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ASSESSMENT OF CONSERVATION CONFLICTS IN KWARI-KWASA FOREST RESERVE AND ITS ENVIRONS KEBBI STATE, NIGERIA

[1]Jeminiwa, O. R. *; [2]Jeminiwa, M. S; [1]Olatidoye, O. R; [2]Dauda, M. and [1]Adesokan, F. B.*

[1]*Forestry Research Institute of Nigeria (FRIN), Ibadan, Oyo State, Nigeria.*
[2]*Southern Guinea Savanna Research Station, (FRIN), Mokwa, Niger State.*
***Corresponding author**: *jeminiwaoluremi@gmail.com*; +234 810 652 1101

ABSTRACT

Conservation conflicts in Kwari-Kasa forest reserve and its environment were investigated. Structured questionnaires were used for data collection using simple random sampling technique. Data were analyzed using descriptive and inferential statistics. The results showed that the major occupation of the people is farming (55.6%), followed by fuelwood gathering (22.2%) and Civil servant (0.9%) are the least vocation of the people. Three districts were identified in the study area. Farming (16.7%) was the highest causes of conservation conflicts in Dalijan district. While illiteracy was the main causes of conflicts in Gwandu and Kambaza districts with 14.3% and 17.9% respectively. Desertification (40.0%) was the major impacts of conservation conflicts in the study area, followed by climate change (22.2%) and the least was low rainfall (4.4%). Agroforestry practices (22.1%) were recorded as main strategy suggested, followed by forest education (20.0%) and the least strategy documented was good forest management (6.7%). The stepwise multiple regression analysis of the causes with other variables showed that illiteracy had the highest coefficient of determination R^2 with 0.83, followed by farming with R^2 (0.78), while briquetting of charcoal had the least R^2 (0.40). However, sustainable livelihood empowerment programs were recommended to boost the living standard of the people in the area and to reduce their overdependence on the forest resources.

Keywords: Conservation conflict, Respondent, Farming, livelihood, Illiteracy

INTRODUCTION

Conflicts occurred when the traditional inhabitants around natural resources are deprived access to the resources by force of control or promulgation of law restricting people from using such resources (Jeminiwa, 2012). In addition, conflicts can be ascribed to circumstances where people intentionally or ignorantly destroy biodiversity especially when there are inherent livelihood benefits on the life of the people (Young *et al*, 2005). Nigeria's forest reserves are presently in the state of continual change at varying gradient and magnitude by conflict factors such as expanding agricultural practices, overgrazing, constructional activities and fuelwood extraction among others. The conservation of biodiversity has become a difficult task in the phase of ever increasing population and demands of human races (Young *et al.*, 2005). Nevertheless, lack of total acceptance of conservation objectives among the people is limiting to the progress and success of biodiversity conservation around the world. The people literarily have varying degree of interests and priorities, some of which are naturally detrimental to the conservation and management of natural resources. These variations of interests resulted in the devastation and conflicts which form the major challenges to modern conservation around the globe (Young *et al.*, 2016). Forests constituted one of the main renewable natural resources of mankind. They are vital in the maintenance of environmental stability, provision of raw materials for wood-based industries and provision of food, rural

livelihood and employment for millions of people especially in and around the forested areas in the world.

Conflicts are common phenomenon in forest management and there are practically noticeable in every country. Conservation conflicts are on the rise and need to be evaluated and managed to reduce the impacts on biodiversity, human livelihood and well-being. Conflict management involves the identification of collective problems with individual goals and exercise transparency in resolution by creating awareness about the need to alleviate or eradicate the causes of conflicts. Conflicts are features of human society which manifest in different forms (Herlel, *et al.,* 2008). Thus, conflicts in conservation can be referred to as clash of opinion situations between parties on conservation objectives when one party is perceived to assent its interest at the expense of another. Conservation conflicts occur when the status of parties representing conservation interest are threatened by the stance of those with conflicting views, such as agriculture (Rauscmayer and Wittmer, 2008), fisheries (Yasmi and Schanz, 2010) and forestry (Conover, 2001). In Nigeria, there has been a geometric increase in the incidence of conflict between natural resources conservation and human demands (Jeminiwa *et al.,* 2018). Kwari-Kwasa forest reserve for instance has been a repository of biodiversity rendering ecosystem services to the adjoining communities and the state at large. And this has led to the increase in conflicts between forest ecosystem conservation and the rural communities in the area. The gap phase between biodiversity conservation and conflicts in Nigeria's forests has not received adequate thoughtful discussion, analysis and attention over time. Hence, empirical information on conservation conflicts remains sparse especially in Nigeria environment. Thus, this study investigates the conservation conflicts in Kwari-Kwasa forest reserve and its environs with the aim to document the causes, effects and possible conflict management measures to mitigate the impacts of conflicts in the study area.

MATERIALS AND METHODS

Study Area

The study was conducted in Kwari-Kwasa Forest Reserve, situated in Gwandu local government area of Kebbi State. It is located between Latitude $11^0 48^{'}N$ - $11^0 55^{'}N$ and Longitude $4^0 24^{'}E$- $4^0 32$ E and estimated to cover the land area of 10,723 ha (Fig 1). The annual rainfall varies between 500mm – 750 mm with wet and dry seasons and over 60% of the rainfall occurs between July and August (CERAD, 2009). The potential evapotranspiration exceeds 1400mm per annum and mean annual temperature between 35^0C and 40^0C in rainy and dry seasons. While average relative humidity ranges from 51-79% during the rainy season and 10-25% in dry season (SERC, 2010).The area is sudan savanna vegetation characterised by relatively short trees with some species above 10m in height and shrubs with grasses of about 1.5-2m. The topsoil is sandy clay loam with wide spread salinization resulting in the concentration of mineral salts almost at the surface (Kowal and Kassam, 1978).

Method of data collection and analysis

Simple random sampling techniques were used to select respondents among the communities within and around the forest reserve. The sampling intensity used for this study was in line with the recommendation of Diaw *et al*. (2002), which stated that at least 10, 5 or 2.5 percent sampling intensity could be used to randomly select the number of respondents in population less than 500, between 500 and 1000 and over 1000 respectively. The methods used to retrieve information from the study area were structured questionnaires, in-depth interview and field observation which enhanced the collection of desired information for the study.

Sampling techniques

There are three districts in the environment of Kwari-Kwasa forest reserve. Three villages were randomly selected from each district which made it the sum of nine villages sampled around the forest reserve. The settlements sampled in each district were as follows Dalijan district: Amore, Dalijan and Warari villages; Gwandu district: Magama, Rumbuki and Tufara villages; Kambaza district: Bada, Takari and Kambaza villages respectively. Structured questionnaires were administered using simple random sampling technique. Four hundred and fifty structured questionnaires were administered in the proportion of 150 questionnaires per district and 50 each in the three villages sampled in each of the districts in the area. The village heads and some of the household heads and farmers were also interviewed to retrieved possible detailed information about the study area. Field observation or reconnaissance survey of the forest reserve was also carried out to observe and attest to the level of conflicts in the forest reserve.

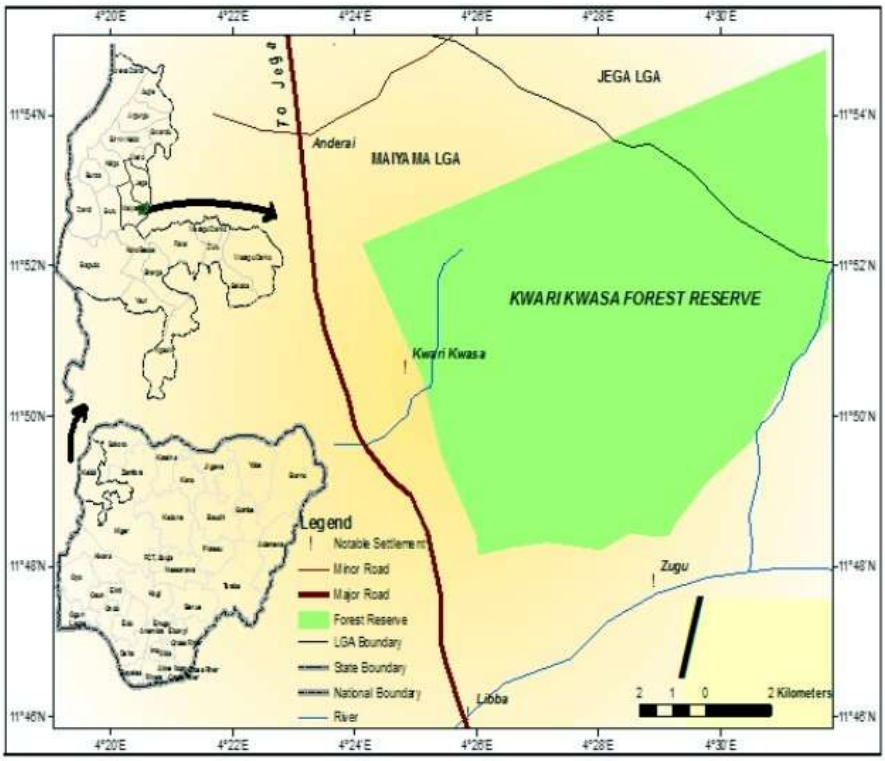

Figure 1: Map of Kwari-Kwasa forest reserve inset Kebbi State and Nigeria

Data Analysis

The data collected were analyzed with descriptive and inferential statistics using the statistical software known as Statistical 12. The descriptive statistics used were frequency and percentages, while multiple regression analysis was also employed to determine the relationship between the variables of conflicts in the study area.

Multiple Regression Analysis

Multiple regression analysis method was employed to determine the contribution of the causes of conflict to conservation conflict in Kwari-Kwasa forest reserve (Jeminiwa *et al*, 2018). For this study, the dependent variable Y is the qualification and family size of the respondents, while the independent variables are the causes of conservation conflict (1 - 6). Thus, it was expressed statistically as follows:

$$\boldsymbol{Y = a + b_1X_1 + b_2X_2 \ldots\ldots\ldots b_nX_n + e}$$

Where

Y = Qualification and Family size

a = Intercept

b_1, b_n = parameter estimates

e = standard error

X_1 = Illiteracy

X_2 = Fuelwood extraction

X_3 = Animal grazing

X_4 = Population increase
X_5 = Farming
X_6 = Briquetting of charcoal

RESULTS

Demographic characteristic of the respondents in Kwari-Kwasa forest reserve and its Environs

The sum of 450 structured questionnaires was retrieved from the respondents in the study area. The analysis of the demographic characteristics of the respondents in the study area revealed that 31-40 age class had the highest number of respondents (35.6%), followed by 21-30 (31.1%). While, the age group with the least respondents was 10-20 (6.7%). The marital status result of the respondents showed that 55.6% were single, 35.6% were married and divorced (8.9%). About 80.0% of the respondents had no formal education, while, 13.3% had primary education and the least (0.9%) had tertiary education. This signalled the high illiteracy level of the respondents and this may have occasioned the high family sizes and the unabated conservation conflicts in the study area. The family size analysis revealed that, the highest number of the respondents had the family size between11-20 (53.3%), followed by 1-10 (28.9%) and the least 31-40 (6.7%). The results also showed that farming was the main occupation in the study area with 55.6%, and this was followed by fuelwood gathering (22.2%). However, civil servant had the least (0.9%) number of respondents in the study area (Table 1).

Table 1: Demographic characteristics of the respondents in the study area

Variables	Frequency (n = 450)	Percentage (%)
Age Classes		
10-20	30	6.7
21-30	140	31.1
31-40	160	35.6
41-50	70	15.6
≥51	50	11.1
Marital Status		
Single	250	55.6
Married	160	35.6
Divorced	40	8.9
Qualification		
No formal	360	80.0
Primary	60	13.3
Secondary	26	5.8
Tertiary	4	0.9
Family Size		
1-10	130	28.9
11-20	240	53.3
21-30	50	11.1
31-40	30	6.7
Occupation		
Farming	250	55.6
Fuelwood gathering	100	22.2
Charcoal producer	90	20.0
Civil servant	4	0.9
Hunting	6	1.3

Conservation Policies around Kwari-Kwasa forest reserve and its environs

The results on conservation policies revealed that most people in the study area were usually not involved in decision making with government, while some fraction of the population were seldomly involved in decision making in the area (Table 2). In Dalijan, Dalijan village (6.0%) had the highest number of people that are normally involved decision making and 5.1% were usually not part of policies making. Thirty-one respondents (6.9%) which were the highest from Rumbuki village in Gwandu district agreed to be part of decision making and 4.2% were not involved. While, in Kambaza district, the highest (7.1%) respondents from Kambaza village claimed to be part of policy making while, (4.0%) respondents insinuated that they were always neglected in decision making on natural resources conservation in the study area. This revealed that only 42.4% of the people were privileged to participate in conservation policies while, 57.6% of the population were not involved in the management and conservation affairs in the study area.

Table 2: People's Involvement in Decision Making in Kwari-Kwasa forest reserve and its environs

Districts	Villages	Involved	%	Not Involved	%
Dalijan	Amore	20	4.4	30	6.7
	Dalijan	27	6.0	23	5.1
	Warari	18	4.0	32	7.1
Gwandu	Magama	16	3.6	34	7.6
	Rumbuki	31	6.9	19	4.2
	Tufara	17	3.8	33	7.3
Kambaza	Bada	12	2.7	38	8.4
	Takari	18	4.0	32	7.1
	Kambaza	32	7.1	18	4.0

Causes of Conservation Conflicts in Kwari-Kwasa forest reserve and its environs

The results revealed that conservation conflicts have become a phenomenon and threat to biodiversity conservation in the study area. The main causes of conflict between government, natural resources and the people in the study area were illiteracy, fuelwood extraction, animal-grazing, population increase, farming and briquetting of charcoal (Table 3). In Dalijan districts, Warari village had the highest respondents on the causes of conflicts in the study area, Population increase had the highest (30%), followed by Briquetting of charcoal (20.0%), Farming (16.7%), Fuelwood extraction (14.3%), Illiteracy (12.9%) and the least from Animal grazing (8.9%). Similar pattern of the causes of conflict were observed in Gwandu district. Rumbuki village had the highest indices of conflicts with (23.3%) Briquetting of charcoal, fuelwood extraction (17.1%) and animal-grazing had the least number of respondents (6.7%). Illiteracy has also been the major causes of conflict in Kambaza district and the highest occurred in Kambaza village (17.9%) which is the prominent village in the district. This was followed by population increase (15.0%) and the least cause of conflict in the village was fuelwood extraction (5.7%) respectively. However, illiteracy (32.2%), farming (27.6%) and overgrazing (20.7%) were the major drivers of conflict in the study area. While fuelwood extraction (8.1%), briquetting of charcoal (6.9%) and the least which was population increase (4.6%) were all conflict contributors in the forest reserve.

Table 3: Causes of Conservation Conflicts in Kwari-Kwasa forest reserve and its environs

Districts	Villages	Illiteracy		Fuelwood extraction		Animal Grazing		Population increase		Farming		Briquetting of charcoal	
			%		%		%		%		%		%
Dalijan	Amore	6	4.3	4	11.4	7	7.8	2	10.0	8	6.7	0	0.0
	Dalijan	8	5.7	2	5.7	10	11.1	0	0.0	12	10.0	5	16.7
	Warari	18	12.9	5	14.3	8	8.9	6	30,0	20	16.7	6	20.0
Gwandu	Magama	14	10.0	6	17.1	12	13.3	4	20.0	12	10.0	3	10.0
	Rumbuki	20	14.3	6	17.1	6	6.7	3	15.0	17	14.2	7	23.3
	Tufara	15	10.7	0	0.0	15	16.7	2	10.0	20	16.7	4	13.3
Kambaza	Bada	19	13.6	4	11.4	11	12.2	0	0.0	6	5.0	2	6.7
	Takari	15	10.7	6	17.1	8	8.9	0	0.0	10	8.3	0	0.0
	Kambaza	25	17.9	2	5.7	13	14.4	3	15.0	15	12.5	3	10.0

Patterns and evidences of conflicts in Kwari-Kwasa forest reserve and its environs

The patterns and evidences of conflict results as observed in the study area were indicated in Table 4. The analysis revealed that conflict has become a phenomenon in the area as large number of respondents has experienced varying forms of conflict in their environment. In Dalijan district, Warari village had the highest number of respondents (9.8%) that attested the presence of conflict in their area and the least respondents (1.3%) who did not noticed conflict around them. Rumbuki village in Gwandu district had the highest respondents (8.4%) that confirmed conflicts in their place and 2.7% respondents decried conflicts in their zones. Kambaza districts also had similar experience as Kambaza village had 9.3% respondents been the highest that attested to conflicts and the least of 1.8% respondents that were novice of conflicts in the village. Nevertheless, about 76% of respondents in the environment confirmed the existence of conflicts while, 24% were ignorant of conflicts in the communities in the study area.

Table 4: Patterns and Evidence of Conflict in Kwari-Kwasa forest reserve and its environs

Districts	Villages	Conflict	%	No Conflict	%
Dalijan	Amore	35	7.8	15	3.3
	Dalijan	40	8.9	10	2.2
	Warari	44	9.8	6	1.3
Gwandu	Magama	32	7.1	18	4.0
	Rumbuki	38	8.4	12	2.7
	Tufara	36	8.0	14	3.1
Kambaza	Bada	41	9.1	9	2.0
	Takari	34	7.6	16	3.6
	Kambaza	42	9.3	8	1.8

Impacts of Conservation Conflicts in Kwari-Kwasa forest reserve and its environs

Conservation conflicts in the forest reserve and its environment has attracted attention from the stakeholders as the detrimental impacts have grievous effects on the livelihood of the people in the area. The effects of conflicts documented in the study area (Table 5) indicated that desertification had the highest (40.0%). This was followed by climate change effects with 22.2%, soil compaction and erosion (20%), loss of biodiversity (7.8%), loss of wildlife habitat (5.6%) while, low rainfall (4.4%) had the least effects in the study area.

Table 5: Impacts of Conservation conflict in Kwari-Kwasa forest reserve and its environs

Effects	Frequency	Percentage (%)
Climate change	100	22.2
Desertification	180	40.0
Soil compaction and Erosion	90	20.0
Loss of wildlife habitat	25	5.6
Loss of biodiversity	35	7.8
Low rainfall	20	4.4

Management strategies for Conservation conflicts in Kwari-Kwasa forest reserve and its environs

Several mitigation measures were documented in the study area (Table 6). Rural livelihood programs (35.6%) were the highest management strategy suggested for conflict resolution in the study area. This was followed by agroforestry practices (22.2%), forest education (20.0%) and peoples' involvement in policy implementation (15.6%) while, good forest management (6.7%) was the least measure suggested to manage conservation conflicts in the study area.

Table 6: Strategies for reducing Conservation Conflicts in Kwari-Kwasa forest reserve and its environs

Management strategies	Frequency	Percentage (%)
Rural livelihood programs	160	35.6
Agroforestry practices	100	22.2
Peoples' involvement in policy implementation	70	15.6
Forest education	90	20.0
Good forest management	30	6.7

Stepwise Multiple Regression Results for the causes of conservation conflicts in Kwari-Kwasa forest reserve and its environs

The stepwise multiple regression statistical analysis was employed to measure the contribution of each causes to the conflict in the study area (Table 7). The results indicated strong positive relationship between some of the variables. Illiteracy (X_6) had the highest regression coefficients (R^2) of 0.83. This was followed by farming (X_5) with R^2 (0.78), overgrazing (X_3) with R^2 (0.72), fuelwood extraction (X_2) with R^2 (0.54). While population increase (X_4) had R^2 (0.46) and briquetting of charcoal (X_1) had the least coefficient of determination (R^2) of 0.40 respectively. The positive parameter estimates observed were illiteracy, farming, overgrazing and fuelwood extraction which informed their high contribution to the dependent variables. While, briquetting of charcoal and population increase were the negative parameter estimates recorded in the study. This implies the low contribution of these factors to conservation conflict in the study area.

Table 7: Stepwise Multiple Regression Analysis for the Conservation conflicts in Kwari-Kwasa Forest Reserve and its environs

Factors of Conservation conflicts	Parameter Estimate	Standard error	R	R^2	% Change	% Cumulative
Briquetting of Charcoal	–2.02	0.32	0.64	0.40	–	40
Fuelwood extraction	2.03	1.16	0.66	0.54	– 6	54
Overgrazing	1.56	1.18	0.84	0.72	– 4	72
Population Increase	–2.21	0.36	0.55	0.46	– 6	46
Farming	3.06	1.26	0.87	0.78	10	78
Illiteracy	3.53	1.05	0.94	0.83	20	83

DISCUSSION

Conservation conflict in protected areas have become a great concern in the management and conservation of forest and games reserves in Nigeria, because, understanding the types and patterns of conflicts in protected ecosystems provide information to the government and management on conflict resolution strategies to enhance sustainable use and prevent further forest degradation and biodiversity loss (Odunlami and Osumenya, 2020). Hence, regular assessment of conservation conflict in protected areas is instrumental to the management, sustainability and conservation of such areas (Rauscmayer and Wittmer, 2008). However, only a few studies have stressed the significance of conflicts on the conservation and management of protected areas in Nigeria (Jeminiwa 2012; Andrew-Essien 2014; Jeminiwa *et al*. 2018; Odulami and Osumenya 2020). The inadequate information on conservation conflicts in protected ecosystems have made the study on Kwari-Kasa timely and vital in providing empirical information on the effects and management of conflicts in the forest reserve and its environment. The magnitudes of conflicts in protected areas according to Andrew-Essien (2014) as well as Habtamu et al. (2017) depend largely on the level of education, occupation and the involvement of people in conservation policies for the management of the ecosystems.

The educational characteristics of the respondents in the study area revealed that 80% of the populace had no formal education and this conformed to the observation of Omamurhomu, (2002), that the northern part of Nigeria are the most educationally disadvantaged zone, since most people in this area attached less value to education. This suggests the high level of dependence on the natural resources of the forests, since the majority of the people did not understand the significant of these resources to their environment. Likewise, Holmes (2016) asserted that the type of occupation of the people around a protected area determines the gravity of conflict with natural resources. The analysis of the occupation distribution of the people showed that farming (55.6%) was the main occupation in the study area. This conformed to the findings of Olawepo (2010) that the livelihoods of most rural population in Nigeria were often sustained through farming practices. This result is also consistent with the report of Jeminiwa *et al.* (2018) on conservation challenges in Kainji Lake National Park with the adjoining communities. This implies that farming as the main occupation was a significant source of conflict in the study area. Likewise, according to Odunlami and Osumenya (2020), who observed that lack of involvement of people around protected areas in conservation policies culminated in conservation conflicts which aggravate degradation and biodiversity loss. The study showed that most of the people in the study area (57.6%) were not involved in conservation policies of the reserve and this is a pointer to the high incidence of conservation conflicts in the study area. This result was in line with the observations of Redpath *et al*. (2015) that non-involvement of the rural populace around the protected areas in policy

making and implementation aggravated conservation conflicts in the tropical forests as evident between the local communities and conservation authorities in Colombia. Pourcq *et al.* (2017) and Jeminiwa *et al.* (2018) stressed the need for conservation authorities and the government to involve the rural populace around protected areas in policy making and implementation as this will foster the realization of conservation objectives. This implies that the participation of the adjoining communities in the management of the reserves will reduce conflicts in those areas. Yasmi and Schanz (2010) as well as Zachary *et al*. (2018) noted that human conflicts with natural resources are common phenomena around the protected areas and they are caused by some inherent factors as a result of people's dependence on these ecosystems.

The results obtained from the study area revealed that conflicts have become a threat to biodiversity conservation in the study area. This agreed to the report by Habtamu *et al*. (2017) that conflicts in protected areas have become a regular occurrence due to lack or inadequate management measures. In the same vein, it was identified that illiteracy (32.2%), farming (27.6%) and overgrazing (20.7%) were the major causes of conflicts in the study area. This is consistent with Olawepo (2010) and Habtamu *et al.* (2017), who reported these factors as the main drivers of conflicts in the protected areas in Nigeria and Ethiopia respectively. The reports conformed to the assertions of Pourcq *et al.* (2017) that anthropogenic activities in the forest reserves result to conservation conflicts which often culminates in biodiversity loss. Nevertheless, these artificial causes provide information on evidence of conflicts in the forest as witnessed during the field survey in the study area. The pattern and evidence analysis showed that majority of the people (76%) attested to the incidence of conflict in the study area. This is in line with the report of Andrew-Essien (2014) that conservation conflict is on the increase in most protected areas in Nigeria. Digun-Aweto and Merwe (2020) corroborated the report with the evidences of conservation conflicts in adjacent communities to Nigerian Cross River National park where conflicts have become a challenge in the management of the park. Consequently, the incidences of conflicts in the protected areas in Nigeria have their attendant impacts on the rural population and the environment.

Impacts of conservation conflict in Kwari-Kasa forest reserve and its environment

Conservation conflicts in this forest reserve and its environment has attracted attention from the stakeholders as the detrimental impacts have grievous effects on the livelihood of the people in the area. The effects of conflicts documented in the study area indicated that desertification (40.0%) was the main impact of conflicts in the area and this may be ascribed to the reckless exploitation and deforestation of the forest reserve and its environment. Desertification is one of the major drivers of landcover change, since it depletes the vegetation cover especially the woody species which play a critical role in carbon cycle that enhances the reduction of the atmospheric concentration of greenhouse gases (GHG). Houghton, (2005) reported that over two billion tons of carbon (CO_2) were emitted into the atmosphere per year as a result of the deforestation of tropical forests. This agreed with the observations of Holmes (2016) who opined that desertification and deforestation have colossal effects on global atmosphere with grievous impacts on human lives and properties as well as climate change. This conformed to the report of Fisher (2016) who asserted that desertification is one of the critical effects of conservation conflicts in tropical forest ecosystems with detrimental effects of climate change. In the same vein, the reduction of rainfall in some climatic zone has been linked to low vegetation cover traceable to forest conflicts and other anthropogenic factors. This was corroborated by the findings of Birkett and stevens-wood (2005), who observed that desertification is one of the

drivers of global warming with consequential impacts of vegetation cover loss and climate change. However, Young *et al.* (2005) opined that conflict impacts can be mitigated if good management measures can be applied to control the incidence of conservation conflicts in protected areas.

Management strategies for Conservation conflicts in Kwari-Kasa forest reserve and its environment

Several mitigation measures were documented in the study area. Rural livelihood programs (35.6%) were the main strategy suggested by the respondents in the study area. This conformed to Pourcq *et al*. (2017), who opined that rural livelihood programs enhanced biodiversity conservation as it reduce the overdependence of the people on the forests, thereby mitigate the momentum of conservation conflicts locally and at regional levels. Agroforestry practices (22.1%) were equally suggested as a strategy to manage conservation conflicts in the area. This will promote the replacement of loss stand and increase the vegetation cover, thus promoting forest conservation and conflict management. This supported to the report of FAO (2010) that agroforestry form the link between agricultural practices and forest conservation and it establish a balance between biodiversity conservation and conflicts in tropical forests. Forest education (20.0%) was also identified as strategy to reduce conservation conflicts in the forest reserve. This agreed to the findings of Redpath *et al*. (2015) that forest education played a significant role in biodiversity conservation and conflict management because it enhances the knowledge of the people about the natural resources, hence, reducing conservation conflicts. Adequate education and knowledge about the importance of the forests and the roles in enhancing healthy life will reduce conservation conflicts in the study area.

CONCLUSION

Conservation conflicts are some of the most debilitating challenges of conservation which has being on the increase around the world. Conservation conflict in Kwari-Kwasa has been an issue of great concern due to the detrimental effects on the biodiversity of the forests and the environment over time. This study indicated that, the people in the study area were less involved in decision making and policy implementation. Some of the causes of conflict identified were illiteracy, farming, animal-grazing, fuelwood extraction and population increase. It was also evident that most respondents were aware of conflict, while others claimed ignorance of the problem in the area. However, the high level of desertification was an indication that conflicts have become phenomenon in the study area. Nevertheless, it was recommended that government should employ rural livelihood programs to enhance the standard of living of the people in order to reduce the overdependence on the natural resources of the forests for their existence.

RECOMMENDATIONS

Based on the results of this study, i hereby suggest the following recommendations:

i. Silvicultural interventions are needed to reverse the trend of degradation as a result of conservation conflict in the forest reserve.
ii. Forest education programs like campaign, group talks and community meetings enlightenment programs are needed to sensitise the people on the importance of the natural resources in the area.
iii. The rural population should be involved in the management and policy implementation in the forest reserve.
iv. Rural livelihood programs should be organised for the adjoining communities to reduce their overdependence on the forest reserve.

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