

# Constraints to Effective Participation of Women in Irrigation in Bakolori Irrigation Project, Zamfara, Nigeria

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## Abstract

Agriculture is the main livelihood of majority of rural people in Nigeria. It provides food, employment and essential raw materials for the people hence an activity that is studied by many. The aim of this study is to examine the constraints to effective participation of women in irrigation activities in Bakolori Scheme with a view to offer recommendations that will improve access to resources by women so as to tackle cyclic food shortages in Nigeria. This study was conducted in Talata Mafara, Bakura and Maradun; the three local government areas covered by the Project. The scheme has twenty existing intake areas out of which 6 were purposively selected for this study. Random sampling technique was used to select one hundred and forty five women farmers from the population of four hundred and ten women farmers as of the time of this study. Structured questionnaire was used to elicit information on demographic characteristics of the respondents, types of crops grown by women in the area as well as income obtained from harvests while focus group discussions were conducted in Yarkofoji, Gora and Ware Dantse villages to consider the major constraints to women participation in irrigation activities in the area. Result of this study found that limited access to land (45 respondents), limited access to credit (26 respondents), limited access to agricultural inputs (23 respondents), limited access to education (17 respondents), lack of storage facilities (20 respondents) and culture (14 respondents) are the major constraints to women participation in the study area. This study recommended that women farmers should have access to loans and credit facilities because they are essential inputs for sustainable agricultural activities. This can be achieved through the formulation of low interest micro credit schemes for the women.

## Keywords

Women, Irrigation, Bakolori Irrigation Project, Nigeria

## 1. Introduction

Agriculture can be an important engine of growth and poverty reduction (FAO, 2011a). In many countries agriculture provides the livelihood for 80% to 90% of the population (ActionAid, 2008). This is provided for by the women who make up the majority of smallholder farmers in most developing countries (Saito, 1994). Despite their great role in agriculture and food production in Africa, women face

major obstacles that prevent them from increasing their productivity and living standards (ActionAid, 2011). FAO (2011b) reported that agricultural sector is underperforming in many countries in part because women, who are often a crucial resource in agriculture and the rural economy, face constraints that reduce their productivity. Although the proportion of women farmers is growing, they face a wide range of gendered constraints which affects their productive potential as agricultural workers (Agarwal, 2011). In India, although there are no comprehensive data for ownership

holdings, the Agricultural Census 1995-96 shows that women held only 9.5 per cent of all operational (i.e. cultivated) land holdings (Government of India, 1996). In rural China, women constitute an estimated 70 per cent of those without access to their own land under the family land use allotment system (Li, 2003). In most of South Asia, except Sri Lanka, for instance, few women own land (Agarwal, 1994).

An estimated 54 million of Nigeria's 78 million women are based in rural areas and make a living from the land (Federal Government of Nigeria, 2006). However, women in Nigeria still form an underclass and lack equality of opportunity, both in the contributions they make to development and the benefits they receive from it (British Council Nigeria, 2012). The Federal Government reported that only 7.2% of women own the land they farm, which limits their access to credit and constrains entrepreneurship and business activity (FGN, 2006). Women's right of access to land in rural areas are still regarded as secondary to those of men and many customs suggest that women's access to land is still mediated via patrilineal systems (Aluko and Amidu, 2006). Among other constraints is the culture. Accordingly, Edozie (2007) noted that the geographical division between the North (mainly Muslim) and the South (predominantly but not exclusively Christian) in Nigeria is an important dimension of the struggle for gender equality. This religious dimension has become more prominent since 1999, when political liberalisation allowed a greater degree of freedom of worship (Nolte *et al.*, 2010).

There is increasing realisation of the critical role of women in agriculture and food production and of the fact that the empowerment of women is necessary for bringing about sustainable development at a faster pace (Agnes, 2001). Thus several studies have shown that addressing gender imbalances holds the potential to decrease poverty and food insecurity in Africa, while delivering environmental services and mitigating climate change (FAO, 2014). A few studies even show that if women had access to the same inputs and extension services they would have higher outputs than male farmers (Agarwal and Pradeep, 2007). In Kenya, Dey (1992) finds that maize yields were almost 7 per cent more on female-managed farms than on male-managed ones, when they had the same access to extension. This study therefore examines the constraints to effective participation of women in irrigation activities in Bakolori Scheme with a view to offer recommendations that will improve access to resources by women and to tackle with the current food shortages in Nigeria. This study is imperative because despite the increase in production of food in Nigeria, majority of the people in the country, most especially the rural Nigerians, are still not food-secure (Okuneye, 2001). The vulnerable groups mostly women and children continue to suffer from malnutrition, a consequence of food insecurity especially in the rural areas in Nigeria (Alli, 2005).

## 2. Study Area

Bakolori is the name of a rural community in former Sokoto State in northwestern Nigeria. The Bakolori irrigation project is located in present Zamfara state particularly in Talata Mafara, Maradun, and Bakura Local Governments. The project covers 23,000 hectares of land. Bakolori Irrigation Project was commissioned in 1975 (Mohammed, 2000). The dam has 450 million cubic meters water storage capacity. The reservoir covers 8,000 hectares and extends some 119 km upstream from the dam. By 1979 when the dam was completed, fifteen km supply canal carries water from the dam down streams of irrigation area where the water is distributed through several hundreds of kilometre secondary and tertiary canals (Yahaya, and Ango, 2000).

## 3. Methods

### 3.1. Reconnaissance Survey

Reconnaissance survey was conducted to develop familiarity with the study areas, obtain information of the selected intake areas, the type of crops women produced as well as socio-demographic composition of farmers in the area.

### 3.2. Procedure for Sampling

Sample for this study is drawn from three Local Government areas where the Bakolori Irrigation Project is situated. These are: Talata Mafara, Bakura and Maradun all in Zamfara State. The area consists of twenty (20) existing intake areas of the scheme: Intake C, EL-North, EL-South, E Right UPI, E Right UPII, E Down, F Right, F Left, G Right, G Rice A, G Rice B, L Rice 10, L Rice 20, M Rice A, M Rice B, N Rice Centre, N Rice D/Kaiaw, N Rice/Ganau, AL and AR.

### 3.3. Procedure for Sampling Study locations and Respondents

A total of six (6) take up areas were purposively selected for this study based on the highest number of women farmers among the 20 take up areas as of the time of survey for this study. Random sampling technique was used to select 145 respondents for the study (Table 1). They fall between 15 to 55 years (Table 2).

A total of fifteen respondents were sampled from three study locations for focus group discussion (FGD). One female farmer with highest number of years in irrigation is sampled from five age classes (Table 2) obtained in the study area.

*Table 1. Distribution of Study Respondents.*

S/N	Local Government	Villages	Intakes	Land Size (hectares)	Units	No. of Farmers	Male	Female	Female Respondents
1	Bakura	Rini	E Right UPII	350	18	1,400	1350	50	20
		Yarkofoji	G Rice A	680	54	3400	3300	100	40
2	Maradun	Gora	L Rice 20	230	21	1450	1425	25	15
		Katsira	L Rice 10	160	13	1000	975	25	15
3	Talata Mafara	Ware Damtse	E Down	958	27	3,800	3650	150	31
		Mafara	Intake C	550	25	2200	2140	60	24
Total				2,928	158	13,250	12840	410	145

Source: Fieldwork (2013)

### 3.4. Procedure for Data Collection and Analysis

Structured questionnaire was used to elicit information on demographic characteristics of the respondents, types of crops grown by women in the area as well as income obtained from harvests. Because the study concerns a marginal group, focus group discussions were conducted in Yarkofoji, Gora and Ware Damtse villages to consider the major constraints to women participation in irrigation activities in the area. This study is exploratory and tilted towards policy, thus it is analysed using simple percentage and presented in tables for discussion.

## 4. Results and Discussion

### 4.1. Demographic Characteristics of the Respondents

#### 4.1.1. Age

Age is a particular determinant of many endeavours in traditional African society. In most societies it controls the kind of activity one can do for a living hence it is particular in this study.

*Table 2. Age Range.*

S/N	Villages	18-25	26-33	34-41	42-49	≥50
1	Rini	0	2	5	10	3
2	Yarkofoji	3	6	8	21	2
3	Gora	0	2	4	8	1
4	Katsira	0	2	4	6	3
5	Ware Damtse	1	2	5	10	3
6	Mafara	3	5	7	11	6
Total		7	19	35	66	18
%		5	13	24	46	12

Source: Fieldwork (2013)

An analysis of age distribution of the women farmers in the study area shows concentration of 34-41 and 42-49 olds. This corroborates finding that in developing countries, women and girls of these age groups form the backbone of smallholder agriculture (World Economic Forum, 2013).

#### 4.1.2. Educational Status

Education is a panacea to social and economic development. There are concrete evidences suggesting the overwhelming unequal opportunity in education and their impacts in Nigeria. Several works on gender disparity in education in Nigeria shows that while much has been achieved in primary education, the gap persists and has even widened in secondary and tertiary education (Daudia, 2007).

*Table 3. Educational Status.*

S/N	Villages	Levels of Education				
		Qur'anic	Adult Literacy	Primary	Secondary	Tertiary
1	Rini	14	3	2	1	0
2	Yarkofoji	32	4	8	0	0
3	Gora	8	2	3	2	0
4	Katsira	13	2	0	0	0
5	Ware Damtse	20	1	0	0	0
6	Mafara	9	6	8	6	5
Total		96	18	21	9	5
%		66	12	14	6	2

Source: Fieldwork (2013)

Findings of this study show that majority of the farmers acquire qur'anic education while very few attain secondary and tertiary levels. This finding may not be far from the outcome of a study conducted by World Bank (2004) that only 3% of female complete secondary school in Northern zones of Nigeria. This distribution is not surprising because 42% of the respondents are 18-41 olds which according to

Agboola and Ofoegbu (2010) only 8.1% participate in higher education. Concerning qur'anic education, this study supported the finding of a study which shows that in Northern Nigeria, Islamic, Tsangaya or Qur'anic (ITQ) institutions complement public secular provision (British Council, 2012).

## 4.2. Types of Crops Grown by Women Farmers in the Study Area

The crops designed for the schemes vary but are according

to plan. Some changes have been observed in major crops planted in the area due to economy, marketability and diseases.

Table 4. Types of Crops Produced.

S/N	Villages	Rice	Wheat	Potatoes	Vegetables/Tomatoes	Cassava	Sugarcane	Maize	Millet/Guinea corn
1	Rini	12	0	2	1	1	1	2	1
2	Yarkofoji	15	4	6	2	0	0	7	6
3	Gora	8	0	2	2	1	0	0	2
4	Katsira	9	1	2	1	1	0	1	0
5	Ware Damtse	10	1	3	3	0	0	4	0
6	Mafara town	11	4	5	2	0	3	4	5
	Total	65	10	20	12	3	4	18	14
	%	48	6	13	8	2	3	12	8

Source: Fieldwork (2013)

A variety of crops and vegetables are grown by women farmers in the area in line with the design of the scheme. Forty eight and thirteen per cent of the respondents grow rice and potato respectively while only three and two percent grow cassava and sugarcane (Table 4). Analysis of zonal crop production pattern shows that wheat, tomato, rice, maize and onion are grown in the area as of 2003 and 2004 (FAO, 2004).

## 4.3. Constraints to Effective Participation of Women Farmers in Irrigation Activities in the Study Area

Table 5. Constraints to Effective Participation in Irrigation.

SN	Villages	Constraints					
		Limited Access to Land	Limited Access to Credit	Limited Access to Agricultural Inputs	Limited Access to Education	Lack of Storage Facilities	Culture
1	Rini	6	3	4	1	4	2
2	Yarkofoji	11	13	6	5	3	2
3	Gora	5	2	2	3	1	2
4	Katsira	6	3	3	1	1	1
5	Ware Damtse	8	2	3	2	4	2
6	Mafara	9	3	5	5	7	5
	Total	45	26	23	17	20	14
	%	31.03	17.93	15.86	11.72	13.79	9.65

Source: Fieldwork (2013)

This study shows access to land and credit facility as the major constraints to agricultural production in the study area. It shows that 31% could not participate fully in irrigation in the area due to limited access to land. Culture is a limitation to 9.6% of the respondents and this may be linked to modernisation (Table 5). These findings corroborate Peterman *et al.* (2010) who reported that in rural Nigeria where 80% depends on agriculture for livelihood, land ownership is one of the key limiting factors of production. Other studies supported by this finding are World Bank (2009) and FAO (2011b) who reported that well-documented gender inequalities and male bias in women farmers' access to technical information, credit, extension services, critical inputs such as fertilizers and water, and marketing exist in most developing countries. Data from the National Bureau of Statistics (2009) show that men are twice as likely to secure finance compared to women in Nigeria. In 2007, for example, some 20,098 men accessed loans compared to 8,550 women. About 64% of the N528,251 that was loaned went to male applicants. This finding corroborates Halkias *et al.* (2011) who reported that formal financial institutions,

especially banks, have not supported women entrepreneurs as much as they could have.

This study also found that women farmers in the area face social restrictions to agriculture. Perhaps not the most significant constraint in the study area, Tanwir and Sadfar (2013) reported that social and cultural norms determine the role that women and men play in society, community and within the household, and may limit women's participation in rural organizations. This adversely affects their performance in farming and restricts their ability to function fully as farmers (Agarwal, 1994; FAO, 2011b).

## 4.4. Gender Based Inequalities in Agriculture

Discussions with the three groups reveal that many women only get access to land through male partners or male relatives. Women are rarely allocated land of their own. Women farmers often get the poorest land, infertile, dry and far from water sources, or small pieces of land some distance apart. Most them do own simple farm tools like hoes or harrows but do not have access to expensive equipment such as ploughs and tractors. The respondents are denied micro

loans owing to lack of knowledge of the procedures and often because they do not possess collateral

## 5. Conclusion

The agriculture sector is under substantial stress from many factors including climate variability, crooked policies and gender based inequalities. Of the many factors, gender based difference is clearer in the study area when looking at the number of women that participates in irrigation. Despite increasing participation, the number of women farmers in the area is so mean owing to in access to land as well as social constraints.

The contribution of women to agriculture and food production is significant in the area. Even though quantifying contribution of the women is herculean, this paper collates some evidence on the roles they play in agriculture which could set the stage for empirical studies on the potential gains from reducing gender inequalities in access to land, agricultural inputs, and credit facilities. This study concludes that enhancing women's participation in agriculture increases the benefits obtained from the sector.

## Recommendations

- (1) Women farmers should be recognized as farmers for their efforts in providing essential food crops, meat and milk for the family and markets. Public policies and laws should be enacted to protect and promote women's land rights and prevent discrimination in all tenure systems.
- (2) Women farmers should have access to loans and credit as these are essential to acquire inputs, engage extension services and buy machineries through low interest micro credit schemes.

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