

## **Resource Management and Conservation through Rural Participation in Agriculture, Kankara Local Government, Katsina State, Nigeria**

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**Abstract:** *Resource management and conservation is our natural capital as well as our life insurance. Therefore, we must manage and conserve the available resource within our natural environment for sustainable development. A rural participatory activity in Kankara local government area is one of the key measures taking by the local community in order to manage and conserve the available resource in the area through rural participation in agriculture. In due course the study has designed the following objectives: to describe the level of rural participation in agriculture, to describe the level of resource management and conservation as a result of rural participation, to determine the relationship between rural participation in agriculture and resource management and conservation. The study used simple random sampling techniques in selecting the potential respondents and descriptive statistics was employed as well as correlation analysis to describe the level and relationship between rural participation in agriculture and resource management and conservation. Findings shown that, there is high level of rural participation in resource management and conservation and the strength of relationship is ( $r = .346$ ,  $p = .000$ ), this shown that there is significant moderate relationship between rural participation and resource management and conservation. Finally study recommended that, development can be sustainable when participatory process is encouraged among the local people/community.*

**(Key words:** *Resource Management and Conservation, Rural Participation in Agriculture)*

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### **I. Introduction**

Agriculture and natural resource management are two crucial areas that need to be address for sustainable development. Rural participation in agriculture is a key to successful and sustainable development initiatives in any part of the world in managing and conserving the natural resource. Rural participation in Kankara local community is one of the giant participatory processes for rural empowerment through agricultural activities, more importantly in Fadama resource areas (Aminu, 2014). Previous research shown that, there is high achievement of empowerment level as a result of rural participation in Kankara local community. Meanwhile, the results indicated that there is moderate significant relationship between people participation in Fadama resource areas and people achievement of high empowerment level, ( $r=0.347$ ,  $p=.000$ ) (Aminu, et al. 2014). Moreover, international donors (NGOs) are in the support of rural participation and empowerment processes of rural areas of Katsina state and Nigeria in general (Taylor, 2006). Rural community face a pressing challenge to access the natural resources areas (example, Fadama resource areas), this is because the availability of such resource area is limited and the people who are seriously looking for it are numerous (Aminu, et al. 2014). As such government makes it a mandate to all the FUGs register with government for the purpose of screening the full beneficiary members in each Fadama User Groups, (FUGs). Under this policy several associations in the local community were registered and participating in sharing their ideas and voice out their opinions to government and international donors when the needs arise (FAO, IFAD, 2012).

Majority of the world's poorest people live in rural areas, and their livelihoods depend on farming, animals rearing, forestry, and artisanal fishing – all of which can be subsumed under the term “agricultural resource areas”. Supports from agriculture are must deserving and essential for poverty reduction and food security. Agriculture is one of the most recognized sector serves as an engine of pro-poor growth and national development (Bank, 2007). According to (OXFAM, 2009) opined that, agricultural resource get connected with economic growth and rural development, but its importance goes beyond incomes and poverty reduction. It also lower and stabilize food prices and food security to peoples. It's a well-known facts that, agriculture provide employment opportunity for the vast number of rural poor; increasing demand for consumer goods and services, and stimulating growth in the nonfarm economy” (OECD, 2006). Secure access to natural resources and their sustainable management is in turn, a key for development. Rural participatory process in agriculture is a key to sustainable resource management and conservation. Agricultural resource areas is based on the quality of land and the skills peoples has in utilizing the available resource systematically and sustainably for achieving the present objective and future generation.

Today, agricultural resource areas, if well harnessed and maintain can serve as a tools for mitigating the thread of global climate change(FADAMA, 2012).Climate change may accelerate when the agricultural resource areas are neglected and leave without proper maintenance (Killick, 1978). Today there is growing competition over agricultural resources areas (notably land and water) due to the rapid growth of the world population. The population pressure on land for housing, industries and other infrastructures create serious problems which affect the agricultural land areas in the world. Therefore, today to fight the rural poverty in the world, Government and NGOs needs participatory activities from the rural people. Rural participation in agricultural remain the main weapon of fighting poverty in Nigeria and the world at large (Akpan, 2012 ). As such Nigerian government and other donor agencies take agriculture with serious consideration for national development and rural empowerment.

World Bank (1987)defined rural development as, “...a strategy designed to improve the economic and social life of the specific group of people – the rural Poor.” Harris, (1982) further identified four major factors which affect the rural poor, these include the persistent increase and deepening of rural poverty, changing views on the meaning of the concept of development; self-reliance and emergence of more diversified rural economy in which rural nonfarm enterprises play an important role and increased recognition in the eye of rural poor. In which Kankara rural farmers are in gulf in all the four factors identified by (Harris, 1982 ). Meanwhile, the local community tried by organizing themselves to a self-helpassociation which can boast in their skills and experience in agricultural activities in the area (Ghai, 1988 ). Moreover, Katsina state tries by implementing some policies and strategies for improving the quality of farming (agriculture) generally within the state. Among the effort includes the policies designed by federal government such asOperation Feed the Nation Program (OFNP); National Food Reserve Agency (NFRA); the National Accelerated Food Production Programme (NAFPP); the Directorate of Foods, Roads and Rural Infrastructure (DFRRI); and the National Economic Empowerment and Development Strategy (NEEDS) (Blench, 2004). The intention isto make rural people participation in agriculture more lucrative and resource sustainable for today and future generation (Akpan, 2012).

Ghai (1988) view Fadama activities as a process of empowering the deprived and marginalized people (rural poor).Ghai,further stated that rural people may achieve maximally through Fadama activities and get power to control the Fadama resources areas and improve/develop economically, politically, socially and psychologically.

## II. Resource Management and Conservation

Rural participatory activities in Kankara local government, Katsina state, Nigeria was fully designed to monitor and conserve the available resource for sustainable development. The measures employed by government, non-governmental organization and rural farmers have a comprehensive plan and strategies to achieve the current issue of resource management and conservation for sustainable use. Some of the designed measures and activities include the following:

Farming activities	General impact	Best Practice	Conservation strategies
Pesticide Application	Surface water contamination	Applied only within the framework of an IPM; and only the recommended chemicals and dose internationally	IPM approaches needs to be adopted where chemicals is required in a prescribed amount recommended.
Chemical Fertilizer use	Surface water nutrients loading: loss of soil moisture (water holding capacity)	Follow the advice given by extension workers	Organic fertilizers and green manure along with incorporated legumes to reduce reliance on chemical inputs. Application as it was prescribed by expert in the field and the required timing.
Agro-Processing	Surface water contamination	Adhere to effluent disposal standards	Effluent restrictions based on water quality
Over cultivation	Loss of soil quality	An extension worker may advice appropriately.	Farm practice should be change to either rotational system or shifting cultivation
Over grazing	Loss of soil quality and vegetation cover	Require advice from the expert.	Intensive and semi-extensive system should be use.

Source: Fadama III-Manual of the Federal Republic of Nigeria, (2012)

### Problem Statement

The researcher observe that, as a results of agricultural activities in Kankara local community some areas of farm land are deteriorating which accelerate flooding, desertification, soil erosion and leaching. In line to this problem the researcher designed this study to be carried out in Kankara local Government area.

### Research questions

As a result of that, the study was designed to answer the following questions:

- At what level rural participation in agriculture can help/assist in resource management and conservation.
- What are the relationship between rural participation in agriculture and resource management and conservation in Kankara local community?

### Research objectives

The study designed the following objective to achieve:

- To describe the level of rural participation in agricultural activities.
- To describe the level of resource management and conservation as a results of rural participation.
- To determine the relationship between rural participation in agriculture and resource management and conservation

## III. Methodology

The sample size of 200 respondents was randomly selected by using simple random sampling techniques. The study was approach quantitatively by using the structured questionnaire in the process of data collection. The researcher used descriptive and correlation statistics in data analysis.

## IV. Findings and discussions

### Levels of rural participation in agriculture

The levels of rural participation by respondents were examined through the nature of their involvement in agricultural activities such as, fishing, pastoralist (animals rearing) and land cultivation. The table 1, below showed that:

**Table 1: Levels of Rural Participation in Agriculture (n=200)**

Section	N	%	Mean	SD
<b>Poultry Farming</b>			22.40	5.70
Low(12-24)	34	17		
Moderate(24.1-36)	40	20		
High(36.1-48)	126	63		
<b>Pastoralist</b>			18.32	3.80
Low(6-12)	29	14.5		
Moderate(12.1-18)	36	18		
High(18.1-24)	135	67.5		
<b>Land cultivation</b>			22.40	4.24
Low(8-16)	27	13.5		
Moderate(16.1-24)	43	21.5		
High(24.1-32)	130	65		
<b>Total Participation</b>			21.96	2.89
Low(26-52)	17	8.5		
Moderate(52.1-78)	40	20		
High(78.1-104)	143	71.5		

**Source:** Field work, 2014.

Table 1, above summarized the levels of rural participation in agriculture among the respondents. The results shown that, majority of the respondents were able to achieved high level of participation in poultry farming, pastoralist and land cultivation in the local community. This shown that land resource utilization is high among the rural community. The analysis also shown that, the rural participation in agriculture under poultry farming has 34(17%) which indicated the low participation among the respondents and 40(20%) shows the moderate level of participation among the respondents. Meanwhile, 126 (63%) indicate the high participation level in poultry farming among the respondents in Kankara local community. Based on this analysis, result shown that there was high participation in poultry farming from the respondents, considering the (mean=22.40 and SD=5.70).

The next agricultural activities rural people are participating is pastoralist (animals rearing). The results analysis shown that 29(14.5%) emerged as low participation among the respondents and 36(18%) shows the moderate level of participation among the respondents. Meanwhile, 135 (67.5%) indicate the high participation level in pastoralist farming among the respondents of the local community. Therefore, based on this result it shown that there was high participation in pastoralist farming by the respondents, considering the (mean=18.32 and SD=3.80).

Meanwhile, the next is land cultivation which is the most popularly practice among the rural agriculturalist in the local community. In this domain, results from the analysis shown that 27(13.5%) %

indicated the low participation among the respondents and 43(21.5%) shows the moderate level of participation among the respondents. Meanwhile, 130 (65%) indicate the high level of participation in land cultivation among the respondents in the local community. Based on this analysis, the result shown that there was high participation in land cultivation by the respondents, considering the (mean=22.40 and SD=5.70).

The above three domains of rural participation in agricultural activities were sum-up to get the total participation of the rural community in this sector. Example table 1, above shown that, the overall total respondents who achieved the high level of participation was aggregated to 143(71.5%). But the respondents who fall under the moderate category were 40(20%) and at the lower level result indicated 17(8.5%). Result findings shown that, rural participation in agriculture is generally high and people are participating actively. This was achieved because of the intention of the rural community of having high empowerment level, that's make them participate high and actively.

**Level of Rural Participation in Resources Management and Conservation**

The level at which rural people are managing and controlling the land resource areas are at the appreciable point. The rural people learnt how to apply manure, fertilizer, pesticide application, and they learnt to engage themselves in crop rotation and drainage construction. Table 2, below shows the analysis and results as follows:

**Table 2 levels of rural participation in resources management and conservation (n=200)**

Variable	N	%	Mean	SD
<b>Poultry Farming</b>			26.82	4.23
Low(7-14)	14	7		
Moderate(14.1-21)	26	13		
High(21.1-28)	160	80		
<b>Pastoralists</b>			23.06	4.89
Low(17-34)	8	4		
Moderate(34.1-51)	22	11		
High(51.1-68)	170	85		
<b>Land Cultivation</b>			32.98	4.16
Low(7-14)	23	11.5		
Moderate(14.1-21)	33	16.5		
High(21.1-28)	144	72		
<b>Total management and conservation</b>			22.17	7.76
Low(31-62)	18	9		
Moderate(62.1-93)	22	11		
High(93.1-124)	160	80		

**Source:** Field work, 2014.

Table 2, above shows the results analysis of rural participation in resource management and conservation from the poultry farmers 14(7%) indicated the low participation of the rural farmers in resource management and conservation. 26(13%) of the respondents indicate the moderate participation of the rural poultry farmers in resource management and conservation. Meanwhile, 160(80%) indicated the high level of rural participation in resource management and conservation by the poultry farmers. Considering the mean score of (26.82, and SD=4.23).

Under the pastoralists group 8(4%) represent the low level of participation in resource management and conservation. Then, 22(11%) emerged as moderate level of rural participation in resource management and conservation shown by the pastoralists farmers. Moreover, 170(85%) represented the respondent who participate high in resource management and conservation under the domain of pastoralists farmers. Considering the mean score of (23.06, and SD=4.89).

The land cultivators groups also shown a significant interest in resource management and conservation, whereby 23(11.5%) indicated the low level of rural participation in resource management and conservation. Meanwhile, the scores of 33(16.5%) emerged as moderate participation in resource management and conservation. And scores of 144(72%) indicated as high level of participation in resource management and conservation. Considering the mean score of (32.98 and SD= 4.16).

The above analysis of the three domains was finally summed up to get the total management and conservation practice recorded by the respondents in rural participation in agriculture in Kankara local government, Katsina state, Nigeria. The scores of 18(9%) was emerged as low level of rural participation in resource management and conservation. The scores of 22(11%) emerged as the moderate level of rural participation in resource management and conservation. Then, the scores of 160(80%) emerged as high level of rural participation in resource management and conservation contributed to agricultural sector in Kankara local community. considering the mean score=22.17, and SD=7.76. Base on the result finding, the research shows

that the percentage contribution by rural participation in agriculture in resource management and conservation was generally among the farmers of Kankara local Community, Katsina State-Nigeria.

**Hypothesis shown:** *there is no significant relationship between rural participation in agriculture and resource management and conservation*

The Pearson correlation analysis was done to examine the relationship between rural participation in agriculture and resource management and conservation. Results shows that there is significant positive moderate relationship between rural participation in agriculture and resource management and conservation ( $r = .346, p = .000$ ). Therefore, the null hypothesis was rejected.

In a similar research by (Osirim, 2001) on the NGOs and empowerment for women in the contemporary Zimbabwe, she found out that local participation of women in the projects activities introduce by NGOs it improve significantly the standard of living of the people which consequently multiply the rate of empowerment among the women in the country. This means of participation has made it so strong and strengthening the level of social capital among the *Fadama* members toward empowerment. NGOs play a very vital role in Kankara local community in the field of empowerment through people participation. Another research finding by Osirim (2001) supported the strong relationship that exists between community participation, social capital and empowerment. Furthermore, studies shows that community based organization (like the work of *Fadama* members' participation) can stand as the basic tools or component in building the strong social capital among the community members' (Gittel and Thompson, 2001).

## V. Conclusion and Recommendation

Conclusively the author of this study from the empirical evidence shown that, there is significant/high level achievement as a result of rural participation in agriculture towards resource management and conservation in Kankara local government area, Katsina state, Nigeria. Moreover, results of the findings shown that there is significant relationship between rural participation in agriculture and resource management and conservation in Kankara local community.

### Recommendations

- Finally the author of this study recommended that, application of participatory activities is the best process for successful achievement of environmental sustainability, resource management and conservation in any community.
- Rural participation if efficiently manage can assist tremendously in converting the rate of environmental deterioration and climate change.
- When agricultural activities can be manage through participatory process, it can help the policy makers and implementers to work out their set up objective easily, because they are dealing with a formal and organize association for easy contact and control.
- Local people can achieve maximally when they operate a kind of participatory activities because it might improve the rate of sharing ideas, knowledge and experience as such it may lead to the improvement of social capital and human capital among the participating members.

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