



# Impact of developmental needs of the people of Mubi-North local government area of Adamawa state, Nigeria on environmental sustainability

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## Abstract

Traditional laws and the use of taboo practices have helped to check the onslaught on the environment, at least among the local people. The disregard for these traditional laws and taboo practices, are due to the advent of western modern culture and present religious practices (Christianity). The natural environment and cultural preservation methods in Mubi-North were investigated. Mubi-North local government area had been occupied by the same people for over two hundred years, and they faithfully kept the use of traditional laws and taboo practices in conserving their natural environment. The study showed that the preserved forests in Vimtim and part of Mubi-town have remained intact, while preserved rivers in Muchalla and part of Mubi-town also remained largely intact. Though, the laws have relaxed a little, due to the wholesome acceptances of western modern culture and present religious practices. The present religious practices and Colonialism by the colonial masters had an eroding effect on the use of traditional laws and taboo practices, which were put in place to protect the forests, land and rivers. The threat to the natural environmental structures could be as a result of disregard to traditional cultural practices in this region. Therefore, culture of different tribes needs to be revisited to enable integrating traditional knowledge system into modern practices as an essential element in achieving developmental processes of many local communities in Nigeria.

**Keywords:** Traditional laws; Taboos; Forests; Developmental needs; Environmental sustainability

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## **1. Introduction**

There is a growing concern all over the world about environmental problems that are caused as a result of developmental needs of a people. The word developments have always meant different things to different people both at the individual and the corporate levels. Development may be described as a process of advancing from one level to another, which arises because of needs of improving human standard of living that may be relevant at a given situation. Development itself is multidimensional and encompasses social, political, environmental and economic and all of these factors are brought about by humans. Alipour and Allahyari (2010) also described development as an economic, social and political process which result from living standard and caused to improve the living level of increasing population. The ideal meaning of development is to improve living quality (Khakpour, 2006).

Developmental needs and aspirations for a better life by people can also be a problem at the root of achieving environmental sustainability. Although, the Brundtland Report argues that living standards that provide for more than basic needs can be sustainable, only if such living standards assure long-term ecological sustainability (Brundtland, 1987). Sustainability as a concept is remarkable. Despite all the problems in the agreement on a definition, the term sustainability has its origin in ecological science. It was developed to express the conditions that must be present for the ecosystem to sustain itself over a long term (Holden and Linnerud, 2007). Sustainability can be described as human practices that would usually sustain the quality and system of life on earth, allow people meet their present needs without degrading the natural resource capital available for future generations to meet their own needs. Environmental sustainability requires that they be maintained rather than run down.

In Nigeria, developmental needs of the people have resulted in the replacement of local rural towns to local government and state capital headquarters. This have affected most cities and rural community towns; most of the pressures on the environment from the areas come from excessive growth of small villages and towns, inappropriate farming practices, overuse of pesticides and fertilizers, knocking down hedges to expand field sizes and also need for rural housing developments. All of these practices can contribute to the imbalanced relationship we have with the natural environment. This may mean that the long term sustainability of the rural communities in Nigeria is at risk. However, the unsustainable method of development occurs when present progress toward development is at the expense of future generation.

Among the rural people of the world, preservation of the environment is inextricably linked to the culture of the people; found in the people's farming systems, care for land, forests, wild life, trees, and streams (Anoliefo et al, 2003). These rural or indigenous people are those who are the original or oldest inhabitants of an area or region, who have lived in a traditional homeland for many generations (Toledo, 2000). Davies (1999) reported that worldwide, some 300 million people, roughly 5 % of the global population still retain a strong identity as members of an indigenous culture, rooted in history and language and attached by myth and memory to a particular place.

These aboriginal people have their own ways of sustaining and living in harmony with their environment through the traditional understanding of nature and natural phenomena. Six dimensions have been put forward as mechanisms that permit a community to take or retake control of the processes that affect it

(Anoliefo et al., 20003). These include territorial, ecological, cultural, social, economic, and political (Toledo, 1997). In north eastern part of Nigeria and especial among the people of the Mandara region, cultural values were safeguarded through the use of traditional laws and taboo practices. These practices were used to preserve their structures including forests, rivers and land which are considered as “sacred groves” basically for the management and conservation of their natural resources.

Mubi-North local government area has maintained the tradition of environmental conservation over the years, because of the continuity in the family traditional practices. However, the need for increased agricultural production, urbanization, increase in population growth, and rural housing development are some of the problems presently encountered in the study area and has fostered ecological unsustainable development in this region, through deforestation activities and invariably led to environmental degradation. Anoliefo et al. (2003) reported that activities, such as deforestation, mining and industrialization are carried out by developing countries, and these invariably affect the environment. Deforestation is the permanent destruction of indigenous forests and woodlands which results in a loss of natural resources as well as a protective barrier for topsoil. Although, deforestation occurs for many reasons; resulting from demands of animal husbandry, trees or derived charcoal are used as, or sold, for fuel or as lumber, need for land, for development processes, land for agriculture, cutting of wood or the incidence of bush burning usually affects environmental sustainability of the area.

The cutting down of trees have resulted in habitat destruction and loss of biodiversity. It has been reported that the rate of deforestation in Nigeria was about 350,000.00 hectares per annum, leading to loss of biodiversity (Obiefuna and Ezedinma, 1993). The consequence of this activity is the effect on worldwide climate change and global warming, which have been generally recognized as being directly linked to widespread deforestation (Okpara, 1995). Fearnside and Laurance, (2004), also reported that deforestation is a contributor to global warming and is often cited as one of the major causes of the enhanced greenhouse effect. Other consequences of deforestation include the destruction of trees that would otherwise form windbreaks, decreased desertification, and soil erosion (Anoliefo et al., 2003). Recent calculations suggest that carbon dioxide emissions from deforestation and forest degradation (excluding peat land emissions) contribute about 12 % of total anthropogenic carbon dioxide emissions with a range from 6 to 17 % (Van der Werf et al., 2009).

The importance of forests to the environment cannot be over emphasized, since forests account for 50 % of the plants in the world and are home to 2/3 of all living organisms on earth (Akinyeye, 1997). Forests biodiversity provides various ecological benefits and constitute major biological pool, including germplasm for crop improvement. Locatelli et al. (2008), reported that tropical forests are important providers of ecosystem services at various scales, from local (e.g. timber and non-timber forest products, pollination services and scenic beauty) to regional (e.g. hydrological services) and global (e.g. carbon sequestration). Also it houses trees and animals, which provide food, medicine, shelter and oils for man (Anoliefo et al., 2003). Apart from ecosystem services provided by the forests, it's also protect soil against soil erosion and sedimentation. Though, tropical forests are believed to provide a more balanced supply of water when there are seasonal differences in precipitation because the soil acts as a sponge; it is also important to recognize

that tropical forests are not the only ecosystem capable of producing these effects – the nature of the succeeding land use is very important (Bulte and Engel, 2006).

In the rural villages of Mubi-North local government area, the people are still using firewood for cooking; which they normally collected from their farms and forests through de-branching of trees. While in some cases strangers and non-indigenes in the rural area of Mubi- North, could fell trees; because they do not know the traditional laws and taboo practices that are attached to such activities in this region. Sometimes it could be due to the sheer number of people who must depend on the available de-branching parts of the trees to cook. The local people of this region do not understand the reason why they must now not use firewood which they have been using for centuries. Samant and Dhar (1997) reported that various societies utilize their natural resource base depending on their perception, experience, and response to pattern of resource use.

The present study therefore aims to document the effect of cultural environmental control measures employed to execute on the developmental projects of the Mandara people. Documentation of information to enable one make recommendations for better methods of management and conservation of natural resources in Mubi-North local government area shall also be executed.

## 2. Material and methods

### 2.1. Study area

Mubi is the capital of Mubi North Local Government Area of Adamawa State in Nigeria. It lies on latitude 10°32'N to 10°11'N and longitude 13°12'E to 13°35'E, with a total land mass of 506.4Km<sup>2</sup> and a population size of 759,045 people.

Mubi has a tropical climate which is determined by the movement of the Inter Tropical Convergence Zone (ITCZ), as well as the effect of relief (Ray, 2007). Rainfall begins in April, progressing and reaching its peak in July/August and stops most of the time in October. Average annual rainfall ranges between 998 mm and 1262 mm.

The areas just below the Mandara Mountains record the highest rains. Rainfall intensity is high with rainy days making up to 87 % of the days with more than 20 mm of rainfall (Ray, 2007). Alongside air and water, soil is another vital resource that provides the basis for human living (Adebayo, 2004). The soil is composed of weathered rock materials (parent material), organic matter, moisture content, and dissolved minerals in the air (Adebayo, 2004). Thus, it forms a very important medium for plant growth. However, soils vary in their texture, structure, colour, mineral content and moisture holding capacity (Adebayo, 2004). Some of these physical properties collectively form the basis for their classification.

The soil of Mubi regions therefore, fall under the category of ferruginous tropical soils of Nigeria based on the genetic classification made by the Food and Agricultural Organization of the United Nations (Adebayo, 2004). Mubi region falls within the Sudan Savanna belt of Nigeria's vegetation zones. The region's vegetation

type is best referred to as Combretaceous woodland Savanna. It is made up of grasses, aquatic weeds in river valleys and dry land weeds interspaced by shrubs and woody plants (Adebayo, 2004).

## 2.2. Research question

The study investigated the impact of developmental needs of the people of Mubi North LGA on the use of traditional laws and taboo practices to preserve the forests, rivers and lands.

### 2.2.1. Focus of questionnaire

The questionnaire utilized sought information on how traditional laws and taboo practices had checked the onslaught on conservation of the three preserved resources in Mubi-North local government namely forests, rivers and lands. Also foci included how the places were preserved, the effectiveness of the tools used to preserve them, why the methods used were ineffective, possible ways of reviving the methods and all the traditional laws, taboos and "sacred groves" that were used to preserve the structures.

The effect of civilization and modernization on the preserved items, the acceptance and the effect that this is having on the environment. Finally, the reason for the acceptance of environmental management "sacred" was also sought.

### 2.2.2. Administration of questionnaires

The research questionnaires were administered to both literate and illiterate individuals within each family. The questions were carefully read and explained to the respondents; in some cases, where the respondent only understood his/or her dialect, then an interpreter was engaged. Answers thus obtained were used to complete the questionnaire. At the end of the interview; the responses were read out to the respondents in English and also interpreted to his/her dialect for the confirmation of all that had been written.

A total of 50 families were interviewed in the five (5) towns: Mubi town, Vimtim, Muchalla, Mayo-bani and Mijillu. The questionnaires were given only to bona-fide indigenes of the towns or villages within the study area. The key informant who completed the questionnaire for any given family was usually the most elderly person. A family was considered as one, when all its members are living together in one household. There were cases of extended families, where a group of relatives consisting of grand and great-grand parents live within the same household. In such cases, the older ones among the parents were employed for the exercise and the family was still treated as one. However, the respondents were of different sexes, age-groups, marital status, religious beliefs, occupations and educational background. In addition to the administration of questionnaires, focus group discussions were organized to obtain direct first-hand information through responses from the respondents, most of whom were poorly-educated and can only understand Hausa and their local dialect. These were organized to obtain information which could not otherwise have been obtained from the questionnaires due to fear of what will happen or shyness on the part of some respondent.

Furthermore, the survey was carried out during the dry season, because this was a period when most families could be reached at home while processing their farm products. The returned questions were

collated according to similarity in responses and bar chart determined. Conclusions were drawn using the descriptive statistics.

### **3. Results**

The respondents generally agreed that environmental degradation of forests, rivers and land were effectively controlled through the use of traditional laws and taboo practices in the region.

#### **3.1. Environmental taboos**

Table 1 shows various activities that were considered as environmental taboo in the five towns of Mubi-North Local Government Area. Taboo is not a new word to an average African, though it means forbidden in English. It is similar to “mahelegi” in Higgi, “malahu” in Marghi and “waza” in Fali, which are the different dialects in the study area. The use of taboo is associated with any kind of social prohibition imposed by the traditional leadership of a community regarding certain times, places, actions, events, and people. Taboos are specially made for the well-being of the people and their environment.

The use of environmental taboos, are mainly concerned with environmental structures such as forests, land, rivers/streams, shrines and other available natural resources in the environment. The taboo were taken seriously among the people in the communities since they believed what their traditional rulers and chief priests imposed on them and it represented the general interest of the communities. Taboos were normally passed on orally, from generation to generation. In some villages of the study area, people were not permitted to farm near the forests that housed places of sacrifices, as it was a taboo to do so. Indigenes in the communities of the study area believed that those who violated the taboos in Table 1 that protected environmental structures could be greatly afflicted with terrible diseases or even mysterious death caused by the “gods”.

It has been confirmed by the respondents that there is reduction in the level of respect accord the use of taboos on environmental structures. However, the older respondents of age fifty years and above still believe in the effectiveness of the taboos.

#### **3.2. The rivers/streams**

Table 2 shows the major rivers that were in existence from 1942- 1992 and the ones that are presently in existence that is from 1993- 2009. Some of the rivers that are presently in existence only contain water during the rainy season. Modernization, urbanization, population growth, rural housing development and unsustainable agricultural practices are the main causes of the non existence of the rivers that existed from 1942- 1992. Westernization and present religious practices have influenced people’s attitude toward the use of traditional laws and taboo practices that were used to preserve the structure. In some villages of the study area, population growth, unsustainable agricultural practices and modernization has not really had

substantial negative effect on the use and maintenance of this structure. This may be as a result of compliance with the traditional laws and taboo practices.

**Table 1.** Activities that were considered as environmental taboos in the five towns of the study area

<i>Name of town</i>	<i>Activities that were considered as taboos.</i>
1. <i>Vimtim</i>	1. Felling of trees in a forest, farming near a forest, fetching of water in a prohibited area, or to bath, wash clothes, and household materials where people are to fetch drinking water. Removing stones and soils in a prohibited area. 2. Setting of fire in a forest or bush burning. 3. The use of chemicals for fishing or farming. 4. Building of houses close to streams or along natural water channels. 5. Cutting down of trees at the burial ground. 6. Dumping of waste or house hold waste into streams/ivers.
2. <i>Mubi-town</i>	1. Digging graves without due authorization from traditional chief priest. 2. Fetching of water in a shrine, fishing in ponds are only done once in a year. 3. Cutting of trees near shrine areas, burning or bush fire setting. 4. Exploitation for mineral resources. No dredging of streams/ivers. 5. Disrespect for cultural riddles and to natural sacred areas. 6. Fetching of water that comes out from mountains which were assumed to be from the gods.
3. <i>Muchalla</i>	1. Felling of trees at the burial ground. Cultural forests are kept untouched. 2. Streams/ivers that passed through forest should not be use. 3. Use of chemical or any toxic substances during fishing festival. 4. Removing stones and soils in a prohibited area.
4. <i>Mijillu</i>	1. Non compliance to traditional land use practices for farming, and using more than simple tools. 2. Farming is not allowed in some prohibited areas. 3. Digging graves without due authorization from traditional chief priest. 4. Removing stones or soils from a prohibited area. 5. Hunting by bush fire setting.
5. <i>Mayo-bani</i>	1. Cutting down of spiritual trees. 2. Digging of graves for burial without due authorization from traditional chief priest. 3. Cutting of forbidden plants species, clearing of sacred forest and bushes. 4. Fetching of water at prohibited area.

Nearly all the rivers in the study area, which have clear running water, had one taboo or another. This is purposely to enable the wise use and maintenance of the rivers. In some of the rivers, traditional laws and the use of cultural taboos did not allow persons to wash clothes, bath or wash household materials where people were to fetch drinking water. Boreholes, wells and modern pipe borne water have replaced the rivers as sources of drinking water in almost all the villages of the study area. Most of the available rivers have

become places for sand dredging for commercial purposes, and other activities that have led to further pollution of the water.

**Table 2.** Major rivers/streams that were in existence before and after the present level of development, and there locations

<i>Name of the major rivers that were in existence from 1942- 1992</i>	<i>Name of the major rivers that are in existence from 1993-2009</i>	<i>Town/villages located</i>
River Yedsarem	River Yedsarem	Mubi- town
Gova, Muchalla River	Gova, Muchalla river	Muchalla
Mamba, Saroba and Mracha, Mujara	Mujara	Vimtim
Zawa, Zatsabi, Mawa, Thigi, Mbra and Mpimizu	Thigi, Mbra and Mpimizu	Mijillu
Dul Ntuntu, Kwahir Mpa, Dul Kwara, Girpa and Dul Gu Digassa	Girpa and Dul Gu Digassa	Betso (Mayo-bani)
Kwatagwu, Kwa Lintu, Dzur, Kuduka	Kuduka	Muva (Mayo-bani)

### 3.3. The forests

Madara region is endowed with many natural resources among which are forests, land and mountains. Forests signified the symbol of god's gift to the people, which must be reciprocated by protecting it from any activities that might lead to its destruction. The respondents believed that sacred groves and the taboos guarding the forests were mainly to control the indiscriminate logging of trees. Prohibition of hunting and farming near the forests is to protect it from any kind of destruction by human activities. However in some of the forests, there was a place set aside for sacrifices which are mostly located deep in the forest where the



sacred animals are found. Most of the tall trees and the streams in the forests are believed by the villagers to be the residing area for ancestral spirit and so is highly revered.

Activities such as deforestation and mining are carried out in the rural community of Mubi North local government area, and invariably affected this environmental structure. These have led to large-scale logging, and hence deforestation. This pressure has been exacerbated by population growth. It further leads to biodiversity loss of both plant and animal species. This shows in the disappearing of forests to grazing reserve. In 1979 Mubi North L.G.A had five forests, three grazing reserves and two plantations which were located at different parts of the region. For example, each of the villages Mayo-bani, Vimtim and Mijilu, had forests located at the region and some with natural grazing reserves. Compared with the present state based on 2009 survey, it is revealed that only two forests out of the five located in the region are presently intact with the disappearing of grazing reserves to plantations. The disappearing of forests to grazing reserves and grazing reserves to plantation is caused by the activities of the rural people which are in turn; induced by the need for land for agriculture, wood for fuel, modernization and rural housing developments. These have been indicated by changes in plant species composition from dense vegetation of tall trees which are mostly species of *Khaya senegalensis* (Desv.) A. Juss, *Terminalia catappa* L. (India almond), *Adansonia digitata* (L.), *Balanites aegyptiaca* (L.) Del, *Butyrospermum paradoxum* (Gaertner f.) Hepper and *Tamarindus indica* (L.) to dispersed vegetation of *Eucalyptus globulus*, *Azadirachta indica* A. Juss, *Calotropis procera* (Ait.) F. and *Cassia spectabilis*, which are mostly covered by grasses, aquatic weeds in river valleys and dry land weeds interspaced by shrub woody plants. The result is the reduction of the carrying capacity and productivity of the land and its biological resources.

### 3.4. The land

Mubi-North Local Government area encompasses a varied landscape generally divided into highland and lowland zones. Traditional laws and the use of taboos are designated differently according to the type of the landscape found in the region. The belief is that landscapes are animated by ancestral spirits who must be consulted for that particular location. Some common taboo practices existed among the different landscape, for example, digging of graves for burial without due authorization from traditional chief priest. It was believed that breaking of such taboos required that some rituals be performed by the chief priest, who was the only person that could communicate with the gods to allow the usage of the land. However, in some villages of the study area, clearing a forest for agriculture an activity considered to disturb the ancestral spirits residing in the forests, offended certain deities. Indeed, the activity was considered as taboo by the rural community. Thus, specific plots of land were set aside for agriculture by the traditional elders and chief priest in each community and the use of simple tools was recommended to all farmers. The farmers also believed that any field/agricultural plot that was not performing well could be restored by ritual. This is contrary to what is happening in the region at present where modern farmers abandon plots of land for other plots and the abandoned land suffers further degradation as a result of the need for development. Though the need for land for rural housing development in this region is the new challenge facing the study area, in some

towns, lands were approved to government through dialogue and not necessarily because of the financial gains.

#### **4. Discussion**

The study evaluated the nature and the extent of the state of conservation in Mubi-North local government area, before and after the present level of development. The structures of interest were forests, land and the rivers that people preserved, as well as the influence of traditional laws and the use of taboos in the proper usage, maintenance and preservation of the structures. Ulluwishewa (1993) reported that local people have a wide knowledge of the ecosystem they live in and ways to ensure that natural resources are used sustainably. Such knowledge encompasses the wisdom, knowledge and teachings of the indigenous communities, developed from experience gained over the centuries and adapted to the local culture and environment (CRTR, 2009). Although, the knowledge was normally passed on orally from generation to generation by the elders who did that through stories, songs, myths, proverbs, cultural values, beliefs, rituals, and community laws. Traditional laws and taboos were taken very seriously among the people of the region. Respect for elders is also very much observed, as the elders have lived in the area and has gathered useful lessons which they share with their younger relations.

It is noted that most of the young people of the study areas interviewed, did not appear to have traditional knowledge on environmental conservation. Veitayaki (2004) reported that traditional knowledge system is closely associated with the family, which is the institution that generates, stores, accumulates, modifies and transmits this knowledge. The lack of traditional knowledge system of environmental conservation, among youths, indicates that the younger generation may have no regard for cultural and traditional practices that have been existing in the region. Majority of the respondents interviewed, stated that; present religious practices, especially Christianity, have rendered the practices fetish. However, Abaiye-Boaten (1998) reported that, the advent of Christianity, formal “western” education and technological advancement have rendered some of the norms and taboos obsolete, because they were also considered fetish (Adomako et al., 1998).

The indigenes belief spirit in the world was deliberately substituted with Christianity, which regards all sacred places and environments as the habitat of spirits (Gonese, 1999). Generally, from the study it shows that the primary cause of forest, land and river degradation in Mubi-North local government area, are disregard to traditional laws and the use of taboos meant to protect the structures.

The natural environment is our heritage. If the level at which is been exploited, and contaminated in this region continues, it will have a devastating effect on the socio-economic as well as the well being of the people and their environment. Anoliefo et al. (2003) reported that, forest is the singular resource, if destroyed could bring disaster not only to the immediate community but the world at large. Unfortunately, the activity of the developing modern society has shown indifference to this traditional ways of life. Though, many respondents opined that traditional conservation methods had relaxed a little, due to the wholesome acceptance of modern western culture. One thing that is certain is that, the natural environment cannot

sustain the industrialized and monetized economy that contemporary nations and communities aspire for (Veitayaki, 2004).

Millar (2004) reported that in the traditional African worldview, environmental resources (land, water, animals and plants) are not just production factors with economic significance but also have their place within the sanctity of nature. Perhaps the reason why pre-modern or local people of the study area set aside a specific place for sacrifices to the gods, and most times these places are patches of high biodiversity.

Some of the older respondents believed that, the custodian of the traditional institute, though illiterate, knew that cutting all or most of the available forest trees would not only deprive the future generations of rare plants and animals, but will also affect the delicate balance between plants and animals as well as humans and their needs for medicine, clean water, food, space, and clean air. Moreover, they also considered forests to serve as natural wind breakers and watersheds necessary for the survival and well being of the people. Indigenous knowledge therefore is an essential component in developmental processes and the livelihood of many local communities (Kamara, 2010).

During the focus group discussion in some villages of the study area, it was revealed that the traditional farmers believed in the ritual that any field/agricultural plot that is not performing well can be restore by ritual for "feeding the land" and ritual for "curing the land" by the traditional chief priest. This was normally followed by leaving the land fallow for some time. The world is thus integrated with the cosmos and nature is seen as a living being that works together with mankind, while the earth is not seen as a property that can be used in the way the human wants but need to be taken care of in a way that benefits the whole community (including the unborn) (Wijk, 2010). Contrary to the view of modern western culture that ecosystem resources (land, water, animals and plants) are just production factors with economic significance, the attitude exhibited by the developing economies towards these resources suggests that they depend on it for most of their developmental needs.

In an Africa traditional practice, life is seen as a unit that exists with the natural, human world and ancestral spirit. The creator of the human and natural world has his habitat in the spiritual world, together with different spirits (Wijk, 2010). The spiritual world has its habitat in the natural and human world, as sacred natural places, where flora and fauna can have high diversity (Wijk, 2010). The belief is that, human world communicates with the spiritual world via the natural world. These rituals often take place under specific sacred trees or rivers.

Some of the respondents affirmed that, there is a place set aside for sacrifice that is mostly located deep in the forest where the sacred animals are found. Moreover, most of the tall trees and the streams in the forests are highly revered as the ancestral spirits live in them. It was also believed that punishment takes place, in form of drought, diseases and conflicts, occurring when the rules and norms that protect the environment are exceeded (Gonese, 1999). This means that environmental conservation is the key issue in the use of traditional laws and taboo practices in this region. Anoliefo et al. (2003) reported that, if the awareness for the need to stop deforestation and pollution of water bodies is not made known to Nigerians, perhaps the few sacred forests that still exist today would become totally depleted in the nearest future.

The present demand placed on the environment by the people of this region, is a serious threat to the natural environmental structures and this could also affect the state of environment globally. Nicoletti (2010) reported that depletion of natural capital is occurring at a more rapid pace in the developing world, but much of the demand which drives this depletion resides in the developed world.

Many of the respondents suggested that, observance of the dictates of the traditional laws, taboos and sacred groves worked for the preservation of the environment. The same number of respondents suggested that alternative form of fuel energy for cooking would be useful in reviving the environment as well as providing sources of income to the local community.

Quite a number of the respondents are suggesting for public enlightenment campaign, and to stress the need to revive the conditions that are employed in conserving the natural environment. The question is whether the ecosystem would revert itself. However, it is important to know that, the negative impact on the natural environment in Mubi-North local government area is as a result of the predatory activities exacerbated by the need for development. This has resulted in the erosion of the traditional cultural practices, the knowledge that is deeply rooted in natural environmental consciousness which aids in conserving the natural environment.

Developmental needs of the people in Mubi-North local government area had affected the state of traditional environmental conservation method. Adoption of western modern culture, and advent of present religious practices (Christianity) in this region had rendered the use of traditional laws and taboo practices on environmental conservation largely fetish. The study revealed that, custodians of the traditional institution, though illiterate; knew that cutting all or most of the available forest trees would not only deprive the future generations of rare plants and animals, but would also affect the delicate balance between plants and animals. Humans and their needs for medicine, clean water, food, space, and clean air would also be affected. They also considered forests to serve as natural wind breakers and watersheds necessary for their survival and well being. The viewpoint in traditional environmental circles is that natural resources are not just factors with economic significance but also the phenomena within the sanctity of nature. Traditional knowledge system therefore is an essential element in achieving developmental processes of many local communities in Nigeria.

We wish to suggest that, the indigenous knowledge system for environmental conservation method of the different tribes in Nigeria be revisited for evaluation and studies to enable their integration into modern practices to make the environment more sustainable.

## References

- Abayie-Boaten, A. (1998), "Traditional conservation practices: Ghana's example", In: Amlalo, D. S; Atsiatorme, L. D and Fiati, C. (eds). *Biodiversity Conservation: Traditional Knowledge and Modern Concepts*. Proceedings of the third United Nations Educational, Scientific and Cultural Organization. Cape Coast, pp.1-6.
- Adebayo, A.A. (2004), "Soil and vegetation", In: Adebayo, A. A (ed). *Mubi Region: A Geographical Synthesis*. A Division of Paraclete and Sons, Yola-Nigeria, pp. 38-43.

- Adomako, E.E., Adomako, J.K. and Bayliss-Smith, T.P. (1998), "Conservation by tradition: the case of the Guako sacred grove", In: Amlalo, D. S; Atsiatorme, L. D and Fiati, C. (eds). *Biodiversity Conservation: Traditional Knowledge and Modern Concepts*, Proceedings of the third United Nations Educational, Scientific and Cultural Organization. Cape Coast, pp. 7-15.
- Akinyeye, Y. (1997), "Forests conservation as a strategy of environmental protection, the Nigeria experience", In: Osuntokun, A (ed). *Dimensions of Environmental Problems in Nigeria*. Davidson press, Ibadan. pp. 85-93.
- Alipour, H. and Allahyari, M.S. (2010), "Evaluation of rural development in Guilan Province, Iran", *Journal of American Science*, Vol. 6 pp. 889-893.
- Anoliefo, G.O., Isikhuemhen, O.S. and Ochije, N.R. (2003), "Environmental implications of the erosion of cultural taboo practices in Akwa-South Local Government Area of Anambra State, Nigeria: 1. Forests, trees and water resource preservation", *Journal of Agricultural and Environmental Ethics*, Vol. 16 pp. 281-296.
- Brundtland, G.H. (1987), *Our common future. World Commission on Environment and Development (WCED)*, Oxford University Press, New York. 352 p.
- Bulte, E and Engel, S (2006), "Conservation of tropical forests: Addressing market failure", In: Lopez, R and Toman, M.A. (eds). *Economic of Development and Environmental Sustainability: New Policy Options*, Oxford University Press, New York. pp. 412-445.
- CRTR (2009), "Taboos, customs hold key to managing Tanzania's reef", available at: [http://www.gefcoral.org/Portals/53/downloads/working\\_with\\_communities/Indigenous\\_Knowledge\\_Advisory\\_Paper.pdf](http://www.gefcoral.org/Portals/53/downloads/working_with_communities/Indigenous_Knowledge_Advisory_Paper.pdf) (accessed 1 July 2014).
- Fearnside, P.M. and Laurance, W.F. (2004), "Tropical deforestation and green house-gas emissions", *Ecological Applications*, Vol. 14 No. 4, pp. 982-986.
- Gonese, C. (1999), "Culture and cosmovision of traditional institutions in Zimbabwe", In: Haverkort, B and Hiemstra, W (eds.), *Food for Thought, Ancient Visions and New Experiments of Rural People*, Zed Books, London. pp. 155-162.
- Holden, E. and Linnerud, K. (2007), "The sustainable development area: Satisfying basic needs and safeguarding ecological sustainability", *Sustainable Development*, Vol. 15 No. 3, pp. 174-187.
- Kamara, J. (2010), *Indigenous knowledge in natural disaster reduction in Africa*, United Nations Environment Programme/GRID-Arendal. 2 p.
- Khakpour, B. (2006), "Assessing the development of Shirvan Villages to Regional planning", *Geography and Regional Development*, Vol. 7, pp.133-145.
- Locatelli, B., Kanninen, M., Brockhaus, M., Colfer, C.J.P., Murdiyarso, D. and Santoso, H. (2008), "Facing an Uncertain Future: How Forests and People Can Adapt to Climate Change", *Forest Perspectives no. 5*. CIFOR, Bogor, Indonesia.100 p.
- Millar, D. (2004), "Interfacing two knowledge systems: local knowledge and science in Africa", Paper for the Compas panel in the conference: Bridging Scales Epistemologies: Linking Local Knowledge with Global Science in Multi-Scale Assessments, Alexandria. 8 p.

- Nicoletti, G. (2010), Building the new future: New, greener sources of growth. Organisation for Economic Co-operation and Development (OECD), pp. 1-3.
- Obiefuna, J.C. and Ezedinma, F.O.C. (1993), "Endangered crops of East Central Ecology", In: Okojie, J. A and Okale, D. U.U (eds). *Lost Crops of Nigeria: Implication for Food Security. Volume 3* (Abeokuta University of Agriculture Conference Series), pp. 129-135.
- Okpara, E.E. (1995), Incidence, control and management of natural and man-made hazard: The environmental education perspective. In: Onuoha, K. M and Ofodile, M.E. (eds). *Proceedings of the International Workshop on Natural and Man-made Hazard in Africa*, Nigeria Mining and Geosciences Society, Jos, pp. 336-347.
- Ray, H.H. (2007), "The effects of physical techniques on soil conservation in Mubi and environs, Adamawa State, Nigeria", *Journal of Sustainable Development in Agriculture and Environment*, Vol. 3 pp. 112-121.
- Samant, S.S. and Dhar, U. (1997), "Diversity, endemism and economic potential of wild edible plants of Indian Himalaya", *International Journal of Sustainable Development and World Ecology*, Vol. 4 No. 3, pp. 179-191.
- Toledo, V. M (1997), "Sustainable development at the village community level: a third world perspective", In: Smith, F. D. M (ed). *Environmental Sustainability: Practical Global Applications*. St. Lucie Press, Boca Raton, Florida, United States of America, pp. 233-250.
- Toledo, V.M. (2000), "Indigenous knowledge on soils: an ethnoecological conceptualization", In: Barrera-Bassols, N and Zinck, K. A (eds). *Ethnopedology in a Worldwide Perspective: An Annotated Bibliography*. ITC Publication. No. 77.
- Ulluwishewa, R. (1993), "Indigenous knowledge, national IK resource centers and sustainable development", *Indigenous Knowledge and Development*, Vol. 1 No. 3, pp.11-13.
- Van der Werf, G.R., Morton, D.C., Defries, R.S., Olivier, J.G.J., Kasibhatla, P.S., Jackson, R.B., Collatz G.J. and Randerson, J.T. (2009), "CO<sub>2</sub> emissions from forest loss", *Nature Geosciences*, Vol. 2 No. 11, pp. 737-738.
- Veitayaki, J. (2004), "Building bridges: the contribution of traditional knowledge to ecosystem management and practices in Fiji", Paper presented at Bridging scales and epistemologies: linking local knowledge and global science in multi-scale assessments, Alexandria, Egypt. 20 p.
- Wijk, G.V. (2010), *Spirituality as ingredient for development of sustainable land management programs*, Master Thesis Land Degradation and Development Group. Wageningen University, the Netherlands. 26 p.