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Indigenous Knowledge System and Nvironmental Conservation Practices in Umuahia South Lga, Abia State Nigeria

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Abstract
The study looked at the applicability of indigenous knowledge in environmental conservation in Umuahia south LGA, Abia state. A total of 408 questionnaires were distributed of which 398 was retrieved and analyzed. The study adopted both the open-ended and close-ended questionnaire method and also adopted a structured four point Likert-scale questionnaire to elicit information from respondents. The simple percentage was used to analyze the research questions while the Chi-square was used to test the Hypotheses. Result of the test of hypotheses show that the calculated chi-square X2 was 68.95 which is greater than the table value of 6.25. The null hypothesis was rejected and the alternate hypothesis accepted. Hence there was a significant relationship between livelihood dependence on natural resources and the survival rate of indigenous plants and animals in Umuahia South LGA. Findings from the study showed that the use of believe systems and restrictions using taboos was very effective and majorly the adopted indigenous methods and practices in environmental conservations in umuahia south LGA, Abia state. The study recommends an integration of indigenous knowledge module in academic curriculum in both the primary, secondary and tertiary educational system in Nigeria, a policy trust restricting the exploitation of indigenous natural resources, given that the over-exploitation and extinction of indigenous nature resources impacts on the indigenous knowledge and culture of the people and an Indigenous knowledge database; A system of documentation and cataloguing of indigenous knowledge of the people to forestall its loss and extinct.
Keyword; *Indigenous Knowledge, environmental conservation, culture*

INTRODUCTION

1.1 Background to the Study

The environment for millions of years has been inhabited by man. It has been his source of livelihood and survival. Over the time, man's activities on the environment have resulted in creating a survival strategy that was made possible through man's interaction and experiences over time. These strategies include, mastering and use of tools, hunting, understanding the course of time for preparing and planting of crops and the art of domestication of animals. The environment to a large extent determines the culture of every living society. This postulation gives credence to the scholars and schools of ''environmental determinism''. The environment impacts on mans ways of life and determines their means of sustenance. It is within existing experiences and features that we can find fishing, boat and canoe carvings, farming as a means of livelihood and occupations of the inhabitants of riverside areas and hinterlands. Also within existing experiences and features we can find animal rearing and husbandry as an occupation of

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the inhabitants of the savannah regions and grasslands. The existence and survival over time of the inhabitants of the aforementioned environments are determined through traditional knowledge gained with their interaction and experiences over generations of existence. However there is the common knowledge that in our contemporary epoch, man's activities have impacted the environment.

Traditional knowledge therefore is vital for sustainability of natural resources. These natural resources include forest, water and agro ecosystem. The economies, identities, spiritual and cultural values, and forms of social organization of indigenous knowledge are often closely tied to maintaining intact the biodiversity of ecosystems that contain them. However, multiple pressures exerted on indigenous and other rural communities have made this a challenging proposition in many settings.

People's interaction with their environment exhibits the meaning and identity they hold as bond in identifying their activities within a confined space and territory. Sometimes this interaction is what is referred to as cultural environment. Hannele and Leena, (2007), defined a cultural environment as an environment whose characteristics reflect cultural eras and interaction between human beings and nature. It also relates to people's relationship with their environment in the past and now and the meanings and interpretations given to it, hinting further that Indigenous peoples have a great deal of tacit knowledge and skills, which are invaluable and irreplaceable. Reasoning along this line, Annelie (2008) narrated that Traditional peoples inhabit a significant part of the Earth's most bio-diverse regions and are holders of important knowledge for sustainable livelihoods and biodiversity conservation. A considerable part of the Earth's biodiversity is located in areas and territories under indigenous peoples' and traditional communities' ownership, control and/or management. At the same time these peoples and communities are also the ones who are most affected by the degradation and loss of their natural environment. indigenous peoples voices are crucial components for shaping a sustainable future, and they help guide and support the future actions of conservation communities and partners. The analysis here points to the fact that the conservation community has increasingly recognized that conservation of biodiversity in the long-term is intimately linked with socio-cultural values and practices, as well as with the rights of all peoples to live in security and dignity. Another term that has become relevant for biodiversity conservation since the Convention on Biological Diversity came into force is that of "local communities embodying traditional lifestyles," or "traditional peoples" for short. This term has a socioeconomic as well as a cultural dimension. It usually implies a largely subsistence economy based on close ties to the land (Annelia, 2000).

Traditional knowledge is an important resource for development of strategies to conserve biodiversity. Generations of interaction with specific habitats and species can provide a long-term perspective on ecosystem dynamics. Anthropologists and other researchers have frequently documented how various traditional peoples have developed sophisticated classification systems, in many cases producing more complete taxonomies than those of Western science. It is in this regard that Annelia (2000) maintained that Traditional knowledge is a catalyst for cultural adaptation to environmental conditions. However as he argued, one of the great ironies facing many indigenous peoples is that scientific and commercial interest in

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their ecological knowledge and resource management practices is increasing while traditional knowledge systems are disappearing at an accelerating rate as globalization makes the world more biologically and culturally uniform. Weber, Butler, and Larson (2000), pointing from Article 10(c) of the Convention on Biological Diversity, maintained the relevance of Traditional management practices on biodiversity conservation and argued for requirement, recovery and support of these practices when they are "compatible with conservation or sustainable use requirements." The assumption underlying this injunction is that these practices not only have specific local values but can be integrated into national efforts to enhance biodiversity conservation in a given country. In the same vein Bjørning and Kiørboe (2005) also established that traditional or customary rules, once established, controlled the access of African people to natural resources. Rules prohibited, for example: cutting particular trees; some methods of gathering certain fruits and other tree by-products; and access to sacred groves and mountains. Giving credence that Indigenous men and women often have a mythological and spiritual relationship with the natural resources and interact with them as living beings important for their physical, mental and spiritual survival and wellbeing. This relationship is often reflected in and regulated by traditional rules and traditional legal systems, normally referred to as "customary indigenous law.

1.2Statement of the Problem

The natural environment is closely tied to integral human life, and without it, human life may not be sustained. Cultural environment includes social, religious, linguistic, economic, and other cultural elements. In fact, the distinct understanding of these elements and their relative values can be closely correlated. Thus, in this 21st century, people in various sectors of life are coming to understand the central fact that the natural environment has to be protected and sustained. As this awareness of the natural world deepens, it becomes a task to reflect with others on the ways the Igbo protected their environment before the coming of Christianity and Islam (Nwosu, 2010). Knowledge innovations and practices of indigenous peoples and local communities are a show of their cultures. Protection of people's culture therefore entails preserving the link between the people and natural features including plants and animals. Protection of Traditional Knowledge can therefore, help conserve the environment and promote sustainable agriculture and food security. In this cause Anderson and Sutton (2005) Argued that throughout time, cultures have obtained and categorized knowledge about their environments. The vast majority of this knowledge was unwritten, passed verbally from generation to generation. Thus as traditional cultures disappear; much of their knowledge is being lost. Thus recording traditional knowledge is a critical concern of the anthropologist.

Indigenous knowledge is an important natural resource that can facilitate the development process in cost-effective, participatory, and sustainable ways. Warren (1991) is of the view that Indigenous knowledge has value not only for the culture in which it evolves, but also for scientists and planners striving to improve conditions in rural localities. Kothari (2007) came to the realization that Traditional knowledge has not become redundant in today's world, is increasingly widespread. The Rio Declaration, the Convention on Biological Diversity, the documents coming out of the World Summit on Sustainable Development, and a whole host of other international instruments and forums have emphasized the current (and future) relevance of Traditional

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Knowledge. Opening up further on his views Kothari (2007) explained that Culture is a dynamic system of collectively shared symbols, meanings, and norms – the non genetic information possessed by a society. People are born into cultural settings, which help shape their perceptions of the world around them. Marten (2001) believes that societies that believe guardian spirits reside in forests will often take measures to protect those forests; likewise societies that believe that ecosystems are naturally held in balance might do little to actively conserve their resources. These belief systems are often called "worldviews". Societies share some worldviews, or systems through which they interpret information and then consequently act. Within societies many interpretations of reality coexist, depending on an individual's gender, age, occupation, or education level. Understanding these perceptions helps to explain why individuals act in particular ways in their environments.

Sodhi and Ehrlich (2010) attributes that many traditional societies and human ecologists share a common perception of nature, that every- thing on earth is connected to everything else. But as Ruiz-Mallén and Corbera (2013) succinctly argued, the interconnectedness between traditional ecological knowledge, adaptive capacity, and resilience in community- based conservation initiatives is not yet well understood and it has not been systematically analyzed to date. Examining how traditional ecological knowledge shapes people's adaptive capacity patterns in community-based conservation initiatives regulated by different types of governance systems (i.e., self-regulated and comanaged) is critical to provide a nuanced understanding of the potential of and the limitations of traditional ecological knowledge in enhancing or limiting the ability of communities to deal with multiple stressors and sources of change.

Scholarly studies have been conducted on indigenous knowledge in environmental preservations and conservation. For instance in a study by Bissong and Essien (2010), showed that traditional institutions were found to be responsive and slowly evolving mechanisms to cope with resource degradation problems. Also in another study Jangawe(2009) revealed that most Indigenous Knowledge are not available in written form but mainly found in practice and is transmitted orally from one generation to the next . Moreover, such transmission has mainly been family based. Lalonde (1991) showed that as the practitioners, guardians and educators of such knowledge i.e Indigenous Knowledge, the death of key elders, particularly women, presents a serious constraint to the long-term survival of indigenous knowledge. This is partly due to the fact that much of African traditional knowledge exists in oral form, or is learned from elders through shared practice and trial and error experimentation. Also Bissong (2006) described four basic interactions existing between pre-existing knowledge and new information on local knowledge and scientific information. These basic interactions he classified as;

1. Formation interaction, which occur when new knowledge replaces the previous knowledge.
2. Modifying interaction, when local knowledge is slightly adjusted by scientific information which comprehends the ecosystem principles behind observed phenomenon.
3. Reinforcing integration, a process where local people knowledge is confirmed by scientific information and gives a sense of confidence of indigenous observations and practices. And
4. Confusing interaction, which occur when there is conflict between local people knowledge and scientific information.

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Of the aforementioned studies, apart from Bissong (2010) who did a study on indigenous Knowledge system in nature conservations in Nigeria, cross rivers state precise, majority of studies of this nature have not focused on the environment of umuahia south. These studies are mainly derived of the objectives of the economic potentials of indigenous Knowledge in industrial gains, especially as they are channeled towards discovery of for example new disease resistant drugs derived from plants, and also identification of animal species that are good agents in agricultural productions. Studies like Unnikrishnan and Suneetha (2012), Chivian and Bernstein, (2008) Newman and Cragg (2007) points to this direction. For instance Unnikrishnan and Suneetha (2012) explained that traditionally biological resources have been used extensively for health care and healing practices. Health practitioners trained in traditional and non-formal systems of medicine play a crucial role linking knowledge on characterization of biological resources and health-related knowledge and are significant both in terms of modern pharmaceuticals. While these studies looked at the economic needs and potentials of indigenous knowledge in development, especially along medical breakthrough and research, this study looked at the applicability of indigenous knowledge in nature conservations. Study of this nature is therefore very ideal and important since it aims to identifying and documenting the indigenous conservations practices in umuahia south Local Government area, Abia state.

1.3 Aim and Objectives of the Study

The major aim of the study was to examine the applicability of indigenous knowledge in environmental conservation in Umuahia south LGA, Abia state. Other specific objectives were to:

1 Identify and document the various indigenous Local knowledge employed by the local people in environmental Conservation in Umuahia South Local Government Area of Abia State.

2 Ascertain how relevance the use of Indigenous Local Knowledge by the people is to modern environmental conservation practices in Umuahia South Local Government Area of Abia State.

3 Identify and examine those natural resources that are protected based on native wisdom and traditions in Umuahia South Local Government Area of Abia State

4 Identify those socio-cultural activities that are identified with the natural resources in Umuahia South Local Government Area of Abia State.

1.4 ***Research Questions***

1. What constitute indigenous knowledge of the locals for environmental conservations in Umuahia South Local Government Area of Abia State?
2. How relevant is the use of Indigenous Local Knowledge to modern environmental conservation practices in Umuahia South Local Government Area of Abia State?
3. What are those natural resources that are protected based on native wisdom and traditions in Umuahia South Local Government Area of Abia State?
4. What are those socio-cultural activities that are identified with the natural resoureces in Umuahia South Local Government Area of Abia State?

1.5 Study Area

The study area is Umuahia South Local Government Area in Abia State. It was created by the Federal Government of Nigeria in August, 1991 with the headquarters at Apumiri Ubakala (opposite the popular Apumiri market. The Local Government Area (LGA) is located at the

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Equatorial Rain Forest Zone and shares boundaries with the Umuahia North Local Government in the North, Isiala-Ngwa North Local Government by the south and south-east, Ikwuano Local Government by the north-east, from Imo State by the Imo River. It has an area of about 140 square kilometers and a population of 138,570 at the 2006 Nigerian census.

It is host to the cereal research institute situated at Amakama. The Nigerian television authority, federal radio corporation and the ministry of environment are also situated in Umuahia south LGA.

It has four notable clans which are sub-divided into autonomous communities. The clans are Olokoro, Ubakala, Umuopara and Old umuahia. It consist of thirty-six (36) villages and twenty-five (27) autonomous communities namely; Amakama, Umuajameze, Ekenobizi, Amachara, Nsirimo, Amankwo, Ehume, Ugbodiukwu, Umuihie, Ogbodin'ihe, Ohiya, Eziama, Amuzu, Nsukwe, Umuogo, Amaibo, Umuajata, Amizi, Itaja, Itu, Okwu, Avonkwo, Agbama, old umuahia, umuobia and Umuoparaozara.

1. 6 *Research methods*

This study adopted a Cross sectional research design which is a form of survey research designed to employ random probability samples that allow for the employment of statistical inferences to a broader population and generalize findings to real life situations in order to increase the external validity of the study.

Our target populations were 400 (traditional heads) which were purposively drawn from the traditional heads in Umuahia south LGA. This constituted our unit of analyses. They were randomly sampled to respond to sets of questions about their background, past experiences, attitudes and knowledge on indigenous knowledge. This was done using the statistical analysis to examine the causal pattern of relationship and perceptions.

Quantitative data were collected primarily using the questionnaires. The questionnaires were structured in both the close-ended and open-ended questions. The qualitative data were collected from secondary sources of data such as documents and text books that are relevant to the study.
The study adopted a Probability random sampling technique but using the proportional stratified sampling method, in which every unit in the population had a chance (non-zero probability) of being selected in the sample. The first step we defined the target population, the (unit of analysis) with which we studied. Our units of analysis were all the traditional heads in Umuahia South Local Government area. They consist of the Ezes, Chiefs and Women Leaders. The second step we chose our sampling frame, the Four (4) clans, (Olokoro, Old Umuahia, Ubakala and Umuopara) this is the accessible section of the target population from where a sample was drawn. Each of the clan represented a sample frame from which a sample of the 40 autonomous communities in the clans was drawn. Our population of 400 traditional heads was drawn using the proportional stratified sampling method. The proportional stratified sampling method ensured that each of the Traditional Heads (Ezes, Chiefs and women leaders) were proportionally drawn and represented in each of the 40 autonomous communities. 400 questionnaires were distributed, 398 were completely filled and returned.

1.7Results and discussions

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Socio-demographic characteristics of respondents

Variables	frequencies	Percentage (%)
Sex		
Male	358	90
Female	40	10
Marital status		
Single	0	0
Married	377	96
Separated	0	0
Widow	21	4
Age		
50-59	30	8
60-69	196	49
70-79	101	25
80-89	58	15
90-above	13	3
Level of education		
No formal	18	5
Primary	240	60
Secondary	88	22
Tertiary	52	13
Occupation		
Farming	197	49
Trader/ business	93	23
Artisan/technicians/tradesmen	72	18
Civil servants	36	9
Religion		
Christianity	386	97
Traditional	12	3
Muslim	0	0

Table 1 above is a representative of the socio-demographic component of the respondents. It showed that 358 respondents representing 90% were male, while 40 respondents representing 10% were female. The reason is not far from the believe system and culture of the Igbos especially as males assumes leadership and authority in the society. 377 respondents representing 96% were married as the table and chart indicated above. While respondents representing 4% were widow. It shows the importance attached to marriage in Igboland and in Umuahia South. A traditional head must as a custom have a wife or wives especially for a man. The woman must have a husband in order to attain respect and status in the society

Respondents of various ages' cohorts participated in the study. The most common age range was 60-69 followed by 70-79 (see table). This was an indication that most of the traditional heads in the study area were well advanced in age and in line with the believe in Igbo land that men of wisdom and custodians of traditions are men and women well advanced in age and has attained respectable status in the society. Majority of the respondents at 60% have

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attained primary school education as at the time of study. Table 4 above also indicated that 22% of the respondents had secondary education while 13% had tertiary education. A smaller population of the respondents at 5% had no formal education. It is an indication that about 95% of the respondents have had a formal education. This showed the importance attached to education in the study area. The study also has shown the importance of education among the Igbos.

Of the 398 respondents in Umuahia South; 49% of the respondents are engaged in farming, 23% are traders and business men while 18% are artisan, technician and craftsmen. A smaller number of the respondents about 9% are civil servants. Data retrieved from respondent showed that 97% of the respondents were Christians while 3% are engaged in traditional religion. The figure confirms the study area as predominantly Christian dominated.

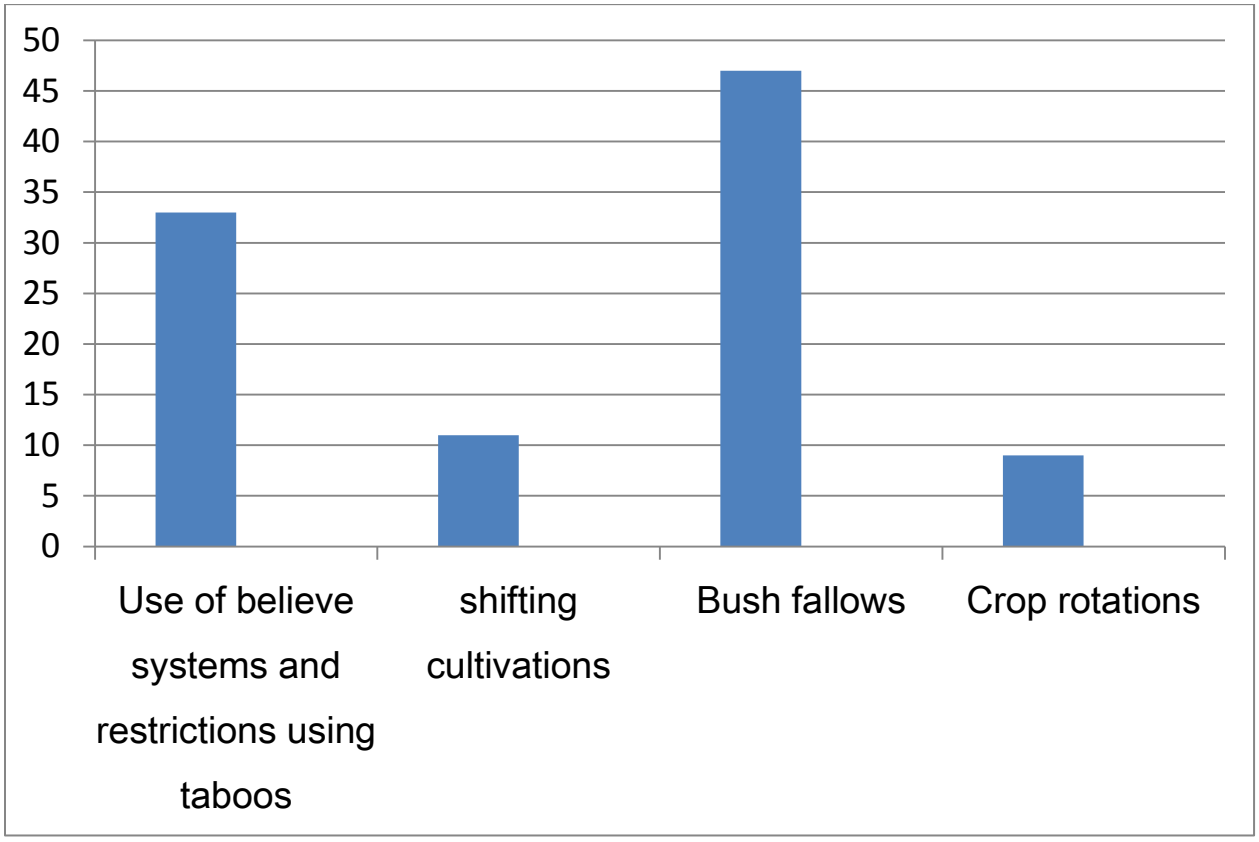


Fig 1 showing information on indigenous methods and practices adopted in Umuahia south LGA.

Information on the indigenous methods and practices adopted in environmental conservations in umuahia south LGA showed that 47% of the respondents used the Bush fallowing. This was followed by 33% of the respondents who adopted the use of belief systems and restrictions on taboos. 11% used the shifting cultivations while 9% of the respondents make use of the crop rotation methods to conserve their environments. This finding resonates and strengthens the position of Bjørning and

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Kiørboe (2005) who also established that traditional or customary rules, once established, controlled the access of African people to natural resources. Rules prohibited, for example: cutting particular trees; some methods of gathering certain fruits and other tree by-products; and access to sacred groves and mountains. Other areas of restrictions and believe systems as taboos used to conserve the environments in Umuahia south LGA, includes prohibitions and restriction of women from harvesting and cutting the tender and the yellow part of the palm frond called 'Omu nkwu' in Igbo land, hunting and killing of animals if its pregnant with young ones, mating and drinking from a river. Among other restrictions used in environmental conservations includes the restriction using knife to cut and harvest the Oil bean (Ugba) tree. The bean seed can only be picked when it disperses.

However Mensah and Oduro (2007) have warned that the rapid changes in the belief systems. Both biophysical and socio-economic factors have found to underlie these changes. The breakdown of traditional beliefs and associated taboos which underpin traditional natural resources management practices were found to be the greatest threat to the sustainability of indigenous knowledge practices. Even Chandra (2012) believes that sustainable natural resource management is driven by the beliefs and behaviors of human communities and local structures are strengthened by their intimate connections to the natural environment that sustains them. This finding also strengthens the observations of Mugisha and Infield (2011) who believes that Understanding local culture is very important for effective conservation. Though they pointed out that not all local values are compatible with conservation. But integrating viable local values into conservation initiatives helps build the local support and interest that is essential for sustainable conservation, and should be an integral part of the design, planning, and management of protected areas.

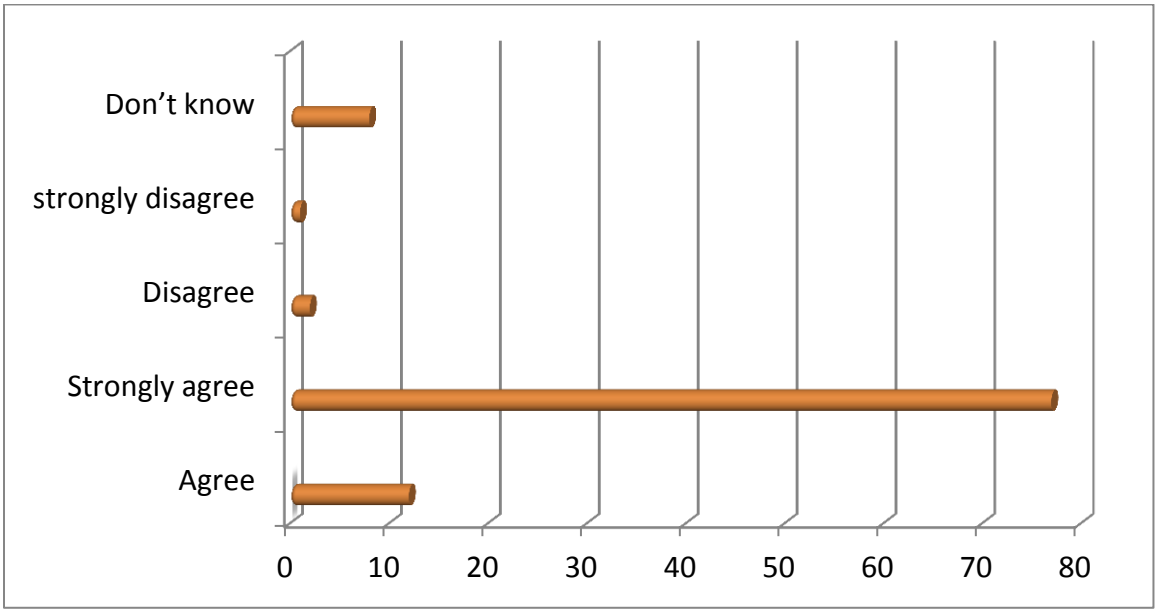


Fig 2 showing perception information on the relevance of indigenous knowledge in environmental conservations

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Information on the relevance of indigenous knowledge in environmental conservations showed that majority of the respondents 77% strongly agreed on the relevance of indigenous knowledge in environmental conservations in Umuahia South, Abia state. Orbach, Cordero, Baleeiro Curado, Palacio, and Veitayaki, (2010) are of the opinion that human cultures and societies are defined by the biological and physical environments in which they live. People who live near or on the ocean, or use its environments and resources for sustenance or recreation, develop cultures, economies, and lifestyles that reflect proximity to and dependence on those environments and resources. The human use and governance systems which we develop should be constructed to provide for the sustainable use of these environments and resources, and thus for sustainable human cultures, economies, and communities. In the same vein a statement from the Native title report (2008) states that Indigenous peoples have the ability to interpret and react to the impacts of climate change in creative ways, drawing on our traditional knowledge's and other technologies to develop solutions which may also help the wider society in its attempts to cope with the changing climate. This reinforces the argument that Indigenous peoples are vital to, and active in ecosystem managements.

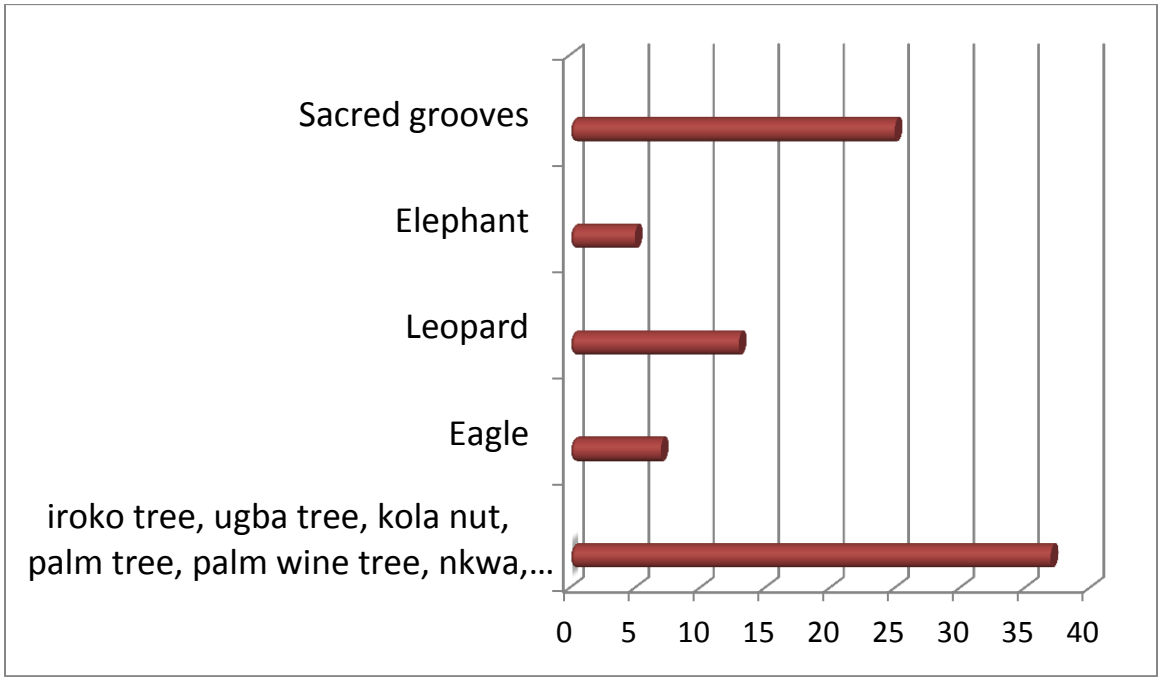


Fig 3 showing information on natural resources protected based on native wisdom

Information on the natural resources protected based on native wisdom showed that 37% of the respondents identified Iroko, ugba, kola nut, palm tree, palmwine tree, nkwa, ubakiriba and uchekwu trees as the natural resources protected based on native wisdom, 25% 0f the respondents identified their sacred grooves as the natural resources protected, also 13% of the respondents said streams, 13% said leopard, 7% said Eagle and 5% of the respondents identified the elephants as some of the natural resources protected based on native wisdom.

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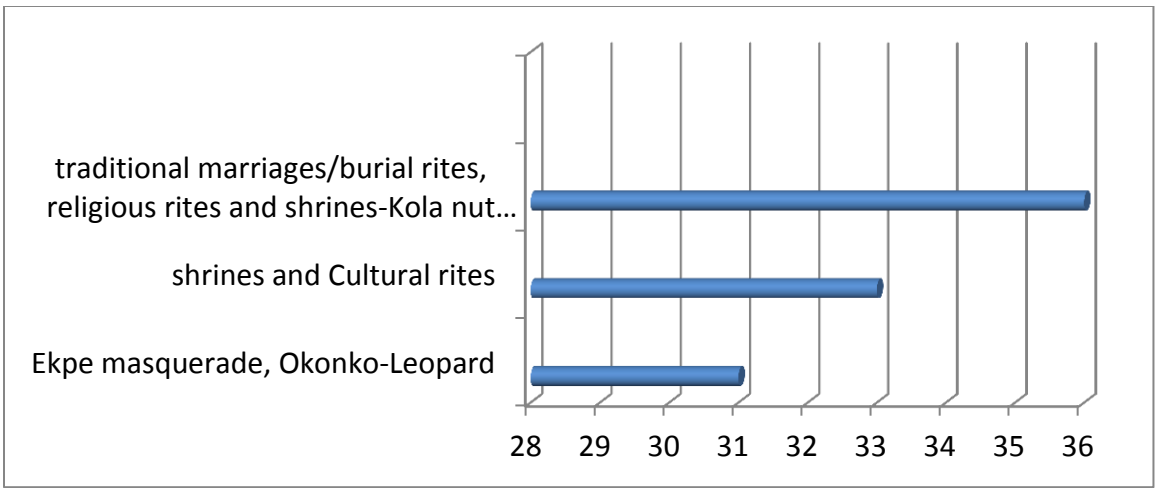


Fig 4 showing information on socio-cultural activities attached with the natural resources in Umuahia south LGA

Information on the socio-cultural activities attached to the natural resources in Umuahia South LGA showed that 31% of the respondents identified Ekpe and Okonko socio-cultural activities as having a link to the leopard, while 33% of the respondents mentioned the attachments of shrines and other cultural rites having link to groves especially sacred groves. 36% of the respondents said traditional marriage; burial and religious rites are attached to the kola nut tree, palm wine tree and the Iroko. In this instant, Adzobu, Ampadu-Agyei and Veit (1991) explained that groves were established centuries ago as dwelling places for traditional gods and are the sites for such important socio-cultural events as religious worship and festivals, burials, secret society meetings, and lifecycle rituals. This finding also is in line with the position of Chandra (2012) who posited that cultural diversity is closely linked to biodiversity and is also a condition for its sustainability. In the same vein Sangion and Chris (2008) noted that spiritual beliefs and practices also play an important role in nature conservations. This knowledge contributes to conservation by placing restrictions on where people can go and what they can or cannot harvest in certain places.

1.7 Test of Hypotheses

H_0: There is no significant relationship between livelihood dependence on natural resources and the survival rate of indigenous plants and animal species in Umuahia south LGA.

Table 12: Showing contingency table for observed and expected frequencies for Hypotheses

Respondents	Agree	Strongly agree	Strongly disagree	Total
Male	63(76)	284(264)	3(4)	358
Female	22(8.5)	10(29.5)	2(0.5)	40
Total	85	294	5	398

The table above shows chi-square X^2 calculated value for research hypothesis as follows:

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To arrive at the expected value, we multiply the total of each row by the total of each column and divide by the total number of respondents.

$$X^2 = \sum \frac{(o_1 - e_1)^2}{e_1}$$

Where o = Observed frequency
e = Expected frequency

$$= \frac{(63-76)^2}{76} + \frac{(284-264)^2}{264} + \frac{(8-12.5)^2}{12.5} + \frac{(3-4)^2}{4}$$
$$+ \frac{(22-8.5)^2}{8.5} + \frac{(10-29.5)^2}{29.5} + \frac{(6-1)^2}{1} + \frac{(2-0.5)^2}{0.5}$$
$$= 2.2+1.5+1.6+0.25+21+12.9+25+4.5$$
$$= 68.95$$

To compare calculated value with table value, let us determine the Degree of Freedom (df):

df = (R-1) (C-1)
= (4-1) (2-1)
= 3x1
= 3

Results

$$X^2 = \sum \frac{(o_1 - e_1)^2}{e_1}$$

$X^2 = 68.95$

Table value of X^2 at 0.1 level of significance is 6.25

At □= 0.1, V= 3 Cal X^2 = 68.95 Tab X^2 = 6.25

Chi-square rule: It is a generally accepted chi-square rule that; the hypothesis should be accepted if the calculated value in the chi-square table is less than the table value and reject Null hypothesis if the calculated value is greater than the table value.

On this note therefore, since the calculated value X^2 is 68.95 and table value is 6.25, we reject the null H_0: There is no significant relationship between livelihood dependence on natural resources and the survival rate of indigenous plants and animal species in Umuahia south LGA, and accept the alternate hypothesis which states that, There is a significant relationship between livelihood dependence on natural resources and the survival rate of indigenous plants and animal species in Umuahia south LGA. This supports the position of Rose (1996) who warned that if the present trend in forest exploitation continues without a radical shift in our approach to conservation, most edible wildlife in the equatorial forests of Africa will be reduced drastically

1.8 Conclusion

The study has shown that virtually all the mentioned natural resources in Umuahia south LGA are identified with the socio-cultural activities in Umuahia south LGA. The attachment of the Ekpe and Okonko socio-cultural organization to the Leopard, the setting of shrines and other cultural rites in groves, the use of kolanut, palmwine from palm tree for traditional rites and burials and also the importance attached to the Iroko tree as king of all tree and its usage for shrines, are some of the natural resources identified

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and attached with the socio-cultural activities in Umuahia south LGA.

Based on the findings of this study, the study makes the following recommendations;

1. An integration of indigenous knowledge module in academic curriculum in both the primary, secondary and tertiary educational system in Nigeria.

2. Also recommends a policy trust restricting the exploitation of indigenous natural resources, given that the over-exploitation and extinction of indigenous nature resources impacts on the indigenous knowledge and culture of the people.

3. An Indigenous knowledge database; A system of documentation and cataloguing of indigenous knowledge of the people to forestall its loss and extinct is very important.

4. Establishment of Indigenous conservation areas: a government regulation and policy establishing conservation areas that will be managed by the indigenous people. And access to such conservation areas should be for research purposes. A synergy in environmental policy proposal, formulation with indigenous knowledge holders and government environmental conservation agencies is also recommended in this study.

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