisal was ₦30,028.04. When compared with the baseline figure the result shows that there was 77.35% increase in value of productive assets at the time of rapid rural appraisal. Furthermore, increased in saving as % productive asset at baseline (17.32%) and at rapid rural appraisal was 30.47%. The result also revealed that, there was 75.92% increase in saving as % productive asset which exceeded the set target of 10%. This indicated that the beneficiaries had over the years-built a saving culture. This outcome indicated high likelihood for both PC/PG to continue using their productive asset even after the close of *Fadama* III AF1 Project.

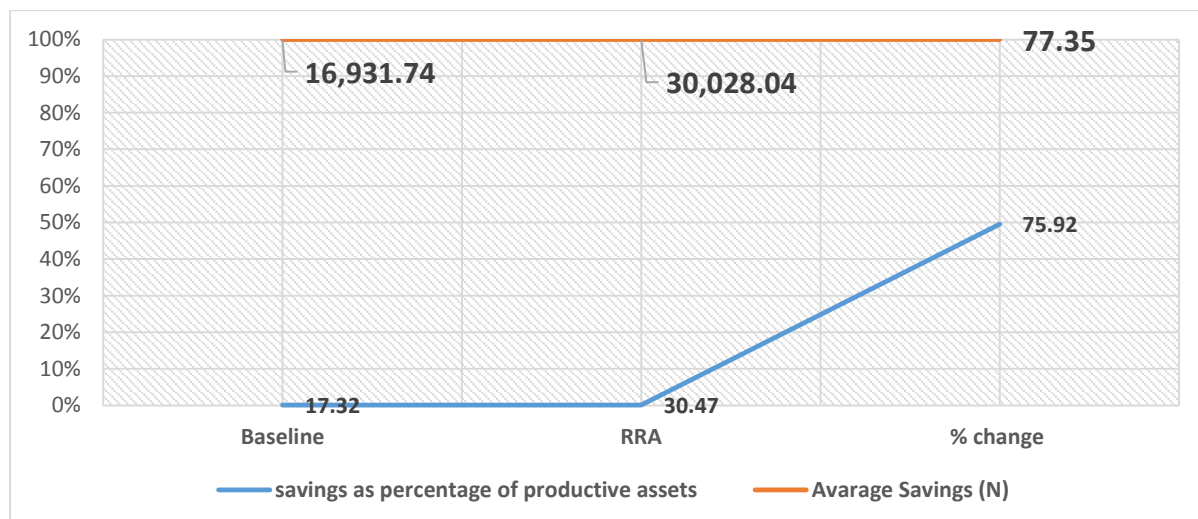


Figure 4: Changes in savings

The result in Table 4 revealed that, the change in savings was large and significant among the beneficiaries compared to their counterparts of the non-beneficiaries. ATE shows





positive value (36311.23) indicating large increases in savings among the project participants. Comparability test also indicates that there was significant increases at  $P < 0.01$ . This result demonstrates that the project has helped the beneficiaries to save so as to facilitate their economic activities.

**Table 4:** Estimated Impact of Changes in Savings

Variable type	Beneficiaries	Non-beneficiaries	ATE	T-test	P(value)
Changes in savings	009.14 (15083)	61405.00 (99195)	11.23	2.231	0.014**

Note: Number in bracket are standard deviation \*\*\* significant at  $P < 0.01$

Source: Field survey, 2019

### Satisfaction with Operation, Maintenance and Utilization of Assets

The result in Table 5 shows that at baseline, only 21 % of production groups/ production clusters (PG/PC) were satisfied with operations, 14% were satisfied with maintenance and 26% were satisfied with utilization of community-owned infrastructure and capital asset acquired through the project while the result of rapid rural appraisal showed that 40 % of production groups/ production clusters (PG/PC) were satisfied with operations, 25% were satisfied with maintenance and 51% were satisfied with utilization of community-owned infrastructure and capital asset acquired through the project. Furthermore, comparing baseline and the rural rapid appraisal, the result indicated that there was change in the level of satisfaction among beneficiaries in terms of operation (90.48%), maintenance (78.57%) and utilization (96.15%) of assets. In the same vein, the overall rate of satisfaction increased from 26% at baseline to 38.67% at rapid rural appraisal with 90.21%.

**Table 5:** Level of Satisfaction with Operation, Maintenance and Utilization of Assets

Production group/ Production clusters (PG/PC) assets	Baseline (%) (A)	RRA (%) (B)	Percentage Change $\% \Delta = \frac{B - A}{A} \times 100$
Operation	21	40	90.48
Maintenance	14	25	78.57
Utilization	26	51	96.15
<b>Rate of satisfaction</b>	<b>20.33</b>	<b>38.67</b>	<b>90.21</b>

Source: Field survey, 2019

### Physical Verification of Operations, Maintenance, and Utilization of Assets

Physical verification of operations, maintenance and utilization of assets at baseline and at rapid rural appraisal selected sites shows at least 65% of assets and community-owned infrastructure are operating satisfactorily and are maintained and utilized. The result indicated that infrastructure and asset acquired by communities are in good condition and functional. Physical verification of operations, maintenance and utilization of assets at rapid rural appraisal surveys of randomly selected sites shows that out of 11,337 productive assets acquired, 9,014 (79.51%) are in good condition and 16,404 (84.14%) of users are satisfy with the condition of assets. One of the major contributions of infrastructure is its capability to enhance production of agricultural products, thus encouraging a structural departure from subsistence -based agriculture to commercialization. The findings in Figure 5 reveals that there was change in



operations, maintenance and utilization of boreholes and culverts in all communities. Specifically, it was reported that there was 79.85% of beneficiaries had access to tube well, 83.33% had access to wash bore, 78.36% had access to market stalls, 68.12% had access to irrigation infrastructure, 74.41% borehole/potable water and 59.08% had access to culverts. At this point it is pertinent to note that the 40% target for access to SCI has been surpassed.

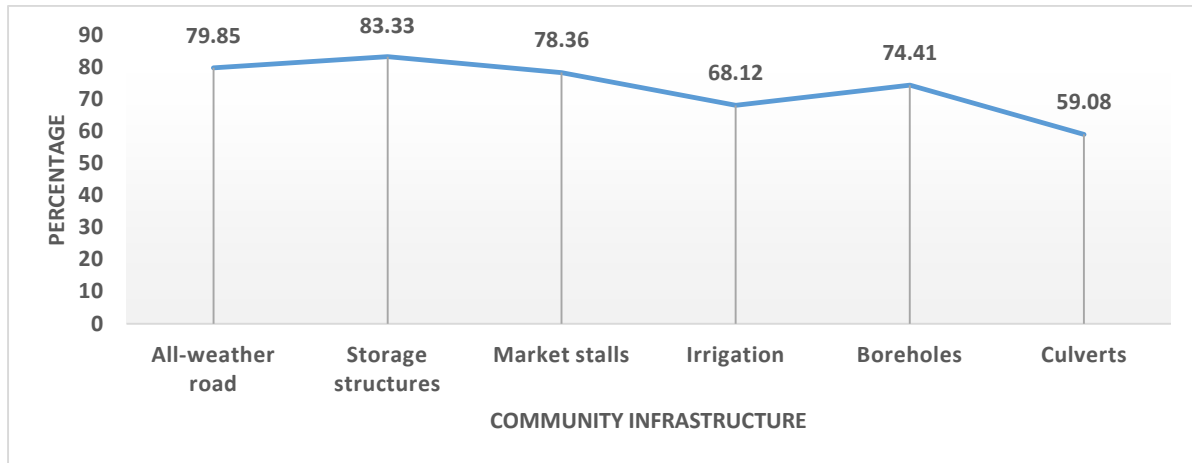


Figure 5: Physical verification of operations, maintenance, and utilization of assets

## CONCLUSION AND RECOMMENDATIONS

Result of the rapid rural appraisal survey suggested that both the intermediate and ultimate target of the project have been adequately met. The outcome is generally encouraging as most of outcomes have surpassed set targets. This goes further to suggest that *Fadama III AF1* has positively and directly impacted the lives of benefitting communities. It can be drawn that *Fadama III AF1* project has really achieved its goal of increasing the incomes of the beneficiaries in the first five years of its operation. There is the need for the policy makers/ authorities to consider community-driven development approach for *Fadama* project meant to benefit the rural communities more. Given that the poor face numerous constraints, a project that simultaneously addresses many constraints, like *Fadama III AF1* will likely build synergies that will lead to larger impacts.

## REFERENCES

- Akinlade, R. J., Yusuf, S. A., Omonona, B. T. and Oyekale, A. S. (2011). Impact of *Fadama-II* Project on Income and Inequality of Rural Households in Nigeria. *ARPN Journal of Agricultural and Biological Science*, 6(7): 40-52.
- Akinlade, R. J. (2012). Impact of *Fadama II* Project on Poverty Reduction of Rural Households in Nigeria. *International Journal of Agricultural Science and Research*, 2(2):18-38.
- Barca, V., Brook, S., Holland, J., Otulana, M. and Pozarny, P. (2015). *Qualitative research and analyses of the economic impacts of cash transfer programmes in Sub-Saharan Africa*. Synthesis Report, FAO.
- Emmanuel, O. O. and Adebayo P. F. (2012): Food Security in Nigeria: An Overview. *European Journal of Sustainable Development*, 1(2): 199-222.
- Folayan, J. A (2013). Socio- Economic Analysis of *Fadama* Farmers in Akure South Local Government Area of Ondo State, Nigeria. *American Journal of Humanities and Social Sciences*, 1(1):10-17.



- Gray, C. D. and Kinnear R. P. (2011). *IBM SPSS Statistics 19 Made Simple*, Psychology Press, 27, Church Road, Hove, East Sussex, and UK.132pp.
- National Population Commission (NPC) (2006) Nigeria National Census
- National Fadama Coordination Office [NFCO] (2017). *Fadama III. Federal Ministry of Agriculture and Rural Development. Third National Fadama Development Project.*
- Nchuchuwe, F. F and Adejuwon, K. D. (2012). The Challenges of Agriculture and Rural Development in Africa: The Case of Nigeria. *International Journal of Academic Research in Progressive Education and Development*, **11**(3): 226 – 238.
- Olaolu, M. O., Akinnagbe, O. M. and Agber, T. (2015). *Impact of National Fadama Development Project Phase (II) On Poverty and Food Security among Rice Farming Beneficiaries in Kogi State, Nigeria. Journal of Agricultural and Biological Science*, 4(2):10-21
- Oluyombo, O. O. (2010). Assessing the Impact of Savings and Credit Cooperatives among Monthly Income Earners. *Journal of Research in National Development*, **8**(2): 407-415.
- Simonyan, J. B. and Omolehin, R. A. (2012). Analysis of the Impact of Fadama Project on Beneficiary Farmers Income in Kaduna State: A Double Difference Method Approach. *International Journal of Economics and Management Sciences*, **1**(11)1-8.