



<https://doi.org/10.33003/jaat.2022.0801.094>

ASSESSMENT OF THE EFFECTS OF INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT'S INTERVENTION ON LIVELIHOOD OF INTERNALLY DISPLACED MILLET FARMERS IN BORNO STATE, NIGERIA

¹Mary Samuel, ²Hussein Ahmed Abdullahi & ³Sani Isiyaku

¹Department of Science Education, Federal University of Kashere, Gombe State

²Department of Vocational and Technical Education, Ahmadu Bello University, Zaria

³National Agricultural Extension Research and Liaison Service

Corresponding Author: samuelymary792@gmail.com 08038204057

ABSTRACT

This study assessed the effects of International Fund for Agricultural Development (IFAD) interventions on yield, income and standard of living of internally displaced millet farmers in Borno State, Nigeria. Cross-sectional survey design was adopted using a population of 679 internally displaced farmers who benefitted from IFAD interventions in Borno State. Three research questions were raised to guide the study and one null hypotheses was formulated to be tested at 0.005 significance level. A multi-stage sampling procedure was used to select 248 internally displaced millet farmers as sample. A researcher designed questionnaire was used as instrument for data collection with a reliability coefficient of 0.79. Descriptive statistics in form of frequency count, percentage and mean were used to describe the socioeconomic characteristics while stepwise linear regression was used to test the hypotheses. The regression result shows that IFAD interventions significantly affect yield with coefficient of ($R^2 = 0.347$) and standard of living with a coefficient of ($R^2 = 0.321$). whereas the result reveals that the interventions have not significantly affect the income of the farmers with the coefficient of ($R^2 = 0.092$) The findings indicate that IFAD interventions improved the yield and standard of living of internally displaced millet farmers in Borno State, Nigeria. The study recommended that, Borno State government should ensure continuity of the interventions provided to internally displaced millet farmers, as it reveals from the findings of the study that the interventions improves the yield and standard of living of the farmers.

Keywords: IFAD , IDP farmers, millet, livelihood, interventions.

INTRODUCTION

The agricultural sector has been a prominent and integral part of national development, improving human livelihoods and living standards, as well as the economic sector, through the production of livestock and crops. According to the Food and Agricultural Organization (2014), agriculture employs the vast majority of the population and provides a means for valuable foreign exchange to be earned through the export of agricultural products and produce. However, Bjornlund, Bjornlund and Van Roogen (2020) posited that, Nigeria agricultural systems, being the largest in Sub-Saharan Africa is stagnated and has become disconnected from the priorities of Nigerian farmers' livelihood. This is due to poor funding by the Federal and States Governments, which catapulted to development and implementation of programmes to promote livestock and crop production. Such programmes include; the Anchor Borrowers, Sassakawa Global 2000, National Fadamas Programme, Agricultural Development Programme, National Poverty Eradication Programme, and International Fund for Agricultural Development. IFAD was established in 1977 in response to the food crisis of the 1970s, with the mission to transform rural economies and food systems by making them more inclusive, productive, reduce rural poverty, set up and strengthens farmers organizations and support empowerment of the poor rural people, hinging majorly on women, youth and the

vulnerable groups in order to improve their livelihood (IFAD website).

Livelihood simply refers to the entire life of an individual including his state of wealth, comfort, material goods, and necessities available to a certain socio-economic class in a certain geographic area, usually a country (Organization for Economic Co-operation and Development, OECD 2019). Livelihood consists of physical assets such as equipment and machinery, household jewelry and sustainable goods, accommodation, livestock and infrastructure (Ayana, Megento and Kussa 2021), also the aspect of human assets include skills, knowledge, availability of workforce and capacity to labour, good health and physical capability of individuals or members of households (Singh and Chudasama 2020). More so, livelihood consist of social, natural, and financial assets.

Millet (*Pennisetum glaucum*) is an annual crop extensively cultivated in the arid and semi-arid regions of the world according to Jika, Dussert, Raimond, Garine, Luxereau, Takvour & Robert, (2017) It is the sixth most important world cereal crop after barley (*Hordeum vulgare*), wheat (*Triticum aestivum*), sorghum (*Sorghum bicolor*), rice (*Oryza sativa*) and maize (*Zea mays* L.) Millets are staple food of the millions inhabiting the arid and semi-arid tropics of the world, and are widely distributed in most of Asian and African countries and parts of Europe. The most

common millet variety cultivated in North-eastern Nigeria is pearl millet (*Pennisetum glaucum*), which is one of the two major crops in the semi-arid, impoverished, less fertile agricultural region in Africa. Bhuva, Detroja, & Khanpara, (2018) posited that pearl millets are not only adapted to poor, drought and infertile soils but are more reliable under conditions than most other grain crops will not thrive. Millet is one of the stable annual crops that improve the livelihood of farmers.

Internal displacement is a global phenomenon that poses a political, economic, humanitarian, and development challenge, (International Displacement Monitoring Center, IDMC, 2018). However, Borno State has had a fair share of unprecedented levels of insecurity perpetrated by members of the dreaded and infamous Boko-Haram from 2009 and recently the emergence of the Islamic State West African Province (ISWAP) groups. The escalation of insurgency in Borno States, which had virtually affected all the senatorial zones, has caused many farmers to abandon their farms due to fear of being attacked by raiding Boko Haram insurgents and other vices, forcing most farmers to flee their settlements and farmstead (Usman and Dabai 2020) The vast majority of the internally displaced persons in Borno state sought refuge in the state capital (Maiduguri).The farmers who have become refugees live in the internally displaced persons camps cultivate majorly millet and other crops such as groundnuts, beans, and maize within the few available lands located within the state capital.

The internally displaced persons in Borno state especially those at Munna, Shuwari, Bakasi and Wulari Camp consume millet as their staple food. However, the farmers at the camps were unable to farm this crop due to the reoccurrences of the insurgency. Aside from the issue of insurgency, the few who were able to farm their problems+ were exacerbated by an infestation of striga, a millet plant pest, combined with environmental degradation. This resulted in a decrease in millet production in Borno State. Since 2016, IFAD has intervened in collaboration with the World Bank, the Federal Government, and the government of Borno State with the goal of improving the livelihood of internally displaced farmers by mitigating the problem posed by jihadist cum irredentists. IFAD has provided agricultural interventions such as striga resistant millet variety, fertilizer, agro-chemicals, clothes, water, farm implement, drugs, school, financial assistance, extension service and training to internally displaced farmers as part of interventions. As a result, this study therefore deemed necessary to assess the effect of IFAD interventions on yield, income and standard of living of internally displaced millet farmers in Borno State, Nigeria. Three (3) research questions were formulated based on the research objectives. These are;

- i. What are the socio-economic characteristics of internally displaced millet farmers? in Borno State?
- ii. What are the effects of IFAD intervention on yield, income and standard of living of internally displaced millet farmers in Borno State, Nigeria?
- iii. What are the constraints faced by internally displaced millet farmers in accessing IFAD interventions in Borno State, Nigeria?

Specifically, the objectives of this study intends to:

- i. describe the socio-economic characteristics of internally displaced millet farmers in Borno State;
- ii. assess the effects of IFAD intervention on yield, income and standard of living of internally displaced millet farmers in Borno State, Nigeria.
- iii. identify the constraints faced by internally displaced millet farmers in accessing IFAD interventions in Borno State, Nigeria.

Research Hypothesis

Based on the research objectives, a null hypothesis were formulated and to be tested at 0.05 significance.

H_0 = The intervention provided by IFAD has no significant effect on yield, income and standard of living of internally displaced millet farmers in Maiduguri metropolis.

METHODOLOGY

A Cross sectional survey design was adopted, and multi-stage sampling procedure was used for the study. The first stage involved a purposive selection of four Local Government Areas who were camped at different locations in maiduguri, they include; Guzamala, Marte, Kaga and Gubio being areas where millet is widely cultivated, thus making a population of 679 internally displaced millet farmers. The second stage entailed random selection of 62 internally displaced millet farmers from each of the four LGAs, making a sample size of 248 internally displaced farmers who benefitted from IFAD interventions. This was based on Research Advisor sample determination table (2006) where it is recommended that a sample of 248 is adequate for a population of 679. Primary data were generated from the internally displaced millet farmers through the use of questionnaire and oral interview which was administered by the researcher and trained enumerators. The data collected was based on socio economics characteristics and parameters related to yield, income and standard of living. The instrument designed for the study was validated by two research experts from the Department of Vocational and Technical Education, Ahmadu Bello University, Zaria and the National Agricultural Extension Research and Liaison Services (NAERLS) in order to meet up with the face and

content validity of the instrument. The instrument was subjected to a pilot testing with 20 respondents in Dikwa LGA of Borno State Split-half method was used to determine the reliability coefficient. The Guttman Split-Half Coefficient of the instrument was 0.79. The descriptive statistics of frequencies counts, percentage and mean was used to answer the data collected on the socio-economic characteristics of the respondents while stepwise linear regression was used to test the hypotheses.

Stepwise linear regression was used to analyze the effect of IFAD interventions on yield, income and standard of living of internally displaced millet famers in Borno State. Stepwise linear regression is a method of regressing multiple variables while simultaneously removing those that aren't important and is an appropriate analysis when there are many variables and identifying a useful subset of the predictors. The model specification of assessment of the effect of IFAD interventions on livelihood of internally displaced millet farmers is represented below, thus:

Model Specification

$$Y_i = b_0x_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + b_9x_9 + b_{10}x_{10} + b_{11}x_{11} + b_{12}x_{12} + b_{13}x_{13} + b_{14}x_{14} + b_{15}x_{15}$$

Where Y = dependent variables Y_1, Y_2, Y_3

Y_1 =yield: this is the outcome of a crop per unit of land area, this include seeds, fertilizer, agro chemicals, work bull, training. Yield measured Kg/Ha

Y_2 =income this is money realize from sales of produce or though financial assistance and credit facilities. It is measured in naira (₦)

Y_3 = standard of living; this is the state of comfort, material goods and necessities. this include payment made on food, education, health, nutrition. Standard of living is measured in naira(₦) .

$X_1, X_2, X_3, X_4, X_6, X_7, X_8, X_9, X_{10}, X_{11}, X_{12}, X_{13}, X_{14}, X_{15}$ = vector of independent variables which represent the interventions.

Where: (X_1) Fertilize; this was measured in Kg/bag,

(X_2) Seeds this was measured in Kg,

(X_3)Chemicals this was measured in litters,

(X_4) Clothes this was measured in numbers,

(X_5) Blanket this was measured in number,

(X_6) pick-up this was measured in number,

(X_7) credit facility this was measured in naira (₦),

(X_8) water this was measured based on times the water was available,

(X_9) drugs this was measured in naira (₦)

(X_{10}) Education this was measured in naira (₦)

(X_{11}) work bull this was measured based on times,

(X_{12}) tent this was measured based on number,

(X_{13}) extension service this was measured based on times,

(X_{14}) trainingthis was measured based on times,

(X_{15}) farm implement this was measured based on number.

In this equation, the subscripts denote the different independent variables which in this context The X_1 is value of the first independent variable, X_2 is the value of the second independent variable, and so on. It keeps going as more and more independent variables are added until the last independent variable, X_n , is added to the equation. Note that this model allows you to have any number, n, independent variables and more terms are added as needed. Any null hypothesis whose calculated p value (0.05) is greater than the table value will be rejected and vice versa.

RESULT AND DISCUSSION

Result from Table 1 shows that majority (64.1%) were within the age range of 16-35 years with a mean of 35.97, which means that internally displaced millet farmers in Borno State are in their prime productive age. This implies that there was a great potential for agricultural production in the population. This finding is also in line with that of Galadima (2014) who found that majorities (51%) of respondents were males, with average age of 40 years in Yobe State. The results further show that 55.9% are male farmers indicating male dominance but with substantial number of female farmers as the crisis affect a lot of women who constituted the major vulnerable group. This finding is in line with that of Abdulhamid, Abdullahi and Ibrahim, (2015) who found that majority of the respondents were males, aged 41years. Result from the table reveals that , majority of the respondents (41.6%) attained b secondary school levels of education with a (16%) having Quranic education only. Education is very important for human development particularly in terms of understanding and comprehending an interventions package. The findings is in line with that of Dauda, Zahra and Bellah (2015) who found that majority (97%) of both categories of farmers in the study area had some form of educational qualification whereas The findings of the study contradicts that of Illo, Anjo and Usman (2015) who found that qur'anic education was the common educational status of the participants in Kebbi State.

The findings, further revealed that the average (9) members were discovered per household. (47.8%) respondents have 6-10 members in their households. This implies that availability of labour in which household members are mostly used in many areas in the north. Hence, much family labour is needed to by about 96% of the respondents to cultivate their 1 hectares (ha) of land. The land area of 1-2 ha characterizes the common scale of production of small farmers in Nigeria. This finding agrees with that of Sadiq, Singh, Ahmad, Yunusa, and Egba (2019) who found that farming household composed of 8 persons

who participated in IFAD rice project among the beneficiaries in Niger State.

Table 1: Socio-economic characteristics of internally displaced millet farmers in Borno State

Variables	Frequency	Percentage (%)	Mean
Age			
16 – 35	153	64.1	35.97
36 – 55	53	21.6	
56 – 75	32	12.7	
76 – 95	4	1.6	
Total	245	100.0	
Sex			
Male	137	55.9	
Female	108	44.1	
Total	245	100.0	
Education level			
No formal education	32	13.0	
Quranic education	39	15.9	
Adult literacy	17	6.9	
Primary	29	11.8	
Secondary	102	41.6	
Tertiary	26	10.6	
Total	245	100.0	
Household size			
1 – 5	67	27.3	
6 – 10	117	47.8	
11 – 15	40	16.3	9
Over 15	21	8.6	
Total	245	100.0	
Farm size			
1 ha	236	96.3	
2 ha	8	3.3	1.04
3 ha	1	0.4	
Total	245	100.0	

Source: Field Survey, 2022

To assess the effect of IFAD interventions to internally displaced millet farmers, linear (stepwise) regression analysis was done to find the contribution of each predictor variable to the dependent variable. That is, the amount of variance in the dependent variable explained

by the independents was determined. Table 2 shows that yield was predicted by fertilizer, small farm implement, work bull and training. These contributed to the R^2 of 0.347. The income was predicted though not significantly by ($R^2 = 0.092$) while work bull, household

items, food, clothing and extension services significantly predicted standards of living ($R^2 = 0.321$). Findings of research question two and null hypothesis one show that the amount of variance in the dependent variable explained by the independents was determined. The finding shows that yield was predicted by fertilizer, small farm implement, work bull and training. These contributed to the R^2 of 0.347. The income was predicted though not significantly by the credit facility ($R^2 = 0.092$) while work bull, household items, food, clothing and extension services significantly predicted standards of living ($R^2 = 0.321$). This finding negates that of Suliman, Elzain, Attika, Mohammed, Abdalla &

Maruod, (2009) who concluded that 75.9 % of the respondents indicated that there was no increased in agricultural production during the project interventions in Rwanda. The finding agrees with that of Tasié (2013) who conducted a study on the effect of International Fund for Agricultural Development (IFAD) credit supply on rural farmers in Rivers State. The findings concluded that IFAD credit impacted positively on the well-being of rural farmers, the significant variables are farm size, off-farm income, total household labour, and educational level of farmer, gender, farm household size, and IFAD credit.

Table 2: Effect of IFAD intervention on yield, income and standard of living of internally displaced millet farmers

Yield					
Predictor variables		B	SE	T	Sig.
Fertilizer	X ₁	-5154.75	2093.15	-2.463	0.015**
Small farm implements	X ₆	-3478.13	1602.97	-2.170	0.031**
Work bull	X ₇	-5693.48	1616.78	-2.170	0.001***
Training	X ₂₁	4890.10	2044.74	2.390	0.018**
$R^2 = 0.347$					
R^2 Adjusted = 0.282					
Income					
Income	X ₁₆	11571.60	5814.44	1.990	0.048 ^{NS}
$R^2 = 0.092$					
R^2 Adjusted = 0.002					
Living standards					
Work bull	X ₇	2808.84	1133.261	2.49	0.014**
Household item	X ₁₀	6039.31	1167.65	5.172	0.000***
Food	X ₁₃	-2478.50	968.89	-2.558	0.011**
Clothing	X ₁₉	3143.93	1148.72	2.737	0.007***
Extension services	X ₂₂	3633.92	851.43	4.268	0.000***
$R^2 = 0.321$					
R^2 Adjusted = 307					

Source: Field Work, 2022; NS = not significant; *** Significant at 1%; ** Significant at 5%

Constraints to Participation in the IFAD Interventions

The constraints to participation in the IFAD assisted interventions were inadequate quantity of items provided (68.6%), lateness in access to fertilizer (60.8%), irregularity in the interventions (59.2%) and high interest

rates on the credit facilities (55%). These could be the major hindrances to accessibility of the interventions as many of these were inaccessible according to the study. Hence, these and many other factors not observed might be responsible for the low effect of the programme on the IDP millet producers.

Table 3: Constraints to Participation in the IFAD Interventions

Constraints	*Frequency	Percentage
Inadequate quantity of items provided	168	68.6
Lateness in access to fertilizer	149	60.8
Irregularity in the intervention	145	59.2
High interest rates	135	55.1
Low quality of items provided	121	49.4
Unequal access or favoritism	111	45.3

Source: Field Work, 2022; *Multiple responses

CONCLUSION AND RECOMMENDATION

From the results and findings of the study, it can be concluded that interventions provided by IFAD has significantly affect the yield and standard of living of the beneficiaries in the study area, meanwhile the interventions have not significantly affect the income of the beneficiaries, this might be as a result of delay in the packages and favoritism among other constrains faced by the respondents. Furthermore, from the result of the finding it can be concluded that most of the farmers are male as such more female participation should be encourage.

The following recommendations are suggested as a result of the findings of the study:

1. Borno State government should ensure continuity of the interventions provided to internally displaced millet farmers, as it reveals from the findings of the study that the interventions improves the yield and standard of living of the farmers.
2. Borno State Government in partnership with International Fund for Agricultural Development should encourage the more participation of females millet farmers so as to have more production.
3. Stakeholders should encourage a level playing ground in assessing financial assistance and credit facility for every farmer in respective of their status.

REFERENCES

Abdulhamid, A., Abdullahi, S., & Ibrahim A. B. (2015) Effect of Socio-Economic Variables of Participating Farmers in The Ifad/Cbard Programme On Their Productivity in Katsina State, Nigeria *Journal of Agriculture & Food Environment* 2 (1&2); 95

Ayana, G. F., Megento, T. L. & Kussa, F. G. (2021) the extent of livelihood diversification on the determinants of livelihood diversification in Assosa Wereda. *GeoJournal* 12(1);31-38

Bhuva, H.M., Detroja, A.C., & Khanpara, M.D. (2018). Requirement of nutrients for pearl millet (*Pennisetum glaucum* L.) production under Saurashtra conditions, *International Journal of Environmental Science & Natural Resources*, 9(4);55770-55775

Bjornlund, V., Bjornlund H. & Van Roogen, A. (.2020). Why agricultural production in sub-saharan Africa remains low compared to the rest of the world- a historical perspective. *International Journal of Water Resources Development*. 36(1); 20-53

Dauda, G., Zahran, B. H. & Bellah, S. M., (2015) Socio-Economic Factors Influencing the Participation of the Marginalized and Vulnerable Farmers in The IFAD – Community Based Agriculture and Rural Development Programme in Katsina State, Nigeria *Journal of Resources Development and Management an International Peer-reviewed Journal* 24(1);50 57

FAO (2014). Opportunities for Economic Growth and Job Creation in Relation to Food Security and Nutrition. Report to the G20 Development Working Group with inputs from Asian Development Bank for Farmers in South-East Nigeria. *Journal of International Federation of Library Association* Kaur, K. D., Jha, A., Sabikhi, L., Singh, A. K., (2012). Significance of coarse cereals in health and Nutrition: a review. *Journal of food science technology*

Galadima, M. (2014). Impact of IFAD Community-Based Agricultural and Rural Development Programme on Rural Livelihood in Yobe State, Nigeria. A Thesis Submitted To The School Of Postgraduate Studies, Ahmadu Bello University Zaria, In Partial Fulfilment Of The Requirements For The Award Of Master Of Science Degree In Agricultural Extension And Rural Sociology Department Of Agricultural Economics And Rural Sociology Faculty Of Agriculture Ahmadu Bello University, Zaria Nigeria. March, 2014

IDMC Internal Displacement Monitoring Center (2018) mid-year figures: internal displacement in 2018. P.5 available at <http://reliefweb.int/report/world/idmc-mid-year-figures-internaldisplacement-2018>

IFAD (2016) <https://www.ifad.org/en/document-detail/asset/4023101>.

IFAD (2016) <https://www.ifad.org/en/document-detail/asset/4023101>.

Illo A. I., Ango A. K., & Usman I. H.,(2015)Role of International Fund for Agricultural Development/

- Mary Samuel, Hussein Ahmed Abdullahi & Sani Isiyaku
Community Based Agricultural and Rural
Development Programme (IFAD/CBARDP) in
Improving the Livelihood of Rural Women: A
Case Study of Aliero Local Government Area,
Kebbi State, Nigeria. *Nigerian Journal of Basic
and Applied Science* 23(1); 23-30
- Jika, A. N., Dussert, Y., Raimond, C., Garine, E.,
Luxereau, A., Takvorian, N., ... & Robert, T.
(2017). Unexpected pattern of pearl millet genetic
diversity among ethno-linguistic groups in the
Lake Chad Basin. *Heredity*, 118(5); 491-502
- OECD, (2019), Ground Truth Solutions, Humanitarian
Perception, round 1 (2016-2017 and round two

(2017-2018) <http://www.oecd.org/dac/conflict-fragility-resilience/humanitarian-financing/humanitarian-surveys.htm>.
- Sadiq, M., Singh, I. P., Ahmad, M. M., Yunusa, J. B. &
Egba, S. M. (2019) Viability of Ifad/Vcd Rice
Project among Smallholder Farmers in Niger State
of Nigeria. *Current investigation in agricultural
and current research* 7(1);889-896
- Singh, P. K., & Chudasama, H. (2020). Evaluating
poverty alleviation strategies in a developing
countries. *Journal PLoS ONE* 15(1);0227176
- Suliman, G. B., Elzain, E. E., Attika, M., Mohammed, E.
M., Abdalla Y., & Maruod, E. M., (2009). The
Agricultural Impact of IFAD Intervention in Crop
Production in Semi-Arid Zone in Um Rowaba and
Bara localities of North Kordofan State, Sudan.
IJRDO- Journal of Agriculture and Research.
4(6);34-41.
- Tasie, C. M. (2013). Effects of International Fund for
Agricultural Development (Ifad) Credit Supply On
Rural Farmers in Rivers State, Nigeria. *Academic
Journals* 5(5); 186-191.
- Usman, A., R., & Dabai, U., I. (2020). Boko Haram
insurgency, Repercussions on Educational
Institutions in Adamawa State. *International
Journal of Research and Innovation in Social
Science (IJRISS)* 4(8);557-562