

*Full Length Research Paper*

# Some activities and constraints of National Fadama Development Project phase three on poverty reduction among cattle fatteners in Central Agricultural Zone of Nigeria

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The aim of the study was to assess the impact of National Fadama Development Phase Three (NFDP III) on poverty reduction among loan beneficiaries of cattle fatteners in the agricultural zone programme of Central Nigeria. The data for the study were collected using structured interview schedule. Simple descriptive statistics involving frequency counts, percentage and mean scores were used to achieve all the objectives of the study. The findings of the study revealed high adoption of improved technologies introduced to the cattle fatteners, enhanced income level of the respondents as well as development of culture of saving by respondents to improve the project sustainability. It is recommended that the State Fadama Coordinating Office (SFCO) should ensure the establishment of an effective training programme for the Fadama Users' Groups (FUGs) so as to strengthen and encourage their active participation in Community Demand Driven (CDD) approach.

**Key words:** Impact, Fadama Project, poverty, cattle, fatteners.

## INTRODUCTION

The major challenges facing developing country such as Nigeria are food insecurity (Insufficient food production and poverty). DFID (2006) report stated that more than a billion people in the developing world living in the rural area earn less than one dollar per day, can hardly secure food to eat. Out of the 1.2 billion hungry and poor people of the world, of which 34 million live in Asia, with 186 million from Sub-Saharan Africa and over 800 million suffer from chronic under-nourishment.

According to Gustava et al. (2007) poverty is one of the gravest challenges facing the world today, with a staggering 40 percent of the world's population living with the reality or the threat of extreme poverty. They argue that one in five persons living in a state of extreme poverty threatens his survival. Globally, they believe ext-

reme poverty continues to be a rural phenomenon despite increasing urbanization while 1.2 billion remain extremely poor and 70.0% of the people living mostly depend on agriculture, forestry, fisheries and related activities for survival.

Poverty is a multi-faced affliction as well as ragging economic and social phenomenon that manifests in the inability of the victims to acquire the basic necessities of life. Poverty goes beyond material deprivation to include insecurity, vulnerability and exposure to risks, shocks and stress. It specifically includes not having enough to eat, poor drinking water, poor nutrition, unfit housing, a high rate of infant mortality, low life expectancy, low level of energy consumption, low education opportunity, low employment opportunities, inadequate health care, and lack of active participation in decision making process (Ajayi, 2008).

In Nigeria, a great proportion of households are poor in the North compared to the Southern part of the country (NBS, 2006). The incidence of poverty is highest among households in which the head of the household depends

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on agriculture as the source of food and income generation. Until the last three years, the World Bank (2008) reported that the annual growth rate of Nigeria was below the population growth rate of 3 percent.

According to World Bank (1996) report, poverty in Nigeria has been described as "widespread and Severe". The United Nation *Development Programme* (UNDP) Human Development Index (HDI, 2012) ranked Nigeria as the 148<sup>th</sup> among 174 countries listed. The HDI trends highlight an important scenario in that respect, between 1990 and 2007, Nigeria's HDI rose by 0.91% annually from 0.438 to 0.511 in 2011. Nigeria's basic indicators now placed the country among the 26 poorest nations in the world below the poverty line of one dollar per day. ADF (2003) reported in the year 2000, more than 70% of Nigerians were estimated to be living below the internationally defined poverty line. In the same year both per capita income and per capita private consumption were lower than the early 1970s, when per capita income fell from \$1,600 USD in 1980 to \$270 in 2000. About two-thirds of the Nigerian people are poor, despite living in a country with vast potential wealth (NPC, 2004).

In view of the current situation the Government begins to recognize that agricultural growth is the key to achieving poverty reduction, food security and the Millennium Development Goal (MDGs), which therefore need urgent attention. Consequently, the country has to revert to its Country Partnership Strategies (CPS) which led to the period of which astronomical mid-70s to mid-90s nine-fold increase in the nation's degraded lands use. It emphasized that the Nigeria's agricultural growth resulted in expansion of areas cropped and thus recommended that the sector must shift to intensification while the irrigation potentials were only partially developed. According to World Bank, (2002) report production infrastructure in Nigeria was both inadequate and in a state of decay due to low budgetary provision for operation as well as in lack of community maintenance.

Previous and present governments in Nigeria have tried to sustain investment and support for agriculture by embarking on different agricultural and rural development programmes such as the National Accelerated Food Production Programmes (NAFPP, 1973), River Basin Development Authority (RBDA, 1975), Operation Feed The Nation (OFN, 1976), Agricultural Credit Guaranty Scheme (ACGS-1977). Green Revolution (GR, 1980) Integrated Rural Development (IRD, 1980), National Directorate for Employment (NDE, 1980), Agricultural Development Programme (ADP, 1985), Directorate of Food, Road and Rural Infrastructure (DFRRI, 1987). The National Agricultural Land Development Authority (NLDA, 1992), The National Special Programme for Food Security (NSPFS, 2003). These Programmes were designed to revolutionized agricultural sector of Nigerian economy and to minimize its derailment from its normal contribution to the economy (Oriola, 2009).

The third National Fadama Project, Fadama Phase (III) (NFDP (III)) is a follow up of the success of the second Fadama project. NFDP (III) is a five year project starting from 2008 to 2013. The NFDP (III) is being implemented in the 36 states of the federation including the FCT funded by the International Development Agency (IDA). The project development objective is to sustainably increase the income and overall welfare of the Fadama resource users by directly delivering resources, efficiently, effectively and empowering the beneficiaries' rural communities, activities with the view to minimizing their poverty stricken status (Oluma, 2009).

Nigeria is a developing country whose agriculture is predominantly in the hands of the rural small holder earners, resources poor and has generally been described as being hungry (Odjugo, 2005). The discovery of oil in Nigeria has shifted the attention of the government from agriculture to petroleum resources development. Across the globe, rural poor still depend on agriculture or farm labor for their livelihood is major concern as total number of poor people is increasing (Otiye, 2006). This means that poverty is more of a rural phenomenon. Its alleviation will be more reasonable when tackled from the farmers' perspective. Thus, the Fadama phase (III) programme of Central Nigeria is located in Nasarawa State known as National Fadama Development Phase three (NFDP( III)) aims at sustainable increase on the income of the Fadama users through expansion of farm activities with high value added output to help in reducing rural poverty, was negotiated with IDA in 2008. Disbursement funds became effective on 4<sup>th</sup> November, 2009 till date (Oluma Agnes, 2009).

At the end of NFDP (III) life cycle, it is expected that the following innovations are properly introduced to the beneficiaries as advisory services on: intensive management system; paddock construction (Housing), use of concentrate feeds, proper sanitation, drugs administration, vaccines administration, capacity building on farmers group formation and strengthening effective record keeping, as well as Fadama users equity fund (replacement cost of assets) participation in CDD approach. The NFDP (III) project also introduce the culture and value of provision of essential services like education, health and drinking water as well as specially targeted programmes and the general growth process in the rural economy that would increase the purchasing power of the poor. Tendulkar (1990) for instance explained that the strategies of tackling the problems of rural poverty had included a set of special target programmes such as the Integrated Rural Development Programme, the National Rural Employment Programme (NREP) and the Rural Landless Empowerment Guarantee Programme (RLEGP) in India. Since the commencement of the NFDP (III) programs no independent assessment of its impact has been conducted among the beneficiaries of cattle fattening program in the central agricultural zone of the project.

The broad objective of this study is to determine the activities and constraints to the NFDP (III) in poverty reduction among the cattle fatteners in Central Agricultural Zone of Nigeria.

The specific objectives of the study are to

1. describe the socio-economic characteristics of the respondents
2. determine the adoption levels of the various innovations (technologies introduced to the beneficiaries), to enhance income generation of the respondents.
3. Assess the activities of the project related to increase income beneficiaries.
4. Ascertain the total income set aside as replacement cost of assets of the respondents.
5. Identify the constraints militating against effective implementation of the project.

Even though the NFDP (III) has an internal monitoring and evaluation unit which, also, carries out evaluation of the project over time, this research study being an independent/external evaluation will show how far the project has gone in the fulfillment of the poverty reduction and sustainable income of beneficiaries.

It is hoped that the findings of this study would give the farmers and the public the privilege to know more about the activities of the programme and its constraints. Besides, the major weak points in the programme implementation would be revealed as well as possible strategies for improving project performance and to serve as checks and balances for the policy makers and implementers to include planning, designing and execution of subsequent similar projects in the study area.

## LITERATURE REVIEW

The word "Fadama" is a local name in "Hausa" (one of the many local languages in Nigeria spoken by Hausa ethnic group); for irrigable land usually low-lying plains underlain by shallow aquifers found along river systems. Such lands are specially suitable for irrigated production, fishing, and traditionally provide feed and water for livestock. The enormous potentials of this land is only partially developed in Nigeria. The Fadama irrigation concept programme commenced with launching of National Fadama Development Project (NFDP) in early nineties (Kudi *et al*, 2008). According to World Bank (2008) report the cumulative impact of the earlier successful World Bank-assisted Fadama projects in Nigeria attested to the robustness of the small-scale and community-based approaches to Fadama development in an environmentally sensitive manner.

The third National Fadama Development Project (NFDP, Phase III) is a follow-up of the second phase. The development is to increase the incomes of Fadama users on a sustainable basis. According to World Bank (2008) report, increasing their incomes would help to

reduce rural poverty, increase food security and contribute to the achievement of Millennium Development Goal.

Ravallion *et al.* (1991) claims that aggregate poverty in the developing world would decline faster when gains of growth are also distributed fairly. They believe that a pattern of growth more favourable to the poor could rapidly accelerate global poverty alleviation but the experts warn that even a seemingly modest worsening in distribution could upset the progress in poverty alleviation.

In the same vein, Squire *et al* (1990) summarized the conclusion of the World Development Report (1990) of the World Bank for reducing poverty as follows:

- (i) creation of income-earning opportunity-pattern of growth that encourages the efficient use of labour, and
- (ii) increasing the current welfare of the poor and their capacity to respond to opportunities through provision of social services.

According to Nasarawa State Fadama Coordinating Office (NSFCO) (2008) report, the NFDP (Phase III) is partially supported by the funding from International Development Agency (IDA) of \$7,852,520 (USD) for a period of five years in the ratio of 3:7 to NSFCO and the IDA respectively. The report further mentions that the state government is to co-finance all the operational expenses of the State Fadama Coordinating Office (NSFCO) for the same period of the project period including 25.0% cost of advisory services as well as equal percentage of the cost for capacity building.

Cattle fattening requires that the animals are fed to secure fast live weight gains in relatively short time. During the fattening the animals are expected to lay down inter and intramuscular fat. Fattening of cattle, therefore requires good feeding and management. Cattle has the ability to utilize crop residues, broncos and other fodders which human and other animals are not using for their growth. Cattle fattening is beneficial and guaranteed good economic returns when properly carried out (Voh, 2009).

Fattening cattle operation should be carried out based on the feed resources available in particular location. Bawa (2008) claims that large quantities of foodstuff that contained high levels of essential nutrients such as protein, energy and minerals are needed. He claims that cattle could eat 2 – 4% of their body weight of matter depending on the quality of the feed. He further opines that an animal weight of 200kg would require 4 – 8kg of dry matter. Crude protein in the diet should be 10 – 12% (400g of cp/day and energy of 60 – 80% TDN). He is of the view that an animal fed on this diet could gain between 0.6 – 1.0kg live weight per day. Bawa stresses that provision of water is very important in fattening operation and maintains that allowance of 40 – 50 litres per animals per day should be provided.

Before commencing fattening operation adequate preparation involving feed procurement selection of animals, housing, health care, housing, must be acquired.

Fattening requires that animals be stall fed except in a situation where limited grazing is allowed. Materials such as feeders, waterers and scale will be necessary. Feeders could be made from drums cut horizontally and cement trough could serve as waterers and for water storage while large scale fattening would require metal or concrete feeders to stand the rigors of many animals (Rewkot et al. 2009).

According to Saidu (2007) selection of fattening cattle should be aided by good visual assessment or inspection of dentition to ascertain age; older animals in bad condition due to lack of feed could be fattened but their feed conversion is generally poor. He warns that all animals should be dewormed and treated with acaricides for endo and ecto-parasite control regularly during the period of fattening.

Cattle fattening operation involves feeding of high level of protein and energy sources to promote rapid gains. Roughages should be fed ad libitum, while protein and energy are to be compounded to meet energy and protein requirements. Where most energy concentrates does not differ much in concentration of energy Aliyu (2006) believes that protein concentrates vary widely, therefore, care must be taken to make necessary adjustment when replacing one protein with another while feeding high level energy and protein feeds. He advises that they should be introduced slowly over 3 – 4 weeks before the full feed was given. By so doing, he claims, allowance for the bacteria utilizing the feed built up will be slowly and allowing the animal to get used to the feed.

According to Nzalak (2010) duration of fattening of cattle may take longer period to reach the desired weight but may still be economical because of the cost of concentrates. It is, however, advisable he claims to fatten cattle of 200 – 250kg weight and finished at 300 – 350kg. On the other hand, Sackey (2008) believes that cattle fattening is a commercial operation and therefore requires proper record keeping of expenditure and incomes for assessment of profit. Such records according to him includes animal identification, cost of animal, drug, labor, equipment, mortality and animal sales.

## METHODOLOGY

### Description of the study area

The North central location of the Project is latitude  $7^{\circ} 9'$  North and longitudes  $7^{\circ} 10'$  East. It shares boundaries with Benue State to the south, Kogi State to the West, the Federal Capital Territory, Abuja (FCT) to the north-west, Kaduna, Plateau and Taraba states to the north, north-east, east-south respectively. NFDP(III) falls within the North-Central geo-political zone of Nigeria. It has a land area of  $12,000\text{km}^2$  and is administratively divided into 13 local government areas namely: Akwanga, Awe, Doma,

Karu, Keana, Keffi, Kokona, Lafia, Nasarawa, Nasarawa-Eggon, Obi, Toto and Wamba

The study area is estimated to have population of 1,863,275 (NPC, 2006). The major ethnic groups residing in the area includes Afo, Agatu, Alago, Bassa, Egbura, Eggon, Fulani, Gade, Gbagyi, Gwandara, Hausa, Jukun, Kantana, Kanuri, Koro, Mada, Nyankpa, Rindre and Tiv. Agriculture is the most pre-dominant occupation of the respondents. Major agricultural produce in the area includes maize, sorghum, millet, rice, g/nut, cowpea, soybeans, cassava, melon, yam, sweet potatoes, sugar cane, tree fruits, crops, livestock such as cattle, poultry, sheep, goats, pigs and fisheries.

The population of the study area comprised all the cattle fattening loan beneficiaries of the NFDP (III) project. A multi-stage sampling technique was used. Three (3) local government areas (Akwanga, Kokona and Nasarawa Eggon) out of thirteen (13) in the study area were purposely selected for disbursements of loan to the beneficiaries. Two Fadama Community Associations (FCAs) out of five (5) loan beneficiaries from each of the three (3) LGAs were randomly selected to give a total of six (6) Fadama Users' Group (FUGs). Finally, ten (10) loan beneficiaries were randomly selected from the six (6) FUGs to give a total of sixty (60) respondents for the study.

## METHOD OF DATA COLLECTION

Primary data were collected by interviewing the respondents of the study area. Data were collected over a period of eight (8) weeks during the planting period of 2012 (April – July).

### Analysis Technique Figure 1. Map of Central Nigeria Showing Project Location

Simple statistical analysis involving frequency counts, percentage and mean scores were used to describe objective one. Objective two was achieved through the participating index to determine the adoption level of various innovations. The participation Index was construed using 5-point Likert Scale. Respondents were asked to indicate their adoption level (awareness, interest, evaluation, trial and adoption or/rejection). The five (5) Likert scale was weighted in order of importance from an awareness = 1; interest = 2; evaluation = 3; trial = 4; and adoption/rejection = 5. The Likert scale measured the intensity or degree of acceptance by respondents to a statement that described a situation, phenomenon, items or treatment. Scores for each of the adoption levels were calculated and the grand mean scores of all the adoption levels (15) was divided by the number of adoption levels (5) in cattle fattening in the study area. The scale below was used to

determine the level(s) of adoption of each practice in cattle fattening:

Level of Adoption	.....	Adoption	Index
Score			

Low adoption level	.....	< 3
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High adoption level	.....	> 3
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To identify constraints militating against effective implementation of the project, a list of possible constraints were made available and respondents were asked to indicate the level of their perceived seriousness of each on a 3 – point Likert Scale (very serious = 3, not serious = 1). The value of each was summed up to give a ground total of six and divided by three to give mean score of two. The scale below was used to determine the level of constraint associated with the cattle fattening production:

Level of constraint	.....	Constraint Index Level
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Serious Constraint	.....	> 2
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Not Serious Constraint	.....	< 2
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## RESULTS AND DISCUSSION

### Socio-economic Characteristics of the Respondents

Table 1 shows 41.7% of the respondents were between the age of 30 and 39 years. About 35.0% and 8.3% of the respondents were within age range of 40 and 49 years and 20 and 29 years respectively. The mean age of the cattle fatteners in the study area was 40 years. This inferred that majority of the respondents were still within the middle and active years in cattle fattening operation. Majority (68.3%) of the respondents (Table 1) were males and 36.7% females. This implied male domination of the cattle fattening activities of the NFDP (III) program.

The data at Table 1 shows most (86.6%) of the respondents were married and 6.7% each were widowed and single respectively. The finding implied that cattle programme of the NEDP (III) was dominated by married couples, which inferred cattle fattening required additional income to meet up with family responsibilities. According to Ani (2004) providing women with access to decently paid employment and productive resources (capital, land and technologies) was the most effective way to alleviate family poverty.

Data in Table 1, also, shows that large proportion (43.3%) of the respondents household size was between 6 and 10 persons, 33.3% 15%, had 1 and 5 and 10.0% 11 and 15 persons respectively. The mean household size of respondents was 7 people. This implied the cattle fatteners had a fairly large household to cater for. Generally such large household size increased women workloads in the home and fields.

About 30.0% of the respondents had no formal education (Table 1) while 28.3% had secondary

education. A total of 11.6% of the cattle fatteners completed their primary education. The finding inferred 69.9% of the respondents had formal education. The results of the study showed respondents were generally literate. This implied cattle fatteners' ability to accept new technologies more readily to enhance their income.

Majority (65%) of the respondents had 1 and 5 years of fattening experience, 31.6%, 3.3% had between 6 and 10 years, 11 and 15 years of fattening experience respectively. The mean fattening experience of the respondent was 5 years. Years of fattening experience were important because management skills improved with experience to enhance improved income generation.

Table 1, also, shows nearly half (50%) of the sampled cattle fatteners belonged to two social groups, while equal proportion (50%) belonged to only one group in the study area. This implied limited sources of information by the cattle fatteners which had implication on adoption of improved technologies and enhanced income generation. Table 1 reveals that 46.7% of the respondents had annual income of between 21,000 and 40,000. About 18.3% were within the income range of 1000 and 20,000 while 15.0% were between 61,000 and 80,000 respectively. Mean annual income of cattle fatteners was N44,900.00. This inferred gradual improvement in income levels as a result of the project intervention and involvement of the respondents in cattle fattening when compared with the income before the project intervention. According to Agbamu (2006), rural development should focus on poverty reduction schemes, and sustainable solutions to rural production problems that will strengthen the innovative capabilities of rural dwellers.

### Adoption of Improved technologies by the Respondents

The results in Table 2 reveal the mean score of adoption level of the improved technologies introduced to the cattle fatteners in the study area. Going by the mean out-off of 3.0, it can be concluded that all the technologies were well adopted, including paddock (housing) construction, which rated lowest (3.3) probably due to inadequate capital among resource-poor fatteners.

Floyd et al. (1999) reported, in a study in Nepal, adoption levels were lower amongst resource-poor households. According to them adoption of technologies was skewed in favour of the better resourced households.

The data in Table 2 further reveal that drugs administration (4.6), proper record keeping (4.6) and participation in CDD approach (4.6), and vaccine administration (4.5) were adopted by the respondents. Williams (1985) agreed that high adoption index had been found for certain technologies because the new techniques were not too complex for the adapters and they were profit-

able.

Similarly, the data at Table 2 indicated relative adoption of proper sanitation (4.3) and equity fund (replacement cost of assets) (4.2). According to Akinola, (1983); and Chamala, (1987), motivation to secure resources to attain high socio-economic goal is an important psychological variable in adoption process. Farmers, they argued, that were readily prone to change and had the urge to aspire high (as in the case of the cattle fatteners) were more likely to adopt innovations than those who wanted to maintain the status quo.

### **Impact of the cattle fattening business on the income level of respondents**

The data in Table 3 indicate the T-test analysis of income before and after the project intervention. The two variables were paired and both were significant at 1% level to highlight the difference at the critical region. This finding inferred a wide gap between the incomes of the respondents before and after project intervention greatly improved.

### **Equity fund (replacement cost of assets) of the respondents**

The results in Table 4 show most (86.6%) of the respondents saved 10% of their total annual income generated from the fattening operation as replacement cost of assets and revolving fund. About 13.3% were yet to adopt the culture of saving schemes. This finding demonstrated the prospects that fattening entails the business was substantial and sustainable for the cattle fatteners operations as well as its sustainability for future income operation. Dependence on locally adapted solutions would help promote participatory innovational agencies contributing external knowledge.

### **Constraints to Cattle Fattening Program**

The data in Table 5 indicate the list of constraints experienced in cattle fattening based on the 3 – point Likert scale. The major constraints identified by the cattle fatteners were acquisition of inadequate capital, high cost of inputs as well as literacy level of respondents.

These results inferred most constraints to cattle fattening programme of NFDP (III) emanated from facilitators and the Fadama Co-ordinating Office (FCO) at the time FCO should enlighten the latter to create awareness for the project's sustainability. Only socially and culturally adapted procedures of participation within the context of democratic process should be identified in rural settings and applied to illuminate local constraints to local development (Agbamu, 2006).

## **CONCLUSION AND RECOMMENDATIONS**

### **CONCLUSION**

The findings of the study showed highly improved technologies adoption introduced to the cattle fatteners, enhanced income levels of the respondents efficiently while the equity fund saving culture of the respondents were not only developed but helped to increase the level of project sustainability. Also literacy level of the participating cattle fatteners was generally high. Participating cattle fatteners generally complained critically of poor capital base.

### **RECOMMENDATIONS**

Based on the findings of this study, the following recommendations were made.

Local counterpart funding should not only be improved but be made available in time to ensure improved capital base of the respondents.

Project coordinating authority should endeavour to organize periodic capacity building training for the Fadama Users' Groups with the view to encouraging participation in community demand driven approach by the respondents.

Project coordinating authority should endeavour to assist the respondents to secure low cost source of production inputs so as to improve their revenue generating capability. Local programme plans should be implemented by the relevant authority promptly and efficiently.

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