

An Empirical Study of the Effects of Personal Factors on Environmental Attitudes of Local Communities around Nigeria's Protected Areas

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Abstract: *The unabating degradation of Nigeria's biodiversity necessitated the evaluation of the effects of personal factors on environmental attitudes of local communities around protected areas. This study aimed at identifying environmental attitudes of local communities around Nigeria's protected areas and the effects of personal factors on their attitudes. Data were obtained from 1170 villagers randomly selected among the local communities in Chad Basin, Cross River, Gashaka-Gumti, Kainji Lake, Kamuku, Okomu and Old Oyo National Parks and evaluated with Dunlap and van Liere (1978) NEP Scale. The methods for data collection were focus group discussions and individual interviews through questionnaire administration. Analysis was through descriptive statistics, Pearson's Correlations, and Chi Square analysis. The local communities had negative attitudes towards three items of the Scale while they had positive attitudes towards nine. Household size ($r = 0.11$, $P < 0.01$), sex ($\chi^2 = 57.77$, $P < 0.01$), marital status ($\chi^2 = 31.02$, $P < 0.01$), education ($\chi^2 = 12.64$, $P < 0.01$), occupation ($\chi^2 = 49.24$, $P < 0.01$), religion ($\chi^2 = 16.76$, $P < 0.01$), nationality ($\chi^2 = 83.38$, $P < 0.01$), ethnic group ($\chi^2 = 24.15$, $P < 0.01$) were significantly related to environmental attitudes. These factors exert considerable impact on the attitude of the local communities and may be the key determinants of their behavior towards the protected areas.*

Keywords: *Environmental attitudes, local communities, NEP Scale, personal factors, protected areas, Nigeria.*

1. Introduction

The earth system is an integral component of human enterprise (Leiserowitz *et al.* 2004). This ever-changing system provides a multitude of valuable services to humankind, including a livable climate, provision of clear air and water, and the production of food and fiber (Leiserowitz *et al.* 2004). While the earth system has always changed, the pace of environmental change has dramatically accelerated in the last half century (Turner II *et al.* 1990), mostly due to the increasing scale of human activity. Flows of materials and energy that are removed from their natural settings or synthesized now rival the flows of such materials within nature itself. Overall estimates of the human modification, management, or appropriation of nature range up to one-half of the terrestrial ecosystems (Vitousek *et al.* 1997), and one-quarter of the freshwater supply (Postel *et al.* 1996). This modification has resulted from the attitude and perception of the human inhabitants of the earth.

Environmental attitudes are related to environmental problems. Environmental attitudes have been defined as “the collection of beliefs, affect, and behavioral intentions a person holds regarding environmentally related activities or issues” (Schultz *et al.* 2004). As this definition of environmental attitudes indicates, two types of environmental attitudes have been used in previous literature: “(1) attitudes toward the environment, and (2) attitudes toward ecological behavior” (Kaiser *et al.* 1999). Research on attitudes toward ecological behavior was derived from the framework of reasoned action theory (Ajzen and Fishbein 1980) and its developed version, the theory of planned behavior (Ajzen 1991). Only a minority of research on this topic is related to attitudes toward ecological behavior (Kaiser *et al.* 1999). On the other hand, attitudes toward the environment are used interchangeably with environmental concerns which represent human predispositions that influence behaviour in a certain manner (Milfont and Duckitt 2004). The object of most environmental attitude research has been the environment. The specific topics have been related to attitudes and behavior consistency, the construction of environmental attitude, and the relationship with other variables including demographic variables, experience, beliefs about control, efficacy, responsibility, and personal values (Park 2009).

According to Proops (2001), the study of environmental attitudes is important for the following reasons: (1) enquiring into the public’s perceptions and attitudes to environmental issues may reveal local and ‘informal’ knowledge, and help in identifying environmental problems which have not been noticed by formal scientific study; (2) for local environmental problems (e.g. water quality, local air pollution), deciding on which should be tackled first will be as much about the public’s perception of these problems as about their ‘scientific’ and ‘economic’ consequences; and lastly, (3) for wider or less immediately obvious environmental problems (e.g. ozone layer depletion, global warming), government policy is much more likely to be effective if it works together with public perceptions and opinion, rather than against it. Where public attitudes are not conducive to necessary environmental policy, this can indicate where public education and/or the use of economic incentives are needed.

As the review of the literature demonstrates, studies have shown that several variables such as race, gender, age, income, and educational level are related to holding environmentalist beliefs (MacMillan *et al.* 1997). The effects of individual factors on environmental attitudes have been empirically examined since the 1970s (Tuna 2004). Literature suggests that age and education are two of the best explanatory variables related to environmental attitudes. The literature indicated that gender, residence, income, and political tendency are also predictors of environmental attitudes (Arcury 1990; Buttel and Flinn 1974; Tarrant and Cordell 1997; Cottrell and Graefe 1997; Buttel and Johnson 1977; Dunlap and Van Liere 1978; Albrecht 1982; Ramsey and Rickson *et al.* 1976; Mohai and Twilight 1987; Freudenburg 1991; Inglehart 1995; Bowman 1977; Dunlap 1975; Stern *et al.* 1993). However, environmental attitude research produced contradictory results. All reviewed literature indicated that education is a key variable on environmental attitudes. Almost all research on environmental attitudes found that highly educated respondents always have more pro-environmentalist values than lower educated respondents (Inglehart 1995; Arcury 1990). Environmental knowledge and education are closely associated each other. An understanding of modern environmental issues requires a high level of environmental knowledge, and likelihood of high environmental knowledge is correlated to high level of education (Inglehart 1995).

Age is another factor that affects environmental attitudes. Younger persons are more environmentally concerned than older persons (Arcury 1990; Inglehart 1995) because environmentalism is an appropriate outlet of younger persons' relatively low commitment to the social order and lower regard of dominant value system. Some scholars such as Tarrant and Cordel (1997), Stern *et al.* (1993), Arcury (1990) discussed gender effect of environmental attitudes. Their findings have been contradictory. Arcury (1990) found that female respondents were less environmentally concerned than male respondents and Tarrant and Stern (1974) and Stern *et al.* (1993) reported that female had higher levels of environmentalism than males. Over all, findings have indicated no clear gender difference on environmental attitudes. Because different researchers used different samples results are limited to samples. As emphasized earlier, the effects of individual demographic characteristics are correlated to each other. Buttel and Flinn (1974) reported that the effects of education, income, and occupation on environmental attitudes were interrelated with age and residence. They found that urban residents were more environmentally concerned than rural residents because urban residents seem to be more likely affected by environmental problems (air and water pollution etc.) than rural residents. Buttel and Flinn concluded that "the well educated, tend to be young and urban residents and suggests that much of the gross effect of education on environmental beliefs might be spurious" (1974:437). On the other hand, Freudenburg (1991) noted that environmental attitudes of rural residents were different from general assumptions: the environmental attitudes of rural residents depended on their economic activities. These findings indicated that persons in agricultural sector have higher environmental concern than other rural persons in the same communities. According to Buttel and Flinn (1975), economically disadvantaged groups would be less likely to offer support for environmental causes during a period of economic decline.

In the world of protected areas, expectations run high (Stoll-Kleemann and Job 2008). They are supposed to be the repositories of nature. They are planned to provide viable livelihoods for those who live and work in them, which includes alleviating poverty and generating, facilitating good health (Stoll-Kleemann and Job 2008). They are designed

to be laboratories of research and education. They are regarded as the benchmarks of how human race should learn to live within nature's envelop (Succow and Jeschke 2008). Thus, without consideration of social and economic impacts, and attitude of the surrounding local communities, effective planning and management may be compromised (MPA News 2002). Understanding the attitudes of local communities is essential for protected areas planning (both on-site and off-site), and management activities and approaches. For example, in planning for ecotourism in protected areas, information on attitudes of the local people is as important as the overall efforts and resources committed to planning. In a nutshell, attitudinal factors have been observed to be important ingredients to the success and otherwise of such planning activities as programs (ecotourism activities, interpretive services, and conservation education program).

Among a large number of environmental attitude measures, the New Environmental Paradigm (NEP) scale is perhaps the most widely used. The NEP measures general environmental concerns rather than specific attitudes (Schultz *et al.* 2004). Along with increasing environmental awareness in the 1970s, much attention among social scientists had been paid to examining the ecological attitudes related to interest in the human-nature relationship (Gooch 1995). The NEP is considered an important change in approach to environmental attitude-behaviour relations in that it attempts to explore "primitive beliefs" (Gooch 1995). Dunlap and Van Liere (1978) argued that environmental issues were related to more than just attitudes and concerns about the environment, describing that "implicit within environmentalism was a challenge to our fundamental views about nature and humans' relationship to it" (Dunlap *et al.* 2000). They described this changing worldview as the NEP. The basis of the NEP is "a belief in the limits to growth, the necessity of balancing economic growth with environmental protection, the need to preserve the balance of nature, and the need for humans to live in harmony with nature" (Scott and Willits 1994). In a 1976 Washington State study, Dunlap and Van Liere developed a 12-item NEP scale and found that environmental attitudes measured by the NEP scale were positively related to eight pro-environmental behaviors. Dunlap *et al.* (2000) proposed a revised NEP scale, adding 3 items to the original 12-item NEP scale in order to achieve

a better balance between pro- and anti- NEP statements and to broaden the content of the NEP scale. The New Environmental Paradigm emphasized environmental protection, limited industrial growth, and population control, among other issues. The two social scientists developed the New Environmental Paradigm scale to measure this mind-set. Since its development, the scale has been used in many other studies - both replicating as well as modifying the scale. Many of the studies conducted since then have questioned whether in fact a paradigmatic shift is occurring or has occurred. But most researchers agree that the scale developed by Dunlap and Van Liere (1978) is considered one valid measure of environmental attitude and comprises the 12-items. Agreement and disagreement with these statements constitute acceptance or rejection of the NEP.

Although NEP scale has been extensively used in the United States and other few individual countries, no effort have been made to test or apply it worldwide (Leiserowitz 2004). Also, there are no known studies that have applied it in Nigeria. This study is thus aimed at identifying environmental attitudes of local communities around protected areas in Nigeria and the effects of personal factors on their attitudes.

Social, Geographic and Historical Conditions for Nigeria National Parks

By virtue of its spatial extent, Nigeria encompasses various climatic regimes and physiographical units representing a wide variety of ecological zones such as rainforest, Guinea savanna, Sudan savanna and Sahelian vegetation. Of these ecological zones, the Sudan and Sahelian regimes are most vulnerable to climatic and human pressure (Federal Republic of Nigeria 1999). Nigeria is a landscape dominated by people, and the population continues to grow about 2.4 percent per year (CIA 2008). The natural resources of the country do not grow similarly and continue to be degraded and depleted due to the increasing demands of people (and their associated industries) for water, food, fuel, and income (USAID 2008). The population is about 140 million, with overall population density of 139 people per square kilometer in 2006 (NPC 2006). According to FEPA (1992), more than 70 per cent of Nigerians live in rural areas where they depend on agriculture and other natural resources for their survival. This growing rural population puts increasing demands upon the natural habitats and plant and animal species of

Nigeria, which decrease in extent and numbers as the human population increases (USAID 2008).

Nigeria is a country rich in biodiversity and diverse natural landscapes (FMoE 2001; USAID 2008), but the areas of ecological importance are increasingly isolated in small pockets where, for one reason or another, people have not greatly modified the landscape. In areas where there are religious edicts against consuming certain animals, as in Muslim areas surrounding Gashaka-Gumti National Park, many primates have been spared the gun. In other areas unsuitable for agriculture, like some riparian areas under a natural flooding regime, or inaccessible mountainous areas along the Cameroon border, native forests and flora still exist.

Protected areas in Nigeria harbour most of the remaining interesting biodiversity, but these areas vary in the amount of actual protection occurring on the ground. Some national parks, including Cross River and Gashaka-Gumti, have enclave villages in their midst, and all protected areas are closely surrounded by communities that continue to expand their agricultural practices in ever-increasing patches of disturbance. Roaming Fulani cattle herders still graze their animals within Yankari State Game Reserve, and no doubt others as well. The many state forest reserves in the country were originally set up in recognition of the importance of many tree species and the associated flora and fauna around the country. Within these forests are many endemic plant species and some that are commercially valuable, like mahogany and other hardwoods. Most of these forest reserves are now mostly only protected on paper, as they continue to be subjected to official and unofficial unsustainable logging, and virtually unrestrained firewood and plant collecting. Most animals that are considered edible — which is nearly everything in many areas — have long since disappeared. (USAID 2008).

There were no clear cut conservation policies before colonial administration in Nigeria, although regulations were exercised through cultural norms and taboos existed at community level in the form of sacred grooves and community resource use restriction aimed at enhancing sustainability. Nigerian natural resources conservation policy under the erstwhile Colonial Administration focused solely on protection of biodiversity and habitats. Such objective of

conservation of biodiversity of plants and animals as centrepieces without due regard to the improvement of human wellbeing was not favourable or attractive to the rural poor. The support zone communities where land had been acquired to establish the large tracks of protected areas (PA) for forest reserves, grazing reserves and game reserves were never satisfied. Those communities whose lands were compulsorily forfeited to government without compensation interpreted conservation policy as anti-people, and the laws backing the policy as unjust and repressive. The instinctive resistance of the support zone communities to the perceived unjust conservation approaches became manifest in such increased acts as the wanton decimation of wildlife populations. This is perpetuated through large scale wildlife poaching to supply bush meat; trespasses into protection areas to establish illegal farms, settlements and over-graze pasture and browse on fodder; using obnoxious fishing methods including poisoning of streams in the rivers and streams, to mention a few.

The precarious state of Nigerian environment which include periodic droughts, soil degradation, rapid deforestation due to uncontrolled logging, fuel wood extraction, desertification, air and water pollution, loss of flora and fauna, rapid urbanisation and population pressure, erosion, flooding, inappropriate agricultural practices, destruction of watersheds, loss of biodiversity, soil crust formation caused by loss of water and climate change/ozon layer depletion (Lynch *et al.* 2006) necessitated the establishment of the first National Park (Kainji Lake National Park) in 1979. From its inception in 1979, Nigeria National Parks have increased in number - from

one National Park to seven presently, leading to the creation of Nigeria National Park Service in 1991 saddled with the mandate to establish and manage series of National Parks in representative habitats and eco-regions.

2. Materials and Methods

The Study Areas

The study was carried out in local communities surrounding Nigeria National Parks. There are seven National Parks in Nigeria that are located in various ecological zones (Table 1), namely, Chad Basin National Park (CBNP), Cross River National Park (CRNP), Gashaka-Gumti National Park (GGNP), Kainji Lake National Park (KLNP), Kamuku National Park (KNP), Okomu National Park (OKNP), and Old Oyo National Park (OONP) (Figure 1). Nigeria covers an area of 923,768 km² and lies between latitudes 4° and 14°N and longitudes 3° and 15°E. The country is located in West Africa and is bordered by the Republics of Niger and Chad to the north, to the south by the Atlantic Ocean, to the east and west by the Republics of Cameroon and Benin (Federal Republic of Nigeria 1999).

The study areas were based on the existing protection operational units of the national parks. The largest protection operational unit is the Park, and is headed by Head of Department of Park Protection and Conservation who reports directly to the Conservator of the Park (the overall management head). The Park is further divided into sectors, headed by Sector head, while the sectors are divided into ranges

Table 1: Location, Land Area and the Ecotypes of Nigeria National Parks

Name	Location (State)	Land area (Km ²)	Year of Establishment	Ecological zone
CBNP	Borno and Yobe	2245	1991	Sudan/sahel savanna
CRNP	Cross Rivers	4000	1991	Mangrove and swamp forest
GGNP	Adamawa and Taraba	6731	1991	Montane forest
KLNP	Niger and Kwara	5380	1979	Northern Guinea savanna
KNP	Kaduna	1121	1999	Sudan/Guinea savanna
ONP	Edo	197	1999	Lowland rainforest
OONP	Oyo	2512	1991	Southern Guinea savanna

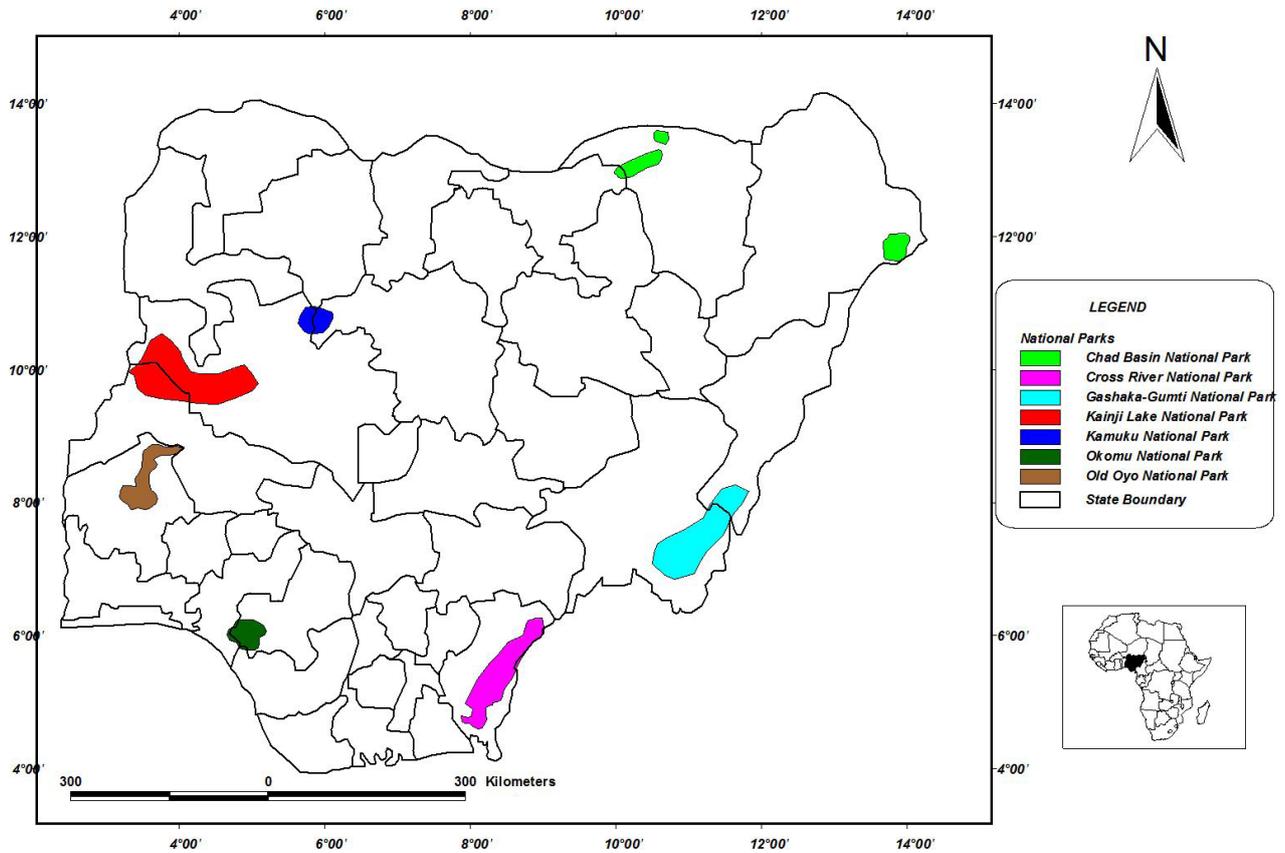


Figure 1: Map of Nigeria showing National Park

which are also headed by range head. Within the ranges are support zone communities (villages) of the Parks that were selected for the study (Table 2).

The study areas' selection was through multi-stage

random sampling. All the parks were first selected and then divided into sectors. All the sectors were selected for the study except in Chad Basin where only one sector was chosen out of three sectors due to difficulty in terrain and accessibility. The ranges

Table 2: Selection of Respondents

National Park	No. of sectors	Sectors Selected	No. of Ranges	Ranges selected	No. of vil-lages selected	No. of selected respondents
Chad Basin	4	1	1	1	5	50
Cross River	2	3	3	3	15	150
Gashaka-Gumti	2	2	5	5	25	250
Kainji Lake	2	2	8	7	32	320
Kamuku	1	1	1	1	8	80
Okomu	1	1	4	4	7	70
Old Oyo	1	1	5	5	25	250
Total	13	11	27	26	117	1170

in all the selected sectors were sampled. In all, a sample size of 117 villages and 1170 households were randomly selected from the list of villages obtained from park management and the list of households in each village provided by village head in each village. The total number of villages sampled and households selected for focus group discussion and individual interview represented 10% of the villages and households that lie within 1-15km of the parks.

Procedure for Data Collection

The methods for data collection were focus group discussion and individual interview through questionnaire administration. In each village, the village head or the eldest man in the village (where the village head is not available) was consulted and briefed on the concept of the study. The village head then assembled the people including the elders and the youth that were available in the village. Issues on the 12-items NEP Scale were discussed with the people in order to elicit their feelings on the general environmental conditions and in particular. Each individual that participated in the group discussion and individual interview represented a household. Thus, the sample units were households, although, most of the characteristics were personal.

Operationalisation of Variables

The variables were grouped into two-explanatory variables (personal factors of respondents), and criterion variables (environmental attitudes). The explanatory variables were operationalised as follows: Age was measured in years, sex was measured as male =1 and female =2, marital status as single =1, married =2, widow(er) =3 and divorced/separated =4, household size as the total number of members in a respondent’s family, educational qualification as non-formal education =1, primary school =2, secondary school =3, teacher training school =4, National Diploma (ND)/Nigerian Certificate in Education (NCE) =5, Higher National Diploma (HND)/ BSc =6, MSc/ Ph.D =7. Furthermore, occupation was measured nominally; income in Naira (₦), religion was rated as Islam =1, Christianity =2, and Traditional =3, nationality and membership of NGOs on environment were measured nominally. The criterion variables were operationalised with the New Environmental Paradigm (NEP) Scale by Dunlap and van Liere (1978). The scale which consisted of 12-items was tied to a 4-point Likert Scale ranging from strongly disagree (1) to strongly agree (4).

3. Data Analysis

Analysis was through descriptive statistics, Pearson’s Correlations, and Chi Square analysis. The 12-item New Environmental Paradigm Scale was subjected to a principal components analysis using varimax rotation. It has been demonstrated that NEP Scale clusters around three factors or sub-scales. The first sub-scale (balance sub-scale) registered 4 items with a Cronbach’s alpha reliability of 0.77, the second sub-scale (limit sub-scale) had 4 items with reliability score of 0.62, while the third sub-scale (dominion sub-scale) had 4 items with reliability score of 0.72 (Table 3).

Table 3: The Reliability Coefficient of New Environmental Paradigm Sub-Scales

NEP Sub-Scales	Alpha Coefficient	No of Items
Balance sub-scale	0.78	4
Limit sub-scale	0.75	4
Dominion sub-scale	0.70	4

Limitations

There was difficulty in the administration of the survey instruments (questionnaires) due to the poor educational background of most respondents. Consequently, translation of the instrument has to be made and interpretation done in local languages particularly in the northern and southwestern parts of the country. Some of the villagers did not want to participate in the survey because in their own opinion, most of such surveys have never brought any benefit to them and as such they amount to a waste of time. This is because most of these villages lack social amenities including good roads, portable water, health facilities and schools. However, this problem was overcome through the help of local leaders particularly village heads or the eldest man in the village where village heads were not available. Another notable problem encountered was lack of data on the number of villages surrounding the parks and their populations. When we could not get the data from the parks, National Population Office in the Local Government Areas where the parks are located were visited to obtain the current population data on the villages. There was no data available because the last census (2006) was not based on villages, but on Local Government Areas and States. To surmount this problem, we had to fix

the number of villages to be sampled in each range to be five and respondents to be 10 per village.

4. Results And Discussion

Personal Characteristics of Respondents

As shown in Table 4, 44.7% and 39.7% of the respondents were in the age group of 21-40 and 41-60 years respectively. This is in tandem with Nigeria's age distribution in 2008 that indicated that the dominant age group was 15-64 years (NMEC 2008). Thus both young and relatively aged people participated in this study giving the results a balance view. The majority of respondents (95.3%) were male, this might be due to culture which forbids women from participating in discussions involving men, thus, women are only allowed to make contributions when males are not around. Furthermore, 92.0% were married, 37.2% and 42.0% of the respondents had families of 1-5 and 6-10 individuals respectively. This might be due to the belief system among the local people that it is only a married person that can make meaningful contributions to societal issues because of the experience he/she could have gotten through managing their homes. Also, 56.6% had no formal education. This is in contrast with adult literacy rate of 55% in 2005 (NMEC 2008). This is inconsistent with the findings of Wuver and Attuquayefio (2006) in Muni-Pomadze Coastal Wetland in the Central Region of Ghana reported that about 26% lacked education. Saidu (2006) also reported that 44.0% of the local people interviewed in the support zones communities of Kainji Lake National Park, Nigeria lacked formal education. In addition, the majority of them (86.9%) were farmers. This finding is consistent with Saidu (2006). With regards to their income, 35% earn between ₦1000 and ₦5000 monthly, while 39.0% earn between ₦5100 and ₦10000. This is an indication that majority of them are low income earners. In addition, 70.9% and 28.9% were Muslims and Christians respectively, this agrees with the findings of Saidu (2006). 93.2% were Nigerians. Only 0.2% of the respondents belonged to any environmental NGOs. Their non-involvement in NGOs might be a result of low level of education and lack of outreach of activities of these non-governmental organisations in the rural areas or communities.

Environmental Attitudes of Respondents

The frequencies, means and standard deviations of attitudinal responses are presented in Table 5. The respondents had positive attitudes towards four items on the balance sub-scale and limit sub-scale respectively. However, they had negative attitudes towards three items on the dominion sub-scale while they had positive attitudes towards one item. On the balance sub-scale, 88.0% of the respondents strongly agreed that the balance of nature is very delicate and easily upset, 77.9% strongly agreed that when humans interfere with nature they often produce disastrous consequences, 99.1% strongly agreed that humans must live in harmony with nature in order to survive and 96.6% of them strongly agreed that mankind is severely abusing the environment. With regards to limit sub-scale, 89.7% of the respondents strongly agreed that we are approaching the limit of the number of people the earth can support, 97.4% strongly agreed that the earth is like a spaceship with only limited room and resources, 74.4% strongly agreed that there are limits to growth beyond which our industrialized society cannot expand, and 77.8% strongly agreed that to maintain a healthy economy we will have to develop a 'steady state' economy where industrial growth is controlled. For dominion sub-scale, 87.3% and 77.0% strongly agreed that humankind was created to rule over the rest of nature respectively and that humans have the right to modify the natural environment to suit their needs, while 91.4% strongly agreed that plants and animals exist primarily to be used by humans. However, 52.2% and 34.1% disagreed and strongly disagreed respectively that humans need not adapt to the natural environment because they can remake it to suit their needs.

These results are an indication that the majority of the local communities in and around Nigeria National Parks still hold to a large extent, dominant ethics as the basis of human-nature relationship i.e. primary interest in control or mastery of environmental resources. This is inconsistent with the findings from the report of The 2000 World Values Survey cited in Leiserowitz *et al.* (2004) which found that 76 percent of respondents globally said that human beings should "coexist with nature," while only 19 percent said they should "master nature." Overwhelming majorities of Europeans, Japanese, and North Americans said that human beings should coexist with nature, ranging from 85 percent in the

Table 4: Personal Characteristics of Respondents

Variable	Frequency	Percentage	Mean/Mode
Age (years)			
1 – 20	35	3.0	
21 – 40	523	44.7	44.1
41 – 60	465	39.7	
61 and above	147	12.6	
Sex			
Male	1115	95.3	Male
Female	55	4.7	
Marital status			
Single	94	8.0	Married
Married	1076	92.0	
Household size			
1 – 5	435	37.2	
6 – 10	499	42.6	6-10
11 – 15	179	15.3	
16 – 20	34	2.9	
21 and above	23	2.0	
Educational qualification			
Non-formal	662	56.6	
Primary	269	23.0	
Secondary	188	16.1	
Grade II Certificate	6	0.5	Non-formal
NCE	41	3.5	
B.Sc/HND	4	0.3	
M.Sc	0	0	
Ph.D	0	0	
Occupation			
Farming	1017	86.9	
Others	153	13.1	
Income (₦)			
1,000-5,000	409	35.0	
5,100-10,000	458	39.1	10,301.4
10,100-15,000	142	12.1	
15,100-20,000	79	6.8	
Greater than 20,000	82	7.0	
Religion			
Christianity	338	28.9	
Islam	829	70.9	Islam
Traditional	3	0.3	
Nationality			
Nigerian	1091	93.2	
Niger	2	0.2	Nigerian
Benin Republic	73	6.2	
Togo	1	0.1	
Burkina Faso	3	0.3	
Membership of NGOs on environment			
Yes	2	0.2	No
No	1168	99.8	

Table 5: Environmental Attitudes of the Local Communities (N=1170)

Environmental Issues	Strongly Disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)	Mean	Standard Deviation
Balance sub-scale						
1. The balance of nature is very delicate and easily upset	0	0	12.0	88.0	3.88	0.32
2. When humans interfere with nature it often produces disastrous consequences	0	0.9	21.3	77.9	3.77	0.44
3. Humans must live in harmony with nature in order to survive	0	0	2.6	97.4	3.97	0.16
4. Mankind is severely abusing the environment	0	2.6	0.9	96.6	3.91	0.48
Limit Sub-scale						
5. We are approaching the limit of the number of people the earth can support	6.8	1.7	1.7	89.7	3.74	0.80
6. The earth is like a spaceship with only limited room and resources	0	0	0.9	99.1	3.99	0.02
7. There are limits to growth beyond which our industrialized society cannot expand	0	0	25.6	74.4	3.74	0.44
8. To maintain a healthy economy we will have to develop a “steady state” economy where industrial growth is controlled	0	0.9	21.4	77.8	3.77	0.44
Dominion Sub-Scale						
9. Humankind was created to rule over the rest of nature	0	0.9	11.9	87.3	3.86	0.42
10. Humans have the right to modify the natural environment	4.3	3.4	15.3	77.0	3.65	0.74
11. Plants and animals exist primarily to be used by humans	0	0.9	7.8	91.4	3.90	0.38
12. Humans need not adapt to the natural environment because they can remake it to suit their needs	34.1	52.2	0	13.7	1.93	0.94

United States to 96 percent in Japan. By contrast, only in Jordan, Vietnam, and the Philippines did more than 40 percent say that human beings should master nature (World Values Survey 2004). The World Values Survey's (2004) report suggests that large majorities worldwide reject a domination ethic as the basis of the human-nature relationship, at least at an abstract level (Leiserowitz *et al.* 2004).

Effects of Personal Factors on Environmental Attitudes of Respondents

In Table 6, the effects of personal factors on the attitudes of the respondents were presented. Household size ($r = 0.11, P < 0.01$), sex ($\chi^2 = 57.77, P < 0.01$), marital Status ($\chi^2 = 31.02, P < 0.01$), education ($\chi^2 = 12.64, P < 0.01$), occupation ($\chi^2 = 49.24, P < 0.01$), religion ($\chi^2 = 16.76, P < 0.01$), nationality ($\chi^2 = 83.38, P < 0.01$), ethnic group ($\chi^2 = 24.15, P < 0.01$) are significantly related to environmental attitudes while age ($r = -0.04, P > 0.05$), monthly income ($r = -0.05$) and membership of non-governmental organisation on environment ($\chi^2 = 7.01, P > 0.05$) are not related with environmental attitudes.

Table 6: The Effect of Personal Factors on Environmental Attitudes of the Local Communities

Variables	r	Decision
Age	-0.04	NS
Family Size	0.11**	S
Monthly Income	-0.05	NS
	χ^2	Decision
Gender	57.77**	S
Marital Status	31.02**	S
Education	12.64**	S
Occupation	49.24**	S
Religion	16.76**	S
Nationality	83.38**	S
Ethnic Group	24.15**	S
Membership of NGO on Environment	7.01	NS

r = Correlation Value, χ^2 = Chi-Square Value
 ** $P < 0.01$ S: Significant NS: Not Significant

The result is inconsistent with previous findings that age and income affect environmental attitudes. Previous studies indicated that age and income influence peoples' attitudes towards environment (Kelly *et al.* 2007). According to Arcury (1990) and Inglehart (1995), younger persons are more environmentally concerned than older persons because environmentalism is an appropriate outlet of younger persons' relatively low commitment to the social order and lower regard of dominant value system. The result on marital status and family size might be due to the fact that a married person would have more responsibilities, and increased dependence on the environment, likewise, the larger the family size, the more a family depends on the environmental resources. Furthermore, these results are consistent with the findings of various studies on gender, some scholars such as Tarrant and Cordell (1997), Stern *et al.* (1993), Arcury (1990) found contradictory effects of gender on environmental attitudes. While Arcury (1990) found that female respondents were less environmentally concerned than male respondents, Tarrant and Stern (1977) and Stern *et al.* (1993) reported that female had higher levels of environmentalism than males. Over all, their findings have indicated no clear gender difference on environmental attitudes. Since education plays a significant role in environmental knowledge, its effect on environmental attitudes is both direct and indirect (Tuna 2004). It has been observed that people of low education levels are less likely to hold a general environmental orientation than people of high education and that educational programs could enhance citizens' environmental awareness and provide them with the information and resources needed to protect their communities environmentally (MacMillan *et al.* 1997). With regard to religion, there is some evidence that more religious individuals tend to be less concerned about environmental issues (Guth *et al.* 1995). Regarding ethnic group, few differences have been observed on environmental issues across race or ethnic lines (Jones and Carter 1994; Mohai 1990; Mohai and Bryant 1998; Taylor 1989, Konisky *et al.* 2008). However, Tarrant and Cordell (1997) found that ethnic background plays a crucial role in the prediction of environmental attitudes.

In terms of the relationship between specific independent variables such as social status and residency (urban versus rural) and environmental attitudes,

this study is unable to test alternative explanations for demographic differences. Future research needs to include measures of social status, residency, values, and political orientation.

5. Conclusion and Recommendations

Although the local communities had positive attitudes towards most of the environmental issues particularly issues on balance and limit sub-scales, the majority of them had negative attitudes towards three out of four issues on dominion sub-scale. Personal factors play significant roles in on the environmental attitudes of the local communities. Surprisingly income had no effects on their environmental attitudes despite the fact that they were low income earners. Although the local people are aware of the assaults on the environment and the limit of nature, their economic activities and the need to satisfy their considerably large family as well as their low level of education might have been the reasons for their continued degradation and unsustainable exploitation of these resources. Attitudinal change is highly desirable among the local communities because they are first and foremost victims of environmental degradation, loss of biodiversity and climate change, particularly their negative effects on their livelihood activities.

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