FUDMA Journal of Sciences (FJS)
ISSN online: 2616-1370
ISSN print: 2645 - 2944
Vol. 3 No. 1, March, 2019, pp 258 -265

ASSESSMENT OF WOMEN PARTICIPATION IN ENVIRONMENTAL PROTECTION FOR SUSTAINABLE POVERTY REDUCTION IN KURA LOCAL GOVERNMENT AREA, KANO STATE-NIGERIA

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ABSTRACT

This study assesses the role of women in environmental protection in Kura local government area of Kano State for sustainable poverty reduction. Both primary and secondary sources of data were used for this study Simple descriptive statistics and the Logistic model was employed in the analysis. The study concludes that women are actively participating in environmental protection and as well play significant role in welfare status of their family. Also the results shows that only the dwelling pattern, the nature of the drainage networks and the source of water are positive and statistically significant to the incidence of poverty among women in the study area, while the kitchen pattern, the bathroom pattern, and the source of fuel for cooking are negative. The results obtained shows that the lack of access to safe water appears more serious as they have to struggle daily to obtain water for their use. The study recommended that, there is need for the government and Non-governmental organization to engage more women in environmental protection because of their role of resource managers. There is the need to address the housing conditions of the women, most especially the dwelling pattern and the nature of dwelling. To improve the well-being of women in the study area adequate provision of infrastructure facilities most especially provision of agricultural products and special awareness by implementing of programmes that will educate women on special nutritional food that should be taken.

***Keywords*:** Women, Poverty, Environmental Protection and Sustainable development

INTRODUCTION

The nexus between environment and poverty is said to be both cause and effect on environmental degradation especially in low-income countries like Nigeria where the economic well-being of rural households directly depends on the quality of the environment and on the availability of natural resources. Today the Importance and critical role of the environment and natural resources in the development of different countries, especially in third world countries is undeniable (Elham, Seyed, Elahe & Hossein, 2014). This is because the environmental improvements will be achieved only when the natural environment and human culture are connected (Ajdari, 2003).

To achieve this target, Solomon, Vincent, Arin, Daloeng & Baminda, (2014) opined that women play a major role in addressing some key environmental problems through their roles as farmers and as collectors of water and firewood because of their close connection with local environment and often suffer most directly from environmental problems. To end some of these issues, development organizations and

governments have focus on the development of "*business cases*" for gender equality and women empowerment (Francis, Christel, Nah & Coleen, 2017). This is done by spelling out actions which would transform the lives of hundreds of millions of poor people and make the planet a better and safer place through environmental protection, economic well-being and special equity (Warhan 2001). This is the reason why in Nigeria, majority of women are in the agricultural and informal sectors of the economy where they constitute about 60 percent of farm labour and produce over 90 percent of the domestic food supply (Aina, 2001; Dankelman and Davidson, 1997).

Thus, a lot of studies on women and environment have shown that women are significant actors in natural resources management and major contributors to environment rehabilitation and conservation (Solomon, Vincent, Arin, Daloeng & Baminda, (2014). That is the reason for the global committee agreement on the need to improve their status and harness their full potential (Adeyemo, 1991). Hence, the Rio Declaration on Sustainable development signed by 178 countries at the United Nations (UN) Conference on Environment and Development in 1992 recognizes a number of key points which include eradication of poverty, environmental protection and the recognition of the vital role of women in environmental management and development. All these efforts by the UN were to examine how widespread the problem of environmental degradation is and how people are affected as well as how the environment can be sustained.

In fact, sustainable development requires the management and maintenance of different sorts of capita: (including physical infrastructure, buildings, machinery and equipment), natural capital (the environment and the natural resources), human capital (human skills and capacity) and social capital (strong social relationships and institutions) (DFID, 1997).

Poverty is said to be both cause and effect on environmental degradation. Akinbode (2002) stated that the link between poverty and environment is an extremely complex phenomenon. Inequality may foster un-sustainability because the poor rely on natural resources more than the rich, deplete natural resources faster as they have no real prospects of gaining access to other types of resources (Akinyele, 1994). Therefore acceleration in poverty alleviation is imperative to break this link between poverty and the environment.

It is against this background that, this study intends to assess the women participation in environmental protection for sustainable poverty reduction in Kura local government area of Kano state.

The Study Area

Kura local government area is located at the southern part of Kano state with a population of 144,601 people (NPC, 2006) and land mass of 206 km^2, located between latitude $11^o\ 46^I\ 12.84^{II}N$ and longitude $8^o\ 35^I\ 29.02^{II}E$. The area is characterized by rocks of the Basement Complex of pre-cambrian age (Olofin, 2014) except in the extreme North-east where cretaceous sediment overlap the crystalline rock. The wet season lasts from May to

mid-October with a peak in August while the dry season extends from mid-October of one calendar-year to mid-May of the next. The mean annual rainfall is between 800 mm and 900 mm; and variations about the mean annual values are up to ± 30%. The mean annual temperature is about 26^0C (Olofin, 2014). The main crops grown in this area are those of well-drained soil such as sorghum, millet, groundnut, etc. Mixed cropping is also practiced. Formally, most farmlands were usually cultivated on annual basis except near the water bodies and irrigation canals which are used for dry season agriculture. Today with the development of modern irrigation in the area most farmlands are used during both dry and rainy seasons, where tomatoes, onion, wheat, maize, millet, groundnut and rice are grown.

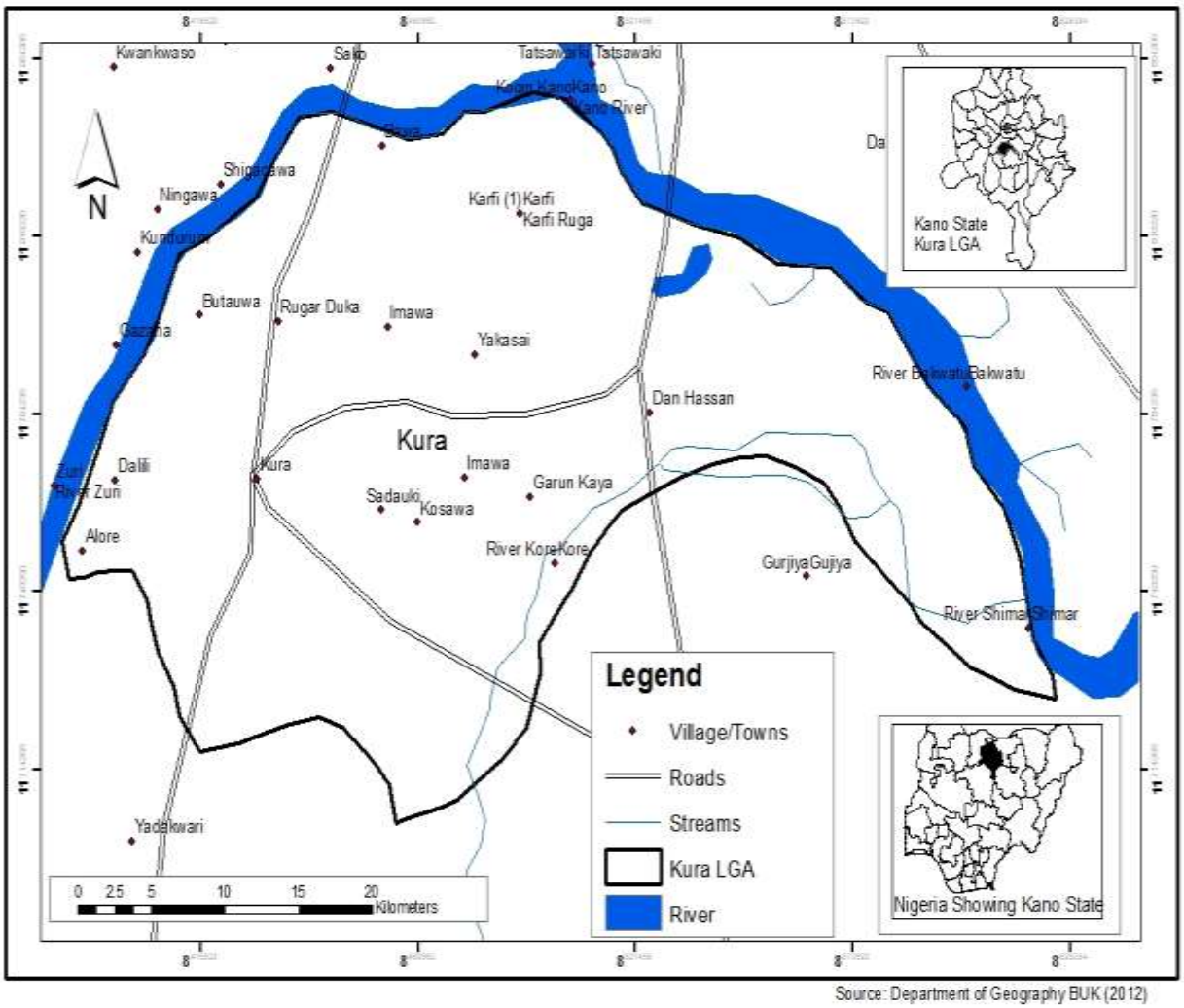

Fig. 1: Map of the study area

MATERIAL AND METHODS

Both primary and secondary sources of data were used for this study. The secondary data was obtained from the internet, periodicals and other relevant publications. Primary data was obtained through the administration of structured

questionnaire. The questionnaire was designed to gather information relating to socio-economic characteristics of women and to identify, their sources of income, role played in poverty reduction. The questionnaire was pre-tested and amended before the administration.

In order to estimate the impact of the role of women on environmental protection and poverty reduction in this study, a logistic regression model was conceptualized. The full model is expressed in equation 1, following McDonald and Moffit (1980). The model has been extensively used by social scientists to measure the effect of changes in the explanatory variables (x_i) on the probability of being poor and the depth or intensity of poverty.

Table 1: Signs and Description of the Explanatory Variables

S/No.	Variables	Description	Hypothesized signs
1.	The poverty status of each woman. (Povi)	1 if non-poor and 0 if poor	
2.	Dwelling pattern. (Dpi)		+
3.	Nature of dwelling. (Ndi)		–
4.	Condition of the kitchen facilities. (Kfi)		–
5.	Condition of the toilet facilities. (Tfi)		–
6.	Condition of the bathroom facilities. (Bfi)		+
7.	Condition of the sanitation facilities. (Sfi)		
8.	Availability of drainage network. (Dni)		
9.	Sources of water supply. (Swi)		
10.	Sources of fuel for cooking. (Sfci)		
11.	Household size. (Hhsi)		
12.	Occupational status of an individual woman. (Occi)	Dummy 1 for workers and 0 otherwise	
13.	Educational attainment (years spent) of an individual woman. (Eati)	In years	
14.	β_0	The intercept.	

15.	β_1 - β_{13}	Estimation parameters.	
16.	μ	Error term	

Sources: Researcher's analysis (2017).

In specifying the model, emphasis is placed on whether the role played by women has any impacted on environmental protection and poverty reduction or not in Kura LGA.

$$Povi = \beta_0 + \beta_1 Dpi + \beta_2 Ndi + \beta_3 Kfi + \beta_4 Tfi\ \beta_5 Bfi + \beta_6 Sfi + \beta_7 Dni + \beta_8 Swi + \beta_9 Sfci\ \beta_{10} Hhsi + \beta_{11} Occi + \beta_{12} Eati + U \text{----------} 1$$

Following Appleton's (2001) method of estimating the values of consumption-expenditure per adult equivalent that is based on the internationally defined poverty line of one dollar a day, the poverty status of each woman is defined as dummy 1 for non-poverty and dummy 0 for poor women, thus providing us with a logic estimate of the impact of women on environmental protection and the incidence of poverty among women in Kura LGA.

The aprior expectations or the expected pattern of behaviour of the independent variables (environmental degradation) on the dependent variable (the incidence of poverty) are:

$\beta_1 \rangle 0, \beta_2 \rangle 0, \beta_3 \rangle 0, \beta_4 \rangle 0, \beta_5 \rangle 0, \beta_6 \rangle 0, \beta_7 \rangle 0, \beta_8 \rangle 0, \beta_9 \rangle 0, \beta_{10} \rangle 0, \beta_{11} \langle 0, \beta_{12} \langle 0$

As indicated by apriori expectations, an increase in environmental degradation is expected to increase the incidence of poverty among women in Kura local government area and the changes in the characteristics of the households is also expected to have either a positive or negative effect on the incidence of poverty among the women.

RESULTS AND DISCUSSION

Women participation in environmental protection

From the regression analysis in table 2, it can be seen that women are actively participating in environmental protection and as well play significant role in welfare status of their family, as a result of their agricultural activities in the area that reduce their poverty level which requires employing econometrics analysis to understand it.

Table 2: Women participation in environmental protection

Variables	Coefficients	Standard error	P>|T|
Dpi	0.11	0.0489	1.83
Ndi	7.34	0.0224	1.69
Kfi	-2.24	0.0000	1.71
Tfi	9.50	0.0077	-0.33

Bfi	-0.12	0.3030	1.26
Sfi	0.22	0.0336	1.21
Dni	0.32	0.0404	2.65
Swi	0.17	0.0004	2.25
Sfci	-3.69	0.8465	-0.44
Hhsi	-3.27	0.0662	-2.09
Occi	4.86	0.000	0.75
Eati	8.47	0.1268	1.70
CONSTANT	10.90	0.0002	

$R^2 = 0.51$

Source: Survey data (2017).

Povi = 10.90 + 0.11Dpi, +7.34Ndi -2.24Kfi +9.50Tfi-0.12Bfi +0.22 Sfi +0.32Dni +0.17Swi -3.69Sfci -3.27 Hhsi + 4.86 Occi + 8.47Eati + U

Looking at the model it shows that it is fairly good because it has an R-square of 0.51. This shows that 51% variation in the dependent variable (incidence of poverty) is explained by the explanatory variables and the vectors of house hold characteristics of individual women, while the error term takes care of the remaining 49% that are variables in the study that cannot be included in the model because of their qualitative features. At 5% level of significance, the F-statistic shows that the model is useful in determining if any relationship exists between environmental degradation and the incidence of poverty among women in the study area, as the computed F-statistic which is 4.65 is greater than the tabulated F-statistic (12, 150 degree of freedom) valued at 1.83.

In term of the individual independent variables, the co-efficient and the associated t-values (at 5% level of significance) show that only the dwelling pattern, the nature of the drainage networks and the source of water are positive and statistically significant to the incidence of poverty among women in the study area, while the kitchen pattern, the bathroom pattern, and the source of fuel for cooking are negative and statistically significant.

That the results obtained shows that the dwelling pattern, the pattern of toilet facilities, the sanitation facilities, the nature of the drainage networks and the source of water conform to our a-priori expectation is an indication of the deplorable state of these facilities in the study areas, which can be linked to a number of factors, such as, lack of maintenance and repairs of existing facilities and the lack of funds. For instance, the lack of access to safe water (due to the deplorable state of public water supply) have had its toll on women's well-being since water shortage and difficulties accessing it appear more serious and widespread because the women have

to struggle daily to obtain water for their use. This study agreed with the findings of Solomon, Vincent, Arin, Daloeng & Baminda, (2014) that the problems faced by the women include lack of waste disposal equipment, poor drainage systems and lack of awareness among the general public.

CONCLUSION

The study conclude that women are actively participating in environmental protection and as well play significant role in welfare status of their family, as a result of their agricultural activities in the area that reduce their poverty level which requires employing econometrics analysis to understand it. This can be seen from the F-statistic value which is 4.65 is greater than the tabulated F-statistic (12, 150 degree of freedom) valued at 1.83.

Also in term of the individual independent variables, the co-efficient and the associated t-values (at 5% level of significance) show that only the dwelling pattern, the nature of the drainage networks and the source of water are positive and statistically significant to the incidence of poverty among women in the study area, while the kitchen pattern, the bathroom pattern, and the source of fuel for cooking are negative and statistically significant. That the results obtained shows that the lack of access to safe water (due to the deplorable state of public water supply) have had its toll on women's well-being since water shortage and difficulties accessing it appear more serious and widespread because the women have to struggle daily to obtain water for their use.

Thus, the results reveal that women participation in environmental protection would reduce poverty-induced environmental degradation.

Following the findings of the study, it is recommended that;

1. There is need for the government and Non-governmental organization to engage more women in environmental protection because of their role of resource managers. This can be done through public campaign, enlightenment and sensitization to rural women to realize their potential role in safe guiding the environment.

2. There is the need to address the housing conditions of the women, most especially the dwelling pattern and the nature of dwelling. Although, it would be an ambitious project to demolish and construct houses for women, but the government, non-governmental organizations and community-based organizations can embark on enlightenment campaigns by educating the women on the need to have good ventilated buildings, provide more cleaning facilities. This calls for the encouraging and empowering sanitary inspectorate unit of the ministry of health and the ministry of environment.

3. The government should provide adequate allocation to the sectors that provide infrastructural services (like portable

water and health care services) in order to meet the growing demand for these services by the women. Investment in these services should go hand-in-hand with cost-effective technologies for efficient management of the services.

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