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ASSESSING THE CATALYTIC INFLUENCE OF MODERN INFORMATION SYSTEM AND SOCIO-ECONOMIC STATUS ON COMMUNITIES' ATTITUDE AND AWARENESS TO FOREST RESOURCE SUSTAINABILITY IN BOKI LOCAL GOVERNMENT AREA, NIGERIA

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ABSTRACT

Man as seriously endangered the forest ecosystem, perhaps due to lack of knowledge on the implications of his activities. This paper assesses the influence of modern information system and socio-economic status, attitude and awareness to forest resource sustainability and conservation in Boki Local Government Areal. Four communities were used of which six hundred copies of questionnaire were administered to residents in the area. The socio-economic status and the modern information dissemination system were captured in the questionnaire. Findings from the data collected show that communities with high socio-economic status have positive attitude and awareness to forest resource conservation and sustainability. This result was affirmed in the tested hypotheses which show a high calculated value greater than the critical value.

Keywords: Attitude, Awareness, Conservation, Ecosystem, Forest resources.

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Contribution/ Originality

This study will help to bridge the gap in the existing literature. New methodology and formula were originated in this study. However, there is still insufficient data on the subject matter. Nevertheless, this paper will provide a baseline information on the effectiveness of information system in forest resource management.

1. INTRODUCTION

Over the years, man has infringe into the natural and forest ecosystem which is an integral component of biosphere and basically important in stabilizing the global climate. However, the significant of forests is beyond the provision of the physical basic needs of man. It is on this note that the [International Monetary Organization \(IMF\) \[1\]](#) on their impression on the importance of forest quoted Charles Darwin "among the scenes which are deeply impress on the mind none exceed in sublimity the primeval forests, no one can stand in these solitudes unmoved". These great assertion from Darwin brought new definition in today's environmentally conscious world. Accordingly, forest house a wide range of biodiversity which provides man with an array of goods and services such as medicines which are used in fighting human related diseases [2]. Today, communities' attitude and awareness towards forest resource sustainability is of great concern to various scholars who advocate for environmental sustainability and conservation of the forest ecosystem, [Galbreath and Avers \[3\]](#). In Nigeria, and Cross River State in particular, Boki Local Government Area, the forest ecosystem served as the only means of communities' livelihood. However, the communities attitude and awareness is quite worrisome based on the fact that in attempt to utilize the natural resources at their disposal has gone beyond mere application of technology to harness and utilize nature [4]. Indeed, the vastitating nature of forest resources by the communities now

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represents one of the greatest emergencies ever witness in the area. Besides, the communities' activities on the forest ecosystem have resulted in biodiversity loss, destruction of forest-base societies, climate change increase in poverty, famine and global warming in the area. It is on this note that one wishes to ask if modern information system and socio-economic status have influence on forest resource sustainability? What influence does modern information decimation system and socio-economic status have on community attitude and awareness to forest resources sustainability in Boki Local Government Area which is the bases on this research?

2. METHODOLOGY

This research was conducted in Cross River State, Nigeria taking into consideration four major autonomous communities within the forest ecosystem zone which include Abu, Okwango, Kayang and Butatong in Boki Local Government Area. The projected population of five communities (based on 2.5% growth rate. WEST, 1991) used for the study stands at about twenty eight thousand, five hundred and fifty seven (28,557) people. It is on this projected population of inhabitants that a sampled of 600 representative was used in this study. However, six hundred copies of questionnaire were used and of which one twenty (120) were randomly distributed to each of the communities. The demographic characteristics of the sampled population such as occupation, marital status among others was used as indicators for socio-economic status and also variable such as organization of workshops, seminars, field visits, mass media, print media, school programmes among others were used as modern information dissemination systems indicators. Furthermore, two hypotheses were stated. Hypothesis 1: Which examine the influence of socio-economic status on people's awareness and attitude towards conservation of forest resources. In this hypothesis, two major variables were extracted from the data bank and categorized into the three levels of socio-economic status (low, average and high as well as the two levels of the dependent variable (awareness and attitude). The categorized data were then summarized into mean (\bar{x}) and standard deviation (SD) and then subjected to statistical analysis using one-way analysis of variance (ANOVA). Hypothesis 2: second which also seeks to assess the relationship between modern information dissemination system (such as through religious organization, mass media, print media and wall writing, school programmes, interpretive facilities, and people's awareness and attitude to the conservation of forest resources. The independent variable in this hypothesis was modern information dissemination system while awareness and attitude of people towards conservation of forest resources were dependent variable. However, to test this hypothesis, data were extracted from the data bank and summarized into sums, products, square and sum of square and according to the categories of the dependent variables. Nevertheless, the Pearson Product Moment Correlation Coefficient was used for the analysis.

3. LITERATURE REVIEW

Influence of socio-economic status of modern information system to community awareness and attitude to conservation of forest resources

Socio-economic status has to do with the social class as indicated by education, income and occupation. There is a hypothesis that states: "Environmental concern is positively associated with social class and is indicated by education, income and occupational prestige" [Vantieri and Dunlap \[5\]](#). [Inglehart \[6\]](#) gave an explanation for this hypothesis based on the fact that once people solved their basic material and physical needs, they opt for more aesthetic aspects of human existence or "quality of life" such as a better environment. According to [World Bank Report \[7\]](#) in sphere economies, the discussion on environmental Kuznets curve (EKC) supports the family relationship between income and environmental quality. It states that the improvement of environmental quality is achieved as income (Gross Domestic Product - GDP-per capita) increases. The environmental Kuznets curve postulates that an inverted curve relationship exists between income level and environmental quality. This suggests that environmental quality deteriorates as income

increases but as it gets to the peak, that quality starts to improve with income increase. The relationship is identified both in terms of time series and cross-national series.

One other hypothesis states that as individuals become more educated, they are more concerned about the environment and the need to protect, conserve and preserve resources to meet the needs of both the present and future generations [8, 9]. Higher education is associated with higher concern since it is directly related to the access to information on environment and ability to process the information into knowledge. A study by Arcury [10] supports a consistent and positive relationship between environmental knowledge and environmental attitudes. This is because the more knowledge one acquires through education, the more awareness he has towards the conservation of forest resources. His attitude towards the environment would be positive. He would secure lucrative jobs that would make him survive well through other means rather than depending solely on forest resources.

Newmark [11] cautions that there is need to directly link the educational level to high level of environmental concern since educational level also involves other social factors. For instance, better education generally means a better job, thus having more economical surplus which may allow individuals to pay more attention to the "Luxury good" such as environmental quality and conservation of forest resources. Also, the social background that permits individuals to have better education could have some effect on their thinking process. In another related study in Kenya, Arcury [10] discovered that there are different factors affecting attitude towards conservation of forest resources like the level of education of the participants. The higher education the people have, the more positive attitude they have to adjacent conservation areas. Economic factors are also important. It was also discovered that having more money results in a better attitude towards conservation of forest resources. The source of income also has an effect on the environment. Those who earn money from conservation are more positive than those who earn money from other sources. This is because by the time those who generate their income from conservation impact negative attitude towards conservation of these resources, these resources will be destroyed and they would not have any resources that can generate income for them again. So they need a positive attitude towards conservation of these resources and prudently use them.

The forest is a highly valued environmental resource especially in Africa. It is a priceless heritage handed down from one generation to the other. In some parts of Africa, land is synonymous with life. Some communities go to war in order to protect their land. In some traditional rural communities, land with forest was not to be bought or sold. It was sacrilegious to do so, and in fact, a curse to part with one's only permanent heritage. Many Nigerian cultures still offer sacrifices to the gods of the land and their ancestors for protection, and for the fertility of man, animals and land. Thus, Nigerians' and indeed Africans' closeness to nature has been broken because of man's quest for civilization and development. Today, land is sold, pawned and battered. It is treated like any other commodity, to be bought and sold when the need arises. Urbanization and agricultural development have destroyed land and forest resources. Oil and mineral exploitation has also caused land degradation and ecosystem destabilization Anijah-Obi [12]. Rodwell, et al. [13] opine that poverty is a situation whereby the basic human needs of food; shelter and clothing are not met. This means poor people do not have enough food for themselves, neither their families. Other people make use of tree branches with leaves. For instance, if one notices some up-rooted shrubs or leaves at intervals, from a distance, placed on the high-way, it is some warning that there is an obstruction either in the form of a broken-down vehicle, an accident scene or there is a dangerous pothole. As earlier indicated, symbols should be used freely in the communities to which they belong to help prevent the forest from destruction. It must however be emphasized that by tradition the environmentalist does not possess the right to enter into a village and place a symbol himself without the consent and approval of the community leaders. All the environmentalist does is to alert the community leader of an observed or impending environmental hazard if for instance the forest resources are being destroyed. It is then the onus of the leader to order that a symbol of restraint or warning be placed at the location of the forest.

Ntia [14] explained that most Nigerians embrace one type of religion or the other with unparalleled zeal which could be galvanized into the improvement of the environment. All that is needed is to adequately inform the religious organizations of the numerous environmental hazards and how to tackle them. He also went further to state that religion seeks to achieve the two main goals of spiritual and moral uplift, and that morality does not really mean strict adherence to a rigid code of conduct but rather a concept large enough to include freedom, liberation and progress, rationality and discipline. With these in mind, religion has the onus of informing its adherents about environmental issues and work towards arresting some of the problems. For instance, the various religious organizations must preach against indiscriminate bush-burning as this leads to massive destruction of the ecosystem; they must warn their members against trespassing into game reserves, and parks for hunting and poaching; they must also take the lead in activities which are geared towards salvaging the environment through such activities as the tree-planting and control of erosion exercises.

The mass media (newspaper, radio, television, film) provide one of the most effective, ready-made means of reaching a wide target audience. Essential activities include organization of workshops, field visits and sensitization courses for print and broadcast journalists, with the aim of developing an adequate knowledge base for conveying reliable information to the public. Development of a syndicated feature and photo service on forest and biodiversity conservation for newspapers and magazine publications of messages and environmental slogans as paid advertisements in newspapers and magazines. This becomes more attractive or dramatic if it accompanies photographs or other illustrations. Publication of special and investigative reports on forest conservation issues, could be encouraged by recognizing journalistic efforts through annual awards for the best reports, features and photographs. Development of radio discussions and radio spots conveying.

The school programme is observed as one of the essential tools for the attainment of environmental conservation which has really helped to promote awareness of "green" environmental issues. Interpretive facilities and programmes in protected area Some forest areas like the Cross River National Park area, the Cercopan core areas should be receiving high level of visitation, primarily for picnicking. These are all suitable target areas for development of visitor centres, nature trails, and other interpretive programmes for the promotion of public awareness among park visitors. The proper planning and development of protected areas facilities would need to proceed according to international standard guidelines to ensure that public awareness efforts in protected areas send the right and meaningful signals and will be well received by recipients. The study reviewed literature from different writers relating to awareness and attitude of people towards the conservation of forest resources. Today, many studies have been conducted in a global perspective as regards the subject matter but none has been able to highlight the subject matter with respect to the case study which is what this research wishes to bridge the gap in the literature of knowledge.

4. FINDINGS

The analysis of the influence of socio-economic status on forest resource conservation.

The socio economic status and attitude to communities in Boki Communities towards resource conservation as indicated in table 1 show that the calculated values of (24.12*) awareness was observed in Boki Communities towards forest resource conservation and sustainability and (21.52*) values was also noticed towards communities attitude to forest resource conservation in the area. Accordingly, this result revealed that the calculated values were on the high side compared to the critical F-value of 3.002 at 0.05 significance alpha level, with 2 and 615 degrees of freedom. However, in this result the null hypothesis was rejected indicating significant influence of socio-economic status on communities awareness and attitude to forest resource conservation and sustainability by Boki communities. In order to evaluate which of the socio-economic status indicator influences most on communities' awareness and attitude to forest resource conservation in the area, the Fisher's Least Significant Difference (LSD) multiple comparison analysis was further use as presented in table 2. This empirical findings agreed with Galbreath and Avers [3] whose study revealed that people placed high up

on the high social status do not have much to do with the so-called menial activities such as faming, forest depletion and animal hunting which deplete the forest resources. Since they have very good means of livelihood, they impact less on forest resources.

Accordingly, Anijah-Obi [12] affirming the above statement opines that citizens in the average and low socio-economic status usually survive by impacting on the environment in which they associate/interact. They are closer to the natural resources of forests, land, water, animals, and fishes among others. Therefore, attempts to make these downtrodden stratum of society to stop impacting on these environments are usually met with high resistance. It is on this note that Newmark [11] and Arcury [10] in their empirical studies agree strongly well with the findings of this study, hence recommending that adequate monitoring of communities excessive exploitation of the forest by the government would help in the sustainability of the forest and stabilizing the natural ecosystem. However, the findings of this work are also in consonance with the social anthropologists' viewpoint who sees the socialization process of societies as a means that encourages community dwellers to savour the forests and their resources in an uncontrollable manner as they desire in the guise of ancestral legacies. That is, unsustainable forest resources utilization processes are usually regarded as social rights and ethics handed down from generation to generation and as such must not be challenged. Those who conform mostly to the community's social norms and values are usually those in the average and low socio-economic status who are closest to the natural resources than others in the high social status.

In a similar way, communities in the high socio-economic status are always more positive in their awareness and attitude to forest resources sustainability compared to those in the average and low socio-economic status. Furthermore, Colchester [15] and Pimbert and Pretty [16] (2001) look at attitude formation as forms of selective exposure of the community dwellers to information that relates to their daily practices like farming, hunting/fishing and utilization of other resources of the forest, all of which form a powerful tool to attitude formation. Those who are always available at the community level are those in the medium and low socio-economic status and it is those who are expected to comply more with forest conservative activities. But the reverse is the case because to them, and as affirmed in the empirical work of Obot [17] the government has not put adequate mechanism or framework to change the attitude of rural dwellers towards forest resource exploitation.

Table-1. The influence of socio-economic status on communities' awareness and attitude to forest resource conservation

s/n	Forest resource	Sources of variability	SS	df	MS	F. val sign
1	Communities awareness	Between: groups	17,386.91	2	834.72	
		Within groups	23,074.21	615	291.57	24.12*
		Total	40,461.12	617		
2	Attitude of communities	Between: groups	13,163.53	2	5012.34	
		Within groups	23,245.04	615	412.01	21.52*
		Total	15,1078.61	617		

Source: Data analysis, 2013

Nevertheless, the fisher's least significant analysis which was further used to affirmed the validity in the data analyzed as indicated in table 2 show communities awareness significant fisher's t-values of 6.517*^c, 12.949*^c and 5.53*^c which indicate that communities' awareness to forest resource sustainability was high with citizens in the high socio-economic status (mean = 25.05^a) than with those in the average and low socio-economic status (mean_{md} = 17.56^a, mean₁ = 9.52^a) which affirmed the empirical work of Galbreath and Avers [3] and Anijah-Obi [12]. Furthermore, it was observed that those in the average socio-economic status were more aware of conservation activities compared to those in the low socio-economic status (mean_{1w} = 9.52^a and mean_{md} = 17.56^a).

Accordingly, it was also observed with respect to attitude that the significant Fisher’s t-value of 13.401^{*c}, 13.164^{*c} and 8.257^{*c} are indicative of the forest that the attitude of the communities (respondents) with high socio-economic status (13.40^{*c}) and average ($t_{md}=13.164^{*c}$) were far, more positive to forest resources conservation and sustainability compared to those in the low socio-economic status with values of (mean = 27.51^a) indicating that they exhibit the most positive attitude to forest conservation activities than their counterpart in the average (mean = 19.17^a) and low (mean = 12.52^a) socio-economic status.

Table-2. Fisher’s least significant difference (LSD) multiple comparison analysis of influence of socio-economic status on communities awareness and attitude to forest resource conservation

s/n	Forest resources	Influence of socioeconomic	High N=251	Average N=232	Low N=165
1	Communities’ awareness	High: 233	25.05 ^a	5.71 ^b	13.56 ^b
		Average: 232	6.517 ^{*c}	17.56 ^a	8.51 ^b
		Low :165		12.949 ^{xc}	9.52 ^a
			MSw = 391.56		5.53 ^{*c}
2	Communities’ attitude	High: 251	27.57 ^a	5.75 ^a	13.7 ^b
		Average: 232	13.410 ^{*c}	19.17 ^a	6.37 ^b
		Low :165		13.164 ^{*c}	13.52 ^{*c}
			MSw = 352.01		8.251 ^{*c}

Source: Data analysis, 2013

However, the analysis in table 3 which tries to evaluate the influence of modern information dissemination system on communities awareness and attitude to forest resource conservation and sustainability show a high calculated of communities awareness, r-value of 0.813^{*} and attitude value of 0.303^{*} which was higher than a critical value of 0.196 at 0.05 alpha significance level. This result indicates that there is a significant relationship between modern information dissemination systems and communities’ awareness and attitude to forest resource sustainability. Besides, table 3 revealed that the r-value for communities’ awareness was high compared to attitude. This indicates that the sampled communities’ awareness to forest resource sustainability was higher than their attitude to forest resource sustainability in the area. Furthermore, the data analyzed, revealed that the calculated r-values were all positives indicating that the more or higher the more the modern information system is used in forest resource conservation the greater the communities awareness and more positive their attitude would be to forest resource sustainability.

Table-3. The influence of modern information dissemination systems and communities awareness and attitude of forest resource conservation

s/n	Variable	$\sum x$ $\sum y$	$\sum x^2$ $\sum y^2$	$\sum xy$	Df	r-cal	Sign.
1.	Modern information system (x)	11215	12312				
				7576	598	0.813 [*]	.000
2	Awareness creation (Y ₁)	12162	18121				
3	Modern information system (x)	10678	12013				
				3543	598	0.303 [*]	.000
4	Attitude change (Y ₂)	11513	17157				

Source: Data analysis, 2013

Accordingly, Ntia [14] in his empirical findings agree with the findings of this study explaining that most Nigerians embrace different religions with unparalleled zeal which could be galvanized into the improvement of the environment. This could be easily achieved through a gadgetted form of education to community members whose livelihood depends solely in the natural forests and earth’s resources.

5. CONCLUSION

In recent times, man behavior to forest conservation has not yielded adequate impact on the natural ecosystem. Its attitude and awareness to forest resource sustainability has generated concern to many scholars despite the modern information dissemination system available to forest resource conservation and sustainability. This study has affirmed that communities within the forest ecosystem zone have little or no awareness and attitude to forest resource conservation and sustainability. Besides, it was observed that communities with high socio-economic status have positive attitude and awareness to forest resource sustainability compared to those with low socioeconomic status.

6. RECOMMENDATIONS

This study has shown that most communities within the forest ecosystem are not conscious to the implication of excessive forest exploitation. This was observed in the data collected from the communities in Boki Local Government Area which show that only communities with high socioeconomic status are more conscious of forest resource conservation. However, it is on this note that this research recommends the following:-

- The communities within the forest ecosystem zone should be educated on the significance of forest conservation and sustainability
- The government and the various stakeholders should educate the communities on the modern forest conservational practices
- The government should provide incentives to communities, this would help improve the socio-economic status, hence reducing the rate of forest resource exploitation
- Paper orientation should be given to the communities on the dangers of excessive exploitation of forest resources.

However, Boki forest ecosystem still remains one of the major ecosystems that has been endangered due to anthropogenic activities in the area.

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