



**Assessment of National Special Programme for Food Security (NSPFS)
Project on Productivity and Income of Beneficiary Farmers in Plateau State,
Nigeria**

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Abstract: The study was conducted to assess the impact of National Special Programme for Food Security (NSPFS) project on Productivity and income of Beneficiary farmers in Plateau State. The specific objectives included: (i) identify, describe and evaluate the socio-economic characteristics of the NSPFS project beneficiary and non beneficiary farmers (ii) determine the factors that influenced farmers participation in NSPFS projects in the study area (iii) determine the net farm income of beneficiary and non beneficiary farmers before and after the project intervention; (iv) determine the impact of NSPFS on beneficiary farmers income in the study area (v) determine the impact of NSPFS on beneficiary and non-beneficiary farmers before and after the project intervention (vi) identify the problems faced by the beneficiary farmers in participating in NSPFS project in the study area. Primary and Secondary data were obtained from the respondents of 412 (206 beneficiary and 206 non beneficiary farmers) and NSPFS coordinating offices for baseline survey data. Data were analysed using descriptive statistics; probit model; farm budgeting techniques of net farm income, production function; multiple regression and double difference method. The result showed that the socio-economic characteristics have a lot of influence on income and productivity of the respondents in the study area. Results showed male dominance in both beneficiary and non-beneficiary farmers. Majority of the respondents (beneficiary and non-beneficiary farmers) had farm size of between 0.5 – 1.0ha before and after NSPFS project respectively. Based on statistical analysis, there was significant difference between the socio-economic characteristics of NSPFS project beneficiaries and non-beneficiaries. Therefore, the null hypothesis that there is no

significant difference between socio-economic characteristics of beneficiaries and non-beneficiaries have been rejected and alternatives accepted. On the decision to participate in NSPFS project, 4 factors significantly influenced decision to participate in NSPFS project by the respondents. Participation in other agricultural projects was significant at 1% of t-value = 2.66. The net farm income realized by the responder is indicates an increase in the net farm income of both beneficiaries and non-beneficiaries. On impact of NSPFS on beneficiaries income, a positive mean difference of about N243,299.61 in income was realize and the difference in income was significant at 1% level with t-value = 3.86. This implies that there was an impact of the project on beneficiary's income. The regression result showed that NSPFS project has positive impact on crop productivity of beneficiary farmers in the study area. The f-chow calculated value was 104.45, while that of tabulated f-value was 2.6) at 5% for the three degree of freedom and the population sample N = 412. This implies that NSPFS had impact on crop productivity of beneficiaries. Resource use efficiency indicates that beneficiaries over utilized chemical and underutilized other resources like seed, fertilizer and labour but there was an improvement on the use of productive assets like hoes, cutlass and bicycle. Capital and fertilizer were major problems encountered by beneficiaries in participation in NSPFS project. Findings also revealed that the respondents claimed that their lack of participation in the project was based on their perceived idea that there are no meaningful results from government projects. Other reasons by the non-beneficiaries for not participating include lack of capital, not being a member of any farmer's cooperative society and also bad experience from other agricultural projects. The study recommends among others expansion of the NSPFS project to include at least three quarters of the small -scale farmers, adequate and timely supply of farm inputs be intensified and there should be a strong reawakening of the farmers' cooperative movement or societies as well as the encouragement of farmers to joint other local groups and association for easy accessibility to inputs, agro services and technological innovations in farm practices.

Keywords: Food Security; Plateau State; Nigeria.

INTRODUCTION

Food is one of the basic necessities of all human beings regardless of race, colour and location. This makes agriculture fundamental to the sustenance of life and the bedrock of economic development of a country. Agriculture is one of the main pillars of the Nigerian economy, because it plays many roles. It is a major source of food to the population, it provides employment for over 70 percent of the population and it is the major thriving economic activity for most rural dwellers. It also contributes income and foreign exchange as well as is a source of industrial raw materials for the nation's industries (Olayemi, 2008).

Nigeria is richly endowed with diverse natural, material and human resources for agricultural "development. Eboh, (2008) observed that majority of Nigeria's poor live in the rural areas and depend directly or indirectly on agriculture and its related activities while owning or controlling few physical productive assets. In other words, the assertion above shows that agriculture (farming, forestry, fishing, and livestock keeping) in Nigeria is practiced mostly by the farmers who live in the rural areas. Nigeria at the moment is witnessing an upward trend in the prices of foodstuff partly due to the inability of production to keep pace with the rate of increase in demand. Demand itself increases largely as a result of increase in population (Idachaba, 2004).

Consequently, Nigeria has initiated various programmes, policies and initiatives aimed at achieving food sufficiency. These efforts have failed to some extent in achieving the desired objectives. While few of these programmes are on-going, majority have ceased to exist. Some of these programmes, policies and initiatives include farm settlement schemes (1960s), National Accelerated Food Production Programme (NAFPP) 1972. Agricultural Credit Guarantee Scheme Fund (ACGSF) 1977, Land Use Degree, 1978, Rural Banking Scheme, 1978, Directorate for Food Road and Rural Infrastructure (DFRRI) 1986, National Agricultural Land Development Authority (NALDA) 1991 Fadama Programmes and National Special Programme for Food

Security (NSPFS) 2002 among others (Onojah et al, 2008). The above programmes, policies and initiatives though well intentioned, suffered losses ranging from socio-cultural conflicts, political conflicts and others such as ethnic and religious conflicts which hinder and or destroy development programmes in their wake, poor management, corruption, interferences, poor funding and weak institutional arrangements which hampered efficient and effective implementation (Sanni,2009) . In another vein, most of the agricultural development programmes and projects were tied to specific administrations and each gave way to a new one as frequently as governments come and go or changed hands (Adebayo, 2004).

In Nigeria, two-third of the population live below poverty line and household food security is inadequate. Nigeria is gripped by both income and food poverty, and poor access to the means of supporting rural development being among the causative factors (FGN/WHO, 2004). Consequently, in Nigeria, food security which goes with food self- sufficiently and sustainability is still elusive (Nworgu, 2006). This is because the agricultural sector has not been able to deal effectively with the problem of food security for the Nigeria people when viewed from the stand point of the nutritional status of Nigeria household food security and food prices (vision 2010, Agriculture, 1997).

The extent and nature of food insecurity and malnutrition has been confirmed by the UNICEF micro-nutrient survey and recent participatory Rural Appraisal (PRA) study on household food security in Kano state conducted by the Food and Agricultural Organization (F AO). The study suggested an expansion of farm output, secondary agro- based trade and processing as the most attractive avenue for raising incomes and impressing livelihood and quality of lives in rural areas where poverty is heavily concentrated (FGN/F AO, 2001).

As a follow-up to the 1996 world food summit, Nigeria being one of the 82 low-income food deficit countries (LIFDCS) requested for assistance under the FAO's

National Special Programme for Food Security (NSPFS). A tripartite participatory review of the government's request involving FAOs, Government and beneficiary communities was held in Nigeria in March 1998, where an advance allocation was approved under the Tripartite Communities Participation (TCP) / Nigeria / (NIR/88821(A)) to support the finalization of the formulation of the pilot phase of the NSFES in Kano state, Nigeria. It was in this context that the federal and state governments with the technical support of the FAO became interested in extending the application of the programme for food security to all states in Nigeria. The main aim of the programme is to achieve rapid increase in productivity and food production on an economically and environmentally sustainable basis emphasizing the use of tested technologies, grassroots participation and south-south cooperation (Mero, 2001). In 2001, the National Special Food Security Programme (NSFSP) was extended to all the 36 states of the federation and Abuja the Federal Capital Territory. The central features of the National Special Programme for Food Security (NSPFS) strategy is the reliance on the small scale farmer's pivot of an incremental production technology.

The broad objectives of NSPFS is to increase and stabilize food production rapidly and sustainably through the widespread dissemination of improved technologies and management practice in areas with high potentials, and to create economic and social environment conducive to food production (FAO/UN, 2002).

With its specific objectives of assisting farmers in achieving their potentials for increase output and income on sustainable basis as well as strengthen the effectiveness of research and extension services in bringing technology and new farming practices developed by research institutes to farmers, ensuring greater relevance of research to farmers, concentrating on initial efforts in pilot areas for maximum effects; training and educating farmers for effective utilization of available land, water and other resources, input and facilities to produce food and create employment on a sustainable basis among others (FAO, 2002, FMARD, 2006 and Obiora, 2003).

In Plateau State, the National Special Programme for food security (NSPFS) is being operated in each of the three agricultural zones (PMARD, 2008, PADP, 2004 and FMARD, 2006). The major thrust of the project is focused on innovative approaches for soil-conservation and fertility improvement and water use for crop production, crop intensification and diversification of farm activities supported by an analysis of the constraints to household food security (FAO and FGN, 2001). The NSPFS commenced in Plateau State in 2002 and is being operated at (9) nine sites. Three of the project in each of the three agricultural (senatorial) zones in Plateau State (PADP, 2004, and Jibrang, 2006). The question now relates to the extent of performance of the programme since its inception. What is the level of performance of the NSPFS in Plateau State, after five years (2002-2007) of its existence? Has there been impact on productivity and income of the NSPFS project participants?

Statement of Problem

Agriculture is the major sector upon which majority of the poor in Nigeria depend for their sustenance and daily living. More than 70% of the working adult populations of Nigeria are employed in the agricultural sector directly or indirectly (World Bank, 2007) and about 90% of Nigeria agricultural output comes from peasant farmers who dwell in the rural areas where 60% of the population live. The vast majorities of the farmers have limited access to modern means of farming than input and other productive resources and are likely to have access to pesticides, fertilizers, improved seeds and irrigation (Olayemi. 2008).

Consequently, Nigeria has embarked on several programmes to develop agriculture with little success. Several reasons have been given for the consistent failure of Agricultural Development Programmes in Nigeria, among this is 'the inability to properly target the real actors in the Nigerian agriculture; that is the rural poor household farmers. The coming of the National Special Programme for Food Security projects marked a clear departure from this trend as the rural farm households were

well incorporated into the programme. The major aim of the National Special programme for Food Security projects is to raise farm' productivity and the standard of living of farm households (FMARD, 2006). *FAO/FMARD* (2007), revealed that after a few years of implementing the programme, the *FAO/FMARD* conducted a series of studies and evaluation which drew the attention of policy makers to the fact that rural farm households made important contribution to agriculture in Nigeria. With this realization came the need to assist the rural farm households so that they could contribute even more in agricultural development.

Caseley and Kumar (1987) in their contribution however, maintained that in development projects as well as other areas of human endeavours, well planned and sincerely executed efforts do not necessarily produced ' the desired results. It is very necessary to find out what really happened in order to incorporate the lessons in future planning for agricultural development in Nigeria. It is obvious that Nigeria is endowed with both physical and human resources, and fertile land capable of producing enough food for the entire population and even marketable surplus for exports. However, food has to be imported to supplement the insufficient domestic production. If small-scale farmers who are to be provided with enough farm inputs like fertilizers, credits facilities and other incentives, they can increase their productivity of both crop and animal products in a profitable and sustainable way and this may lead to the reduction in the level of food insecurity (Lawai, 2005).

In the rural settings in Nigeria, the rural small-scale farm households are those made to feel less important in the scheme of things in the community and also they are deprived from several material resources such as land ownership, credit facilities and other resources. The needs of these farmers are usually not considered when developmental issues are discussed. They are also voiceless (Chikwedu, 2005).

Therefore, the NSPFS programme was a follow-up of other developmental projects like ADP, Fadama and RTEP in Nigeria to correct some of the lapses of these

projects such as late and inadequate supply of resources to the beneficiaries. Little or no attempt has been made to study the impact of NSPFS project on income and productivity of farm households of the first phase of NSPFS which was from 2002-2007 in the study area. This is also to ascertain or know whether the project objectives have been realized or not, considering the huge sum of \$69, 576,046 spent.

The study will also provide answers to the following questions: What are the socio-economic characteristics of NSPFS projects beneficiaries and non beneficiaries?, What are the factors that influenced beneficiaries' participation in NSPFS?, What are the incomes of the beneficiaries and non-beneficiaries before and after NSPFS?, Did NSPFS project have impact on beneficiaries' income in the study area?, Did NSPFS project have impact on beneficiaries' productivity in the study areas?, What is the nature of resource use efficiency of project beneficiaries and non- beneficiaries before and after NSPFS in the study area?, What are the problems faced by beneficiaries in participating NSPFS project?

Objectives of the Study

The broad objective of the study is to assess the impact of NSPFS project on income and productivity of beneficiaries in the study area.

The specific objectives are to: evaluate the socio-economic characteristic of the project beneficiaries and non-beneficiaries in the study area, determine the factors that influence farmer's participation in NSPFS projects in the study area, determine the resource use efficiency of project beneficiaries and non- beneficiaries before and after the project in the study area, determine the net farm income of project beneficiaries and non-beneficiaries before and after the project, determine if NSPFS food security project has impact on beneficiaries' income, determine if NSPFS food security project has impact on beneficiaries' productivity, identify the problems faced by the project beneficiaries in participating in NSPFS project in the study area, make recommendation for intervention policies that will be used in guiding the farmers.

Hypotheses

The following null hypotheses were tested; there is no significant difference between the socio-economic characteristics of NSPFS project beneficiaries and non-beneficiaries, the impact of NSPFS project on the income of beneficiary farmers before and after the project do not differ significantly, the impact of NSPFS project on the productivity of beneficiary and non beneficiary farmers before and after the project do not differ significantly.

METHODOLOGY

The study area, Plateau State derives its name from the geographical landscape. The state was created out of the Benue Plateau State in 1976. Plateau State has a population of 3,283,704 people (NPC, 2006) and a total landmass of 43,585 km². It is located between latitude 8°N and 10°N, and Longitude 7°E and 11°E. The State is found in North Central Nigeria and shares boundaries with five states, namely Nassarawa state, to the South, Kaduna state, to the West, Kano and Bauchi states to the North, and Taraba state, to the East (P ADP, 2004 and Plateau State Government, 2006). Plateau state is blessed with abundant human and material resources. The state is found in the rich agricultural land of tropical zone of Nigeria with the climate on the Jos Plateau simulates that of temperate regions.

Multi-stage sampling procedures were employed for selection of the respondents for this research work. The first stage comprised of the purposive selection of three local government areas each from the three agricultural zones in the state. This gives a total of nine local government areas which have the NSPFS project sites. Stage two was the random selection of twenty five NSPFS beneficiaries and twenty five NSPFS non-beneficiaries respectively as respondents.

Fifty respondents (comprising of both beneficiaries and non-beneficiaries of NSPFS) project were randomly selected each from the nine project sites. In all, four

hundred and fifty (450) beneficiaries and non-beneficiaries farmers respectively will be selected for this research work.

Data for this study were collected from primary and secondary sources. Primary data will be collected using a set of structured questionnaires and scheduled interview administered to the beneficiary and non-beneficiary farmers in the study area based on the objectives of the study.

Data were collected on socio-economic variables (age, educational level, farm size, farming experience, and non-farming activities of the respondents). Data were also collected on the input-output level of the respondents before and after NSPFS project. Other forms of data collected were data on income and problems faced by the National Special Programme for Food Security project farm household participants. The secondary sources of data collected for this study were from past agricultural extension records; PADP & NSPFS documents Journals, Unpublished materials and internet resources relevant to the study.

Descriptive statistics were used to attain objectives 1 and 7, probit model were used to attain objective 2, farm budgeting technique of net farm income were used to attain objective 4, production function estimates were used to attain objective 3, multiple regression were used to attain objective 6, while double difference method were used to evaluate the difference in income between the respondents and also to ascribe the difference to impact of the project on farm household's participants income in order to achieve (objective 4). The paired t-test was used to test the hypothesis on socio-economic characteristics and the chow test statistic was used to test the hypothesis on the project impact on beneficiary farm household's income and productivity.

RESULTS

The socio-economic characteristics had a lot of influence on income and productivity of the respondents in the study area. Results showed male dominance in both beneficiaries and non-beneficiaries. Majority of the respondents (beneficiaries and non-beneficiaries) had farm size of between 0.5 – 1.0ha before and after NSPFS project respectively. Based on statistical analysis, there is significant difference between the socio-economic characteristics of NSPFS project beneficiaries and non-beneficiaries. Therefore, the null hypothesis that there is no significant difference between socio-economic characteristics of beneficiaries and non-beneficiaries have been rejected and alternatives accepted. On the decision to participate in NSPFS project, 4 factors significantly influenced decision to participate in NSPFS project by the respondents. Participation in other agricultural projects was significant at 1% of t-value = 2.66. The net farm income realized by the respondents after NSPFS project indicates an increase in the net farm income of both beneficiaries and non-beneficiaries. On impact of NSPFS on beneficiaries income, a positive mean difference of about N243,299.61 in income was realized and the difference in income was significant at 1% level with t-value = 3.86. This implies that there was an impact of the project on beneficiary's income. The regression result showed that NSPFS project has positive impact on crop productivity of beneficiary farmers in the study area. The F-chow calculated value was 104.45, while that of tabulated F-value was 2.60 at 5% for three degree of freedom and the population sample N = 412. This implies that NSPFS had impact on crop productivity of beneficiaries. Resource use efficiency indicates that beneficiaries over utilized chemical and underutilized other resources like seed, fertilizer and labour but there was an improvement on the use of productive assets like hoes, cutlass and bicycle. Capital and fertilizer were major problems encountered by beneficiaries in participating in NSPFS project. Findings also revealed that the respondents claimed that their lack of participation in the project was based on their perceived idea that no meaningful results from government projects. Other reasons by the non-beneficiaries for not participating

include lack of capital, not being a member of cooperative society and also bad experience from other agricultural project.

Recommendations

Based on the findings of the study the following recommendations are made:

- Human capital or resource development through education should be made a priority having found that households with tertiary education are less prone to food insecurity.
- It was recommended that the programme should have more project sites and participants so as to raise their output, income and increase the number of the beneficiary farmers. Farmers should be advised through the advisory arm of PADP (NSPFS project coordinating unit) on how to allocate and use their resources to enhance more productivity and income.
- PADP NSPFS should ensure they provide access to affordable credit services in the second and expanded phase of NSPFS as this will improve the capital base of the participants.
- Farmers should be encouraged to keep proper records of their production and activities.

Conclusion

From the findings of the study, it has been possible to establish the fact that farm size of the NSPFS project beneficiaries increased more than the non beneficiary farm size during the project period, their output as well as their income increased significantly more than before the project and also more than the non-beneficiaries income and output. Hence the null hypothesis with regards to no impact of NSPFS project beneficiary's income and productivity is rejected. The project has not improved the efficiency with which the input factors were utilized by the beneficiaries. Lack of credit

facilities continued to pose threat on capital base for the participants in acquiring some of the production inputs and also meeting up the contributory requirement became a problem. Untimely availability of the sproduction inputs could contribute to the inefficient allocation and utilization of the production resources. Although there was limitation in getting complete baseline information for this study in which the researcher had to depend on the recalled ability of the farmers and the PADP Coordinating Unit of NSPFS. Nevertheless, the result of these research findings could serve as good baseline data for further studies on impact assessment of agricultural project in the area.

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APENDICES

Socio-economic characteristics of respondents (Farmers)

Variables	Beneficiaries		Non Beneficiaries	
	Frequency	Percentage	Frequency	Percentage
Age (years)				
<30	18	8.73	21	10.19
30-40	106	51.56	100	48.54
41-50	66	32.04	62	30.10
51 and above	16	7.76	23	11.17
Total	206	100	206	100
Gender				
Male	176	85.43	180	87.38
Female	30	14.56	26	12.62
Total	206	100	206	100
Marital Status				
Married	185	89.81	175	84.95
Single	21	10.19	31	15.05
Total	206	100	206	100
Household size (no.)				
<5	23	11.17	43	20.87
6-10	110	53.40	110	53.40
11-15	48	23.30	33	16.02
16 and above	25	12.14	20	9.71
Total	206	100	206	100
Level of educational				
No formal education	48	23.30	55	26.70
Adult	54	26.21	59	28.64
Primary	66	32.04	51	24.76
Secondary	28	13.59	33	16.02
Tertiary	10	4.85	8	3.88
Total	206	100	206	100
Farming experience (years)				
<5	45	21.84	4	1.94
5-10	30	14.56	39	18.93
11-15	36	17.48	36	17.48
16-20	39	18.93	37	17.96
21 and above	56	27.18	90	43.89
Total	206	100	206	100
Participation in other agric. Projects				
Yes	70	33.98	21	10.19
No	136	66.02	185	89.81
Total	206	100	206	100

Source of Data: Field Survey Data, 2011

Mean value of the net farm income of beneficiary and non-beneficiary farmers

	Mean	STD	t-value	p-value	Mean	STD	t-value	p-value
Total cost	9444.18 (3397.00)	48756.19	2.78**		0.006	4581.47 (2345.22)	33660.29	1.95* 0.052
Totalreturn	418981.08 (55523.46)	796807.19	7.55***		0.000	170818.76 (27575.77)	395787.71	6.20*** 0.000
Net farm Income	40956.89 (23405.67)	766515.54	7.68***		0.000	166237.29 (26906.33)	388178.47	6.18*** 0.000

Source: Filed Survey Data, 2011

* = Significant at 10% level of probability

** = Significant at 5% level of probability

*** = Significant at 1% level of probability

Income after - Income Before

Note: % change in income = $\frac{\text{Income after} - \text{Income Before}}{\text{Income Before}} \times 100$

Double difference result of NSPFS impact on beneficiaries

Variable	Mean	Standard deviation	t-value	p-value	SE
DD	243,299.61	904,742.42	3.86***	0.000	63036.39

Source: Filed Survey Data, 2011

*** = significant at 1% level of probability

Regression showing impact of NSPFS on beneficiary's income

Variable	Coefficients	Standard error	t-value
Constant	12.053	0.081	148.864***
Household size	0.018	0.007	2.570***
Farm size	0.112	0.054	2.074**
Probability of NSPFS participation	0.275	0.065	4.231***
R ²	0.270		
R ⁻²	0.196		
F-statistics	9.967***		
N=412			

Source: Filed Survey Data, 2011

Chow test results showing impact of NSPFS project on beneficiary's income

F*Chow test	F-Tabulated	Decision rule	Remark
12.99	2.60**	If $F_{\text{chow}} > F_{\text{tab}}$, then there is a significant difference between NSPFS beneficiaries and non-beneficiaries income	Reject null that NSPFS had impact on beneficiaries income

SC-pooled= 168.27

$S_1 = 41.765$

$S_2 = 111.785$

$K = 3$

$N_1 = 206$

$N_2 = 206$

Source: Filed Survey Data, 2011