Influence of Fadama I Project on the Socio-Economic Status of Farmers in Kebbi and Sokoto States, Nigeria

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ABSTRACT

Fadama I project in Nigeria has attracted assistance (Funds) from the World Bank. Kebbi and Sokoto states are two of the beneficiaries of the funds. Participating in the project is an important aspect that could assist the funding institution measure progress, determine improvement and design developmental programme. This study therefore, determines the impact of fadama I project on participants' socio economic status in Kebbi and Sokoto state, Nigeria. Specific objectives includes: Describe the personal characteristics of fadama I users; to assess the area of respondent's involvement in fadama I project; to analyze the benefit derived by participating in the fadama I project; to determine the problem faced by the participants in the fadama I project. A multi stage random sampling procedure was used to select 400 respondents from the communities participating in Fadama I project. Questionnaire distribution was used to elicit information from the respondents. Descriptive statistics such as frequency counts, percentages were used for data analysis while Regression Analysis was the inferential statistics used. R2 value of 0.237 and the R value of 0.71 are all positive. This shows that Fadama I project has influenced socio economic status of the participants'. The study therefore concluded that the impact of Fadama I project on the socioeconomic status of the participant is Positive. It therefore, recommended that Development Agency needs to motivate Farmers to participate in Fadama II, III and its extension projects by providing more assistance (funds) to the states involved.

1. INTRODUCTION

The ultimate goal of Nigerian agricultural policy is the attainment of self-sustainable growth in all sectors of agriculture as well as the realization of the structural transformation necessary for the overall socio-economic development of the rural areas. As part of these measures, government has continued to accord high priority to irrigated agriculture since the Third National Development Plan 1976-1980 (Umaru, 1994). The previous irrigation projects in Nigeria have been largely attributed with top-down bureaucracy approach that resulted to failures of such programs. This led to the development of fadama irrigation development program in 1990s which involved farmers in identifying their agricultural needs and problems, on which policy formulations were based. The concept of irrigation connotes the science of economical utilization of water to supplement natural rainfall for the production of crop (Douthwaite, 2001).

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In an attempt to boost the traditional irrigation system, the Federal Government of Nigeria has contracted a loan of US$67.9 million from the World Bank to finance the development of the fadama land under the National Fadama Development Project (NFDP). The pioneer beneficiaries included Bauchi, Jigawa, Sokoto and Kebbi States (Bawa *et al.*, 2010). The First National Fadama Development project (Fadama I programme) involved assisting farmers on how to implement recommended practices, motivate them to adapt some and evaluate production constraints and also advice farmers on how to overcome such problems.

The National Fadama Development Project (NFDP) is a project of the Federal Government of Nigeria through the pooled World Bank loan established to finance the development of fadama lands by introducing small-scale irrigation in states with fadama development potentials. The project aims at boosting incremental food production and raises the standard of living of the beneficiaries. Fadama are low laying lands subject to seasonal flooding or water logging along the banks of streams or depressions. It is a Hausa word meaning, the seasonally flooded or floodable plains along major savannah rivers and or depressions or adjacent to seasonally or perennially flowing streams and rivers. Fadama lands have high potentials and agricultural values several times more than the adjacent upland. Fadama development is a typical form of small scale irrigation practice characterized by flexibility of farming operations, low inputs requirement, high economic values, and minimum social and environmental impact and hence conforms to the general criteria for sustainable development (Rank, 2010).

The National Fadama Development Programme (NFDP) was established consequent to the failure of large scale irrigated schemes, which the country has pursued for the last 2 decades to yield the anticipated increase in food production. Presently, the NFDP is widely being implemented in all the 36 states of the federation and the Federal Capital Territory (FCT), which have been categorized into the core states and the facility states. The core states include Bauchi, Gombe, Jigawa, Kano, Kebbi, Sokoto and Zamfara, while the remaining states and the FCT constitute the facility states. Kebbi and Sokoto States were carved out of North-west province in 1972 and they lay between latitude 10^0 and 13.3^0N and longitude 3.3^0N and 6.13^0E. They share a common boundary with two of Nigerians neighbouring countries, Benin Republic and Republic of Niger to the west and North.

2. THEORETICAL FRAMEWORK

The theoretical background for this study is based on the theories of social change and concept of rural development. Strasuss (1959) commented that the essence of human life is change, development and growth. However, the process of change involves interaction and individuals must be understood based on groups in which they belong or participate. Social change is defined as the change in social structure and social relationships and it involves a change in the structure or function of the societal forms Rogers and Shoemaker (1971). Amoaka (2003) viewed social change as the interaction of the different elements of social life especially the economic, social and political structure as well as the believe systems to produce changes within a nation or societal pattern of daily life or structure of its institution.

3. SOCIO-ECONOMIC CHARACTERISTICS OF THE FARMER

National Fadama Development Programme delivery system being techno-social science cannot be dismissed from the social-cultural and economic environment that the target audience (recipient or farmer) as well as the providers are operating. According to Agada (1998) the role of socio-economic factors in

improving farmers' efficiency was widely acknowledged. Farmer's age in correlation with farming experience has significant influence on the decision-making process of the farmers with respect to risk aversion, adoption of new agricultural innovation and other production related decision. The farmer to farmer interaction is reinforced thereby resulting in technology adoption and dissemination among farmers within and outside the community. For effective farmers' participation to be achieved, a change in attitude of extension workers and training and retraining and constant supervision from extension workers must be effectively coordinated (Stewart, 1998).

Yazid (1983) stressed that although economics of sub-Saharan Africa were essentially based on agriculture, for over thirty years the region has faced a structural food deficit whereby it could not keep pace with population growth. For farmers one's geographic and socio-economic location determines the particular configuration of hardship to be faced. Traditional mode of production system of rural households were geared for subsistence and were generally sustainable under conditions of low population pressure and isolated markets. However, this balance is increasingly stressed into marginal lands. Expansion into marginal areas brings increased risk of crop failure; environmental degradation and loss of biodiversity, thereby reducing both productivity and sustainability of agricultural system over time (Amoaka, 2003).

3.1. Measure of Farm Yield in Relation to Standard of Living

Impact of Fadama I on the social and economic aspect of farmers can be measure in terms of yield of farmers, farmers' living standard, adoption of new farming innovations and expansion in the production, income per capita of farmers etc., in determining the impact of social and economic intervention. Therefore, suggested that goals or objectives of the organization rendering the services should be established. Likewise, Hilton and Lunsdain (1975) opined that programme should be assessed considering the desirability of the goals or outcomes sought and the extent to which the goal are achieved by demonstrable effects.

3.2. Statement of the Problem

Self-sufficiency in food production based only in rain-fed agriculture is difficult to achieve. This is particularly true for Nigeria. So, for self-sufficiency in food production, there is need to extend the farming season beyond the rainy season through irrigated agriculture (Rank, 2010). To ensure that this laudable objective of self-sufficiency in food production is achieved, the Federal Government approved the implementation of the National Fadama Development Project (Bello, 2006).

Traditional irrigation farming through the shadoof and calabash/bucket methods have been practiced for several decades in Nigeria, but no remarkable change in terms of low agricultural production, which in turn is to affect the living standard (family health, clothing, nutrition and household materials such as, electricity, television, radio, motorcycle etc), farm output, farm size and income per capita of participating farmers. The fadama I Project was also launched in early 1990s no remarkable change seen in terms life style of farmers in the study areas. In view of the vital roles of fadama I project as one of the solutions of meeting the national food needs, it becomes imperative to evaluate the effects of the fadama I project on the farmers of the of Kebbi and Sokoto states and ascertain why all effort made by previous government couldn't yield much result.

3.3. Objectives of the Study

The main objective of this study is to determine the influence of Fadama I Project on the socio-economic status of farmers in Kebbi and Sokoto states, while the specific objectives are to:

1. Determine the influence of Fadama I project on the socio-economic status on participating farmers in Kebbi and Sokoto states.

2. Determine the influence of Fadama I project on the standard of living of participating farmers in Kebbi and Sokoto states.

3.4. Research Hypothesis

The following null hypotheses are formulated to guide the study and be tested using appropriate statistical tools.

1. There is no significant influence of Fadama I project on the socio-economic status of participating farmers in Kebbi and Sokoto states.

2. There is no significant influence of Fadama I project on the standard of living of participating farmers in Kebbi and Sokoto states.

3.5. Significance of the Study

The major challenges confronting Fadama I project was determining the influence of fadama I project in effecting desired socio-economic changes. The evaluation of the programme would objectively review comprehensively its influence on the target group as a basis for future policy formulation and programme design. Since there is need for continued public support for agricultural development programmes, it becomes imperative to carefully evaluate such a programme. It is hoped that the findings of the study would give the states and the public in general the privilege of knowing about the activities of the programme and its effects. Beside the major weak point in the programme implementation would be revealed, these could be used as check and balance for execution of the fadama II and Fadma III in Kebbi and Sokoto states. Finally, the study could serve as a base for further research on the perception of fadama projects beneficiaries about the effect of the programme

4. METHODOLOGY

Descriptive survey research design was used. According to Lokesh (2010) Descriptive survey research is a blue print which specifies how data relating to a given problem should be executed and analyzed. It was used because it helps to establish relationship in making prediction (Lokesh, 2010). Survey design is appropriate because it helps the researcher to find the influence of Fadama I on the socio-economic status of farmers in kebbi and Sokoto states through the use of structured questionnaire in collecting data from the target population.

Proportional random sampling technique was used for this study in order to make proportional and meaningful representation of the population based on their population (Abiola, 2007). Four hundred (400) participating farmers were selected randomly out of fourteen thousand six hundred populations from both Kebbi and Sokoto states using "hat" drawn technique. Each selected zone was treated as stratum from which specific number of samples gwas selected proportionately.

Status	State	Population	Sample size	percentage (%)
participating farmers	Kebbi	7600	200	50
participating farmers	Sokoto	7000	200	50
Total	-	14,600	400	100

Source: Field work 2015

4.1. Instrument for Data Collection

Structured questionnaire was used and is in two sections "A" and "B". Section "A" comprises of questions meant for the collection of bio-data of the respondents, while section "B" items was based on the objectives, research questions and research hypothesis of the study to solicit for the respondent responses. From farmers structured questionnaire items, In section "A" respondents are required to tick the appropriate option. Section A is designed in a four scale rating such as Strongly Agree (SA), Agree (A) Disagree (D) and Strongly Disagree (SD).

In order to validate the instrument, the researcher gave the designed questions and structured questionnaire to the experts in the Department of Science and Vocational Education, Usmanu Danfodiyo University, Sokoto, for comments, suggestions and correction to enhance the suitability for eliciting the accurate and specific answer to the questions. To establish the reliability of the instrument to be used in carrying out the research, pilot study was conducted in Funtua, Katsina state. The reason for choosing Funtua in Katsina state Nigeria was the fact that the respondents in this area have similar characteristics with those in the areas of study. The main purpose of the pilot study was to test the adequacy and suitability of the instrument for the study and to ascertain that there is no ambiguity. Thirty questionnaires will be distributed to the contact farmers from one of the Katsina state Agricultural Development zone (Funtua). All copies of the questions were collected after two weeks after distribution. The data collected from the pilot study were subjected to reliability test analysis using Codiran Alpha and Guttman split-half coefficient were used to determine the reliability coefficient. The result gave the reliability of 0.75 for the instrument. This instrument was considered reliable based on the Rama (2007) statement that the reliability coefficient can range from 0 to 1, with 0 as representing instrument with full of error and 1 representing total absence of error. A reliability coefficient of 0.50 or higher is considered as reliable.

The researcher employs the services of two trained research assistants for Kebbi state and two trained research assistant for Sokoto state to solicit information from respondents (Participating farmers) by structure questionnaires, while the researcher supervised, which lasted for two weeks. Questionnaires were collected after two weeks of distribution. Descriptive statistic, involving mean, frequency distribution and percentages was used in analyzing demographic variables in section "A" of the questionnaires. Opinions was calculated using frequencies, percentage, standard deviation, mean scores for each item in the questionnaire to answer research questions related to them. While Regression analysis was used to test all the null hypotheses at 0.05 level of significance.

4.2. Testing the Null Hypothesis

Hypothesis one: *Fadama I project has no significant effect on the overall farm yield of the participating farmers*

To test null hypothesis 1 the mean for all items under Fadama I project were computed, while the socio-economic status comprising of source of farmland, farm size, income per capita, years of farming

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experience, occupation and qualification were taken as independent variables. Regression analysis was consequently used to determine relationship between Fadama I project (independent variable) and the overall farm yield (dependent variables) of participating farmers. Null hypothesis one: *Fadama I project has no significant effect on the socio-economic status of participating farmers*

Table-2. effect of fadama I project on the socioeconomic status of the participating farmers

Model R-square	adjusted R-square	Standard Error of estimate	Change statistics				
			R-cal	R-crit	df1	df2	sig.
0.237	0.53	6.32810	0.71	0.51	6	336	.000
P = 0.05						Decision =	sig.

Source: Field work 2015

The result of regression analysis revealed the existence of significant effect of fadama I project on the socio-economic status of the participating farmers. This is because the R^2 value of 0.237 and the R value of 0.71 were all positive. Hence the null hypothesis which, stated that Fadama I project has no significant effect on the socio-economic status of participating farmers was rejected. Null hypothesis two: *Fadama I project has no significant effect on the standard of living of the participating farmers.*

Table-3. .Effect of fadama I project on the standard of living of the participating farmers

Model R-square	adjusted R-square	Standard Error of estimate	Change statistics				
			R-cal	R-crit	df1	df2	sig.
0.272	0.62	7.101271	0.86	0.53	6	336	.000
P = 0.05						Decision =	sig.

Source: Field work 2015

The result of the Regression Analysis showed that, fadama I project has significant effect on the standard of living of the participating farmers. This is because the R^2 value of 0.272 and the R value of 0.86 were all positive. Therefore, the null hypothesis which states that, Fadama I project has no significant effect on the standard of living of the participating farmers was rejected.

4.3. Major Findings

The following findings are presented.
- Fadama I project has led to an increment in the overall farm yield of the participating farmers in Kebbi and Sokoto states.
- Fadama I project has positively influenced the socio-economic status of farmers, hence, improved the standard of living of participating farmers..

5. DISCUSSION OF MAJOR FINDINGS

This research work was specifically designed to determine the influence of Fadama I project on the socio-economic status of farmer in Kebbi and Sokoto states. In order to achieve this purpose, two specific objectives two research questions and two null hypotheses were raised simple percentage and frequencies there used in analyzing the personal data of the respondents. Regression analysis was used to test the two null hypotheses. The socio-economic status of farmers which included the level of

education, major occupation, farm size, years of farming experience and their source of land were found to have significant effect on their adoption Fadama I project. This finding is in line with the work of Agada (1998) which asserted that farmer' age in correlation with farming experience had significant influence on the decision making process of farmers with respect to adoption of improved agricultural practices and other production related decision. Contrary to this was the study carried out by Oladoja and Olusanya (2007) who stated that age of farmers and faming experience were not in correlation with the adoption of improved agricultural practices. Farm size and educational level of farmers tended to be positively correlated with adoption of new techniques.

The implication of this significant relationship is that the greater the farm sizes the more adoption of improved practices through Fadama project. Also the more knowledgeable the farmers the greater the adoption of improved farm practices through Fadama project and subsequently affect his standard of living. Atala (1986) viewed standard of living from different angle as the personal and impersonal materials which an individual's possess and use to meet their physiological and sociological needs. To further support this assertion, the Glossary of statistical terms, (2001) stated that ability of a farmer to improve on his farm output may be determined by his well-being, skills, farmland, access to inputs etc.

Null hypothesis 2 showed that significant relationship existed between adoption of Fadama I project and the standard of living of benefiting farmers. For instance majority of the benefiting farmers attested to the fact that adoption of new farming practices through the Fadama I project increased their ability to send their children to school and ability to purchase new farming equipment and facilities. This finding agreed with Ogunwale *et al*. (2006) who stated that having access to external assistance had positive impact on the standard of living of farmers as a result of increased income. This was support for living. Bello (2006) who reported that adoption of most practices helped in raising standard of living of farmers. According to Ahmad () durable goods like possession of Radio, Television, Bicycles, Motorcycles, cars, Zinc roofs etc were used to measure level of living standard, while opined that standard of living were those things contributing to the quality of human existence. Majority of the farmers testified that adoption of new farming practices through Fadama I project helped them to possess such durable goods as viewed by Ahmad.

6. CONCLUSION

Based on the finding from the study, it was concluded that Fadama I project plays important role in influencing farmers' production efficiency. The adoptions of improved farm practices through Fadama I project have impacted positively on the production of farmers which is directly proportional to the socio-economic status and standard of living of farmers in Kebbi and Sokoto states. High cost of farm inputs and inadequate capital (finance) reduced the farmers' adoption rate of farm technologies and effective Agricultural production. Also Fadama I project has influenced farming practices adopted by farmers in Kebbi and Sokoto states. However limited supportive facilities and rural infrastructural aspects were some factors which hindered Agricultural production programmes.

7. RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:
1. The bottleneck surrounding the sales and distribution of Agricultural inputs such as pesticides, inorganic fertilizers, herbicides should be put under control to ensure that the inputs are provided

at the right time and at affordable prices by Kebbi and Sokoto states government to enable farmers purchase the required quantities.

2. Kebbi and Sokoto states government should provide basic social amenities and give of soft loans and credit facilities to Fadama farmers at low interest rates to enable them adopt new innovations and purchase necessary farm inputs and other household materials that will improve their standard of living, hence, reduce rural-urban migration.

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