

Assessment of the Factors Motivating Women Participation in Irrigation Farming Along Lugu Dam Site in Wurno Local Government Area

¹Muhammad A. & ²Abubakar S. I.

¹Department of Geography
School of Secondary Education Art and Social Sciences
Shehu Shagari College of Education Sokoto
E – MAIL: ashatjabo@gmail.com
G.S.M.: 08166702983

²Department of Geography
Faculty of Education Art and Social Sciences
Shehu Shagari University of Education Sokoto
E – MAIL: abbakarsuraj@gmail.com
G.S.M: 08037857986

DOI: 10.56201/ijaes.vol.11.no2.2025.pg101.109

Abstract

The paper assesses the indulging women participation in Agricultural activities in Wurno irrigation scheme in Sokoto state. Mixed methods were employed in generating data for this study. Both primary and secondary source of data were used. sampling frame for the study covers all registered women actively participating in the scheme activities. Yamane's formula of sample size was used in arriving at 96 participants for the administration of questionnaire. Leaders were interviewed for the key informant interview (KII) and was presented verbatim for the analysis of the result. The data generated were processed using SPSS and excel software to generate primary descriptive statistics. The work revealed that rice constitute the major crop cultivated by women in Lugu dam irrigation scheme. The motivational factors as shown by the correlation are availability of land, non-participation in western education, peer influenced, increased in crop yield and migration of men and husband particularly during dry season are found to be as the push factors indulging women participation. The regression coefficient, of skills available by women and Climate Change are significant factors that motivated women into irrigation farming ($p = .000$ and $p = .032$) respectively. the work recommends that more land should be allocated to women directly not through the third party. Provision of adequate capital, water provision and modern farm tools equipment to enhance women farming in irrigation scheme.

Keywords: *Irrigation Farming, Women Participation, Motivating Factors, Wurno Irrigation scheme*

Introduction

Irrigation farming is one of the most important rural development investments that can have both direct and indirect impacts on poverty and food security. It involves a conscious effort to augment soil water supply during a period of deficit or in areas of deficit. Irrigation projects are therefore designed to help reduce the dependence of crops growth on precipitation, which to a large extent is uncontrollable by man. Adoption of irrigation has ensured improved harvest and encouraged crop diversification. In fact, it has put smiles on the faces of many people in semi-arid and arid regions.

Women play a vital role in advancing agricultural development and food security. They participate in many aspects of rural life in paid employment, trade and marketing, as well as in many unpaid activities, such as tending of crops and animals, collecting water and wood for fuel, and caring for family members (Akpan, (2015). Women also manage household consumption and food preparation. All these notwithstanding, women face many constraints in the multiple activities they pursue; such as less access to land, credit, extension services, and ability to hire labour. Too often, these constraints, as well as women's current and potential contributions to agricultural production, go unrecognized (FAO, 2011).

Increasing opportunities for women can therefore have a powerful impact on productivity and agriculture-led growth as they are just as efficient agricultural producers as men and can achieve similar yields when given equal access to resources, including training and services. However available literature indicates that the practice of irrigation agriculture has been dominated by the male gender. Although women play an important role in rural development, most development policies, have failed to actively involve them because of existing socio-cultural setting and lack of access to financial resources (Akpan, 2015). FAO (2011) explains that agricultural project planners and implementers fail to take into account the complexities of the existing farming system and concentrate on men to the exclusion of women and this has resulted to loss of valuable female expertise. Similarly, he further narrated that in most agricultural projects, women usually do not take part in irrigation agriculture for several reasons: it is capital intensive, the problem of land tenure, access to pumps, use of heavy machineries, and the problem of procurement of improved seeds and chemicals.

In addition, women have also taken on extra household responsibilities in addition to the provision of water, food, fuel, child care etc., which makes them participate in irrigation agriculture so as to complement the sources of income, coupled with the high rate of population growth and poverty level which have made livelihood difficult. Therefore, this research aimed at finding out the common factors indulging women to participate in irrigation scheme activities in Wurno Dam site.

Methodology

The sampling frame for this study consists of all registered women who are participating actively in irrigation farming. A preliminary survey conducted for this study revealed there is a total of 125 women participating in irrigation farming in the six villages. The Yamane's (1967) formula for sampling was applied to determine the actual sample size.

Three methods were used to collect primary data. There was key informant interview (KII), with some irrigation farmers Secondly, a structured interview using an open-ended questionnaire was carried out with 95 randomly selected respondents; The data generated from

the interview were processed using SPSS and Excel Software, to generate primary descriptive statistics (frequencies, tables and charts). On the other hand, the information gathered from the Key Informant (KII) was presented verbatim to back up the result from the interview.

Results And Discussion

Socio-Demographic Characteristics of the Respondents

The socio-demographic characteristics of women participating in Wurno Irrigation Scheme are contained in Table 1.

Table 1: Socio-Demographic Characteristics of the Respondents

Variable	Frequency	Percent
(a) Age of Respondent		
Between 21years and 30years	4	4.2
Between 31years and 40years	63	65.6
Between 41years and 50years	29	30.2
Total	96	100.0
(b) Marital Status of Respondent		
Married	32	33.3
Divorced	23	24.0
Separated/Widower	41	42.7
Total	96	100.0
(c) Educational Level Attained by the Respondent		
Non-formal education	21	21.9
Primary education	18	18.8
Secondary education	8	8.3
Quranic education	49	50.0
Total	96	100.0
(d) Farming Experience of Respondent		
Less than 10 Years	1	1.0
11-20 years	2	2.1
21 years to 30 Years	51	53.1
31 years to 40 years	42	43.8
Total	96	100.0
(e) Number of Farm Workers employed by Respondent		
1-2 workers	41	42.7
3-4 workers	55	57.3
Total	96	100.0

Source: Field Work, 2024

Table 1a shows that approximately 65.6% of the respondents are between the age 31 and 40. This shows that women participating in Wurno irrigation farming are within the active population that can contribute meaningfully in food production. This age categories in the study also conform to the finding of Tahsikalma *et al.*, (2014) which found that farmers in Adamawa State are in the active age 31-50. This is in line with the work of Ibrahim et'al (2023) which revealed that women between the age of 36 -45 years of age are more involved in irrigation scheme activities along Bakalori irrigation scheme of Zamfara state.

Table 1d shows that more than half of the respondents (53.1%) have farming experience of between 21 to 30 years. This indicates that many of the farmers have some knowledge of irrigation farming. This finding is in tandem with Effiong et'al (2015) which investigate the participation of women farmers in rice production in Bende Local Government Area of Abia State and found that most of the respondents are young and energetic and majority of them are married. Small-scale farmers with much experience in rice production

Factors that Motivated Women into Irrigation Farming

Data analyzed using multiple-linear regression is shown in Table 2, The Anova is in Table 3 and the coefficient of regression is in Table 4.

Table 2: Regression Model Summary on Factors Motivating Women into Irrigation Farming

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.645 ^a	.416	.306	.363	.874

Source: Authors Field Work, 2024

- a. Predictors: (Constant), Rural to urban migration by some men is what motivated women to engage in irrigation, as such culture is a motivating factor to irrigation, etc
- b. Dependent Variable: participation in Irrigation

The model summary shows that 'R' value is .645, which indicates a high degree of correlation. The R² value, indicates how much of the total variation in the dependent variable (women motivation) can be explained by the independent variables such as the income supplement, alternative income, land accessibility etc.). From Table 4.3.1 the R² value is 0.416, which means only 41.6% of the dependent variables can be explained by the independent's variable as a motivational factor, while the remaining 59.4% is being explained by other factors different from the ones highlighted in Table 4.3.1. It is very important to note that the R² value is below the average, as highlighted in Table 4.3.1, which means the independent variables are not contributing much in motivating the women into the irrigation farming.

Table 3: ANOVA Result on the influence of Women’s Socio-demographic Characteristics on their participation in the Wurno Irrigation Farming

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.483	15	.499	3.795	.000 ^b
	Residual	10.517	80	.131		
	Total	18.000	95			

a. Dependent Variable: participation in Irrigation

b. Predictors: (Constant), Rural to urban migration by some men is what motive

Source: Field Work, 2024

The result of ANOVA as shown in Table 4.3.2 shows how well the regression equation fits the data (i.e. predicts the dependents variable). It could be observed from the table that the regression model predicts the dependent variable to be significantly well $F = (15.95) = 3.795$, $p = .000$. This shows the statistical significance of the regression model that was computed ($p = .000$), which is less than 0.05. and thus, indicates that, overall, the regression model significantly predicts the outcome variable i.e. it is a good fit data.

The coefficient results in Table 4.3.3 proved the necessary information to predict how women were motivated into the irrigation farming from all the factors highlighted. In addition, it determines whether those factors contribute significantly to the model by looking at the (“sig” column). Likewise, “B” values in the column under the unstandardized coefficient column, as contained in Table 4.3.3 shows that the coefficient tells us how motivated women are due to any percentage increase in those factors highlighted in the Table 4.3.3.

Table 4: Coefficient of Regression Result on Factors that motivated Women into Wurno Irrigation Farming

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error			
(Constant)	3.213	1.324		2.427	.017
8 is Income supplement	-.073	.056	-.123	-1.295	.199
9 Source of alternative income	-.071	.052	-.146	-1.364	.176
10 Irrigation Land is always accessible	.065	.173	.065	.377	.707
11 Accessibility to capital	-.103	.173	-.115	-.596	.553
12 Culture as motivating factor	.072	.096	.083	.747	.457
13 Influence by friends	.080	.092	.193	.876	.384
14 Self recognition	.021	.067	.037	.306	.760
15 Profitability	.046	.102	.059	.450	.654

16 Availability of Technical skill	-.372	.096	-.530	-3.882	.000
17 Improves standard of living	.021	.069	.028	.299	.766
18 Expected Increase in yield	.068	.075	.091	.905	.368
19 Equipment acquisition	-.053	.142	-.060	-.373	.710
20 Climate change	-.328	.150	-.378	-2.188	.032
21 Death husbands due to (HIV/AIDs)	-.079	.066	-.131	-1.193	.236
22 Men Rural to urban migration	.070	.064	.114	1.108	.271

a. Dependent Variable: Women participation in Irrigation?

Source: Field Work, 2024

It could be observed from Table 4. out of all the factors contained in the regression coefficient, only the technical skills available women and Climate Change, that are significant factors that motivated women into irrigation farming ($p= .000$ and $p= .032$) respectively. All other factors such as income supplement, availability of alternative income, culture, friends, self-recognition of irrigation as an occupation, profitability etc did not significantly motivate women into irrigation farming.

From the foregoing, the expectation might be, that factors such as income supplement, availability to alternative income, accessibility to capital etc. will show positive correlation to women participation. Meaning they will motivate women to participate more in the irrigation farming. This is contrary to the findings conducted by Adebisi and Monisola (2012) in Nigeria which identified food security, income supplement and accessibility to land as the best predictors of women involvement in agriculture in Nigeria. However, it is possible that these factors may not motivate them as some women have been given income, land equipment and other things to serve as motivation into farming but were diverted to other businesses. Some even ended up selling some of the farming equipment. The outcome of this finding is in line with the information discussed by one of the women leaders who said:

“it was not the income supplement, accessibility to capital technical skills and any financial grant that attracted us into this irrigation scheme, rather, we engage in farming because we see it as a good activity, that can make our life better”. Hajiya Gado, women leader in Lugutown, 16 Dec, 2024 (KII)

This finding is in consonance with the finding of Effiong *et al* (2015) which examined the participation of women farmers in rice production in Bende Local Government Area in Abia State who found that household size, access to credit; output, total cost and membership of cooperatives were the significant variables influencing the participation of women farmers in rice production.

Summary of Findings

In summary, the findings of the socio-demographic characteristics revealed that most of the female farmers in WIS are in their active age 31 to 40 which makes irrigation activities very encouraging (WIS). The finding revealed that rice constitutes the major crop cultivated by majority of women irrigation farmers in the Wurno Irrigation Scheme compared to other crops cultivated.

In terms of the motivational factors, only seven (7) out of fifteen (15) factors show positive correlation with women participation in WIS. These factors include: availability of land which is a factor that pulls the women into irrigation farming in the WIS, because if the land is readily available, more women will be encouraged to farm compared to if they have to rent plots of land at high prices given the fact that most of the women do not have adequate capital to rent a land.

Secondly, culture which affects their level of literacy, as most women in the area are not formally well educated due to fact that culturally most are not allowed to go school as a result of inherent norms of the culture. Hence, It is the responsibility of their husbands to provide them with their needs. The society believes that women must not go to school to sustain their living condition. As a result, they are left with no option, rather than to engage in one trade or the other; hence many hardly choose to engage in irrigation farming.

Thirdly, most female farmers in the WIS have been influenced by their friends, who have encouraged them to participate in agriculture seeing the level of benefits derived from it. Some of the women have assets to show and usually attend to their domestic needs without recourse to their husbands.

The fourth factor which is self-recognition also shows a positive correlation in the regression model which means that some of the women have gone into irrigation farming to the extent of employing others to work for them. This has enabled them to have access to some of the incentives provided by the government and are involved in different sensitization programs.

Furthermore, increase in crop yield on the scheme compared to upland farms is another factor that shows a positive correlation. This has attracted more women to participate in the WIS.

Fifthly, as a result of migration to urban areas, women husbands have been forced to sustain their families. Rural to urban migration of their husbands has therefore played a significant role on women left behind with no money or food to sustain the family. Women have been forced to go out and look for employment to feed their children. Participation in irrigation farming has been a survival strategy.

Despite these attractions that the WIS has had on women who have engaged in the scheme, they are still faced with a number of challenges. These include the non-recognition of their union, inadequate land, high cost of farm input, poor market price, and limited access to technical know-how, good quality seeds and incessant flooding at the beginning of the rainy season. This coincide with the findings of Ibrahim et'al (2023) which indicates that less market price, marginalization, religious believe and poor subsidy on agriculture are the detrimental factors for the development of women participation in irrigation scheme activities along Bakalori dam.

Conclusion

Pearson Chi- Square test revealed significant statistical associations between educational level, farming experience, place women grew up and rank among husband's wives ($p = < 0.05$).

The significant factors that motivated women into irrigation farming are the technical skills made available and Climate Change which reduces the yield of upland crop production. Despite the interest in irrigation farming women in the WIS they still face many challenges such as (i) performing the same task as performed by their male counterpart (ii) non-recognition of women union (iii) inadequate land (iv) high cost of farm input (v) poor market price (vi) limited technical know-how (vii) and flooding at the beginning of rainy season among others. These have hindered their capacity to produce more than what they now produce.

Recommendations

Based on the findings, the research recommends that:

- i. More lands should be made available and accessible to women not through the third party but directly at a subsidize rate by the government in order to enable them increase their production level.
- ii. Since accessibility to capital is one of the challenges of women farmers in the irrigation scheme, government should intensify efforts to make provision for adequate capital inform of credit facilities to women to boost their take off capital for farming.
- iii. Government and other stakeholders like UNICEF, World Bank, IFAD etc. should come to the aid of women by providing subsidized good water lifting equipment for the women such as water pumping machines, rubber pipe, generators among others.
- iv. Women farmers should be trained and retrained by the Wurno Irrigation Scheme Management, to create awareness on how to use new seed varieties and farming technologies such as the pumps, generators, tractors, and ploughs.
- v. The stakeholders in the Wurno Irrigation Scheme, such the management, state, LGAs and traditional institutions should try as much as possible to bridge the gender gap between the men and women in farming by creating special sessions of sensitization for women farmers, that would encourage them by giving them some incentive like free seeds and easy access to government subsidized fertilizers. This will go a long way in increasing food production and boosting their standard of living.

References

- Akpan, N. S (2015) Women and Rural Development in Nigeria: Some Critical Issues for Policy Consideration. *Journal of Social Science*, 4 (5): 110-118.
- Effiong, J. B., Ijiola, J. C and Okola, L. C (2015) Participation of Women Farmers in Rice Production in Bende Local Government Area, Abia State. *International Journal of Agricultural Extension and Rural Development UK*, 2(2): 1-9.
- FAO (2011) The Role of Women in Agricultur. Retrieved 15 September, 2019 from [ww.fao.org/economic/esa](http://www.fao.org/economic/esa).
- Ibrahim S.A. Naibi R.S. & Modi, H.Y. (2023) A Survey of Women Involvement in Agriculture Along bakalori Irrigation scheme. Book Publication in Honour of Prof. M.A. Iliya Festschrift. Titled: Contempoeary Issues in Agriculture, Rural Development and Population Dynamics in Nigeria UDUS, 2023
- Mirtorabi, D. J.; and Shirish B., (2012). *Gender analysis and reform of irrigation management: Concepts, cases and gaps in knowledge*. Proceedings of the Workshop on Gender and Water, September 1997. Colombo, Sri Lanka: International Water Management Institute.
- Olakojo, S. A (2017) Gender Gap in Agricultural Production in Nigeria: A Commodity Level Analysis. *Economics of Agriculture*, EP 64 (2): 415-435.
- Tashikalma, A. K, Sani, R. M and Giroh, D. Y. (2014) *Comparative Profitability Analysis of selected Rain-fed and Irrigated Food Crops in Adamawa State*, Nigeria, 20: 77-87.
- Yamane, T. (1967) *Statistics an Introductory Analysis*, 2nd Ed. New York:Harper and Row.