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Community Forest Management in Nigeria: A Case of Local Empowerment and Environmental Management Project (Leemp) In Adamawa State

Aminu Liman, Ibrahim Ngah*

Centre for Innovative Planning & Development, Universiti Teknologi Malaysia, Johor, Malaysia

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⊠*Corresponding author:
Assoc. Prof. Dr. Ibrahim Ngah,
Centre for Innovative Planning & Development, Universiti Teknologi Malaysia, Johor, Malaysia.
Email: b-ibrhim@utm.my

Abstract

Deforestation continuous to be a wide spread problem in rural areas of developing countries. Conventional "top down" approach has proved fundamentally limited in their ability to promote the culture of forest conservation in the world over. Inco-prorating the community based forest and community based natural resources management in rural development strategies seems to be the best approach to conserve forest area. This paper provides a case of community forest management by rural communities in rural areas of Nigeria. Based on the experience of the Local Empowerment and Environmental Management Project (LEEMP) in Adamawa State of Nigeria, this paper discussed the achievement and challenges in implementing community based forest management in the rural areas. Information used in this paper is based a preliminary study in evolving interviews with officials of the implementation agencies of LEEMP and a few participants of the projects in Adamawa state. Under LEEMP the priorities include the empowerment of local people to manage the community based forest and community based natural resources conservation in their areas. The project aim for the effective management of renewable forest resources, (vegetation), minimizing depletion of non-renewable forest resources (wild life), minimise forest pollution and its attendants negative impacts.(bush burning), as well as to decentralize the responsibity for managing forest resources. This study found that LEEMP helps to bring grass root citizen contribution to the objectives of sustainable natural resources management and community wellbeing collectively. There exist a strong link between the rural poverty and the deforestation and forest management through community empowerment did show some improvement both to the resource conservation and improvement to the livelihood of the communities. However there were many challenges encounter in the process implementationinclude non-inclusive of stake holders because of social class or due to political affiliation, while projects are not evenly distributed among communities of serious need, others are un involve and ill-informed in terms of decision and actions, and lack of conservation culture, among communities. This paper implies that effective incorporation of forest management in rural development strategies should focus more attention to collective action, which ties the community on values, cultures, and economics benefits into the ecological project, with balancing the aim of sustaining the environment and poverty alleviation.

1. Introduction

The local empowerment and environmental management project, (LEEMP) was introduced in Nigeria to empower local communities to co- design, finance and implement project of their own needs. It recognised sustainable management of the physical environment as the pre-requisite for sustainable livelihood and development. The issue of marginalization of rural areas, public institution capacity, accountability and transparency has been the serious concern in project planning of Nigeria. The main challenge is poverty alleviation and alarming rate of environmental degradation. Natural resources exhaustion and unstable use mode of both biological and physical resources is on the daily increase. Thus, the fighting for rural poverty alleviation in Nigeria is a great task as 60% of the 75 million people living in rural areas are poor.

1.1. The Environmental Management under Leemp

In 1990s, there was paradigm shift of rural development planning that incorporated environmental

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management and community empowerment. This was in response to the over exploitation of natural without adequate regard to the environmental conservation, resulted in serious environmental degradation. In African countries a very strong connection has been confirmed between the rural poverty and this environmental degradation. For example, large scale felling of trees for farming and fire wood extraction led to the environmental change in rural areas. The driving force for environmental changes in the rural areas, included forest clearing for farming and rearing, over cultivation, and over grazing (Liman and Ngah, 2014).

The LEEMP in Nigeria is targeted to address challenges in the environment degradation as well as poverty eradication with the following objectives: examine the use of renewable resources; minimize depletion of non-renewable resources; minimize forest pollution and its attendance negative impacts and decentralize the management of forest and natural resources.

1.2. The Use of Renewable (Vegetation) Forest Resources

The community forest management, require the social involvement of all the community members as stake holders in the conservation of forest and the forest resources. "Community Forest: is a rising of group of people who care about each other in their way of living, while their own action of forest management is been shared by their values, concern, interest and economic wellbeing of each other" (Courtney G Finit et.al, 2014). Land use cover in developing countries over the years has been experiencing environmental change due to various human activities which caused the changes in the land scape for several communities. These changes have significant implication to the to the hydrological cycle, micro climate and surface water distribution of these regions (Tsehaye and Mohammed, 2013).The environmental problems in developing countries are increasing annually without effectives conservation measures, these problems are mostly accruing due to lumbering activities such as timber production and non-wood extraction, for medicinal values. While bush burning, over grazing, over cultivation, are mains forces of deforestation (Liman and Ngah, 2014).The poor management of irrigation schemes also causes riparian change in natural forest which consequently causes siltation around the flood plain of the riverside areas (D.H.L. Thomas.1996). The persistence of these problems in developing countries is responsible to low yield on agricultural production and consequently increase in poverty rates in the third world countries (Ajayi and Ikporukpo, 2005). Community forest management provides opportunity for economic and social development in local communities. The communities' local technology are been harmonized into used of existing local landscape species, while climatic conditions determine the vegetation components of community forest in the respective rural area (Courtney G Finit et. al, 2014). Although the community forest in Adamawa state, Nigeria is not developed to stage of economic improvement to the rural communities, it is expected to provide the opportunity as demonstrations centres to communities for management of sustainable used of forest and natural resources. Courtney G Finit et.al. (2014), also observed: that community forest provides social infrastructure such as building materials, electric poles, recreational centres, and wind breakers among other benefits.

1.3. Minimise Forest Pollution and Its Attendant's Negative Impacts, (Bush Burning)

Bush burning has been the reoccurring environmental problem, in rural areas of developing countries. The bush fire destroys thousands of hectares of farm and rangeland in the developing nations. The LEEMP forest management in the rural areas involving community forest management scheme has been the strategy to rescue the natural vegetation and wild live from extinction. The rural dwellers were enlightened the need to stop falling trees, while an alternative cooking fuel needed to be introduced in the developing world, and a forestation programme to be strengthened at every community for effective management. Seijo (2009) opined that one of the ways of controlling the menace of bush fires is to educate the rural dwellers about the danger of deforestation using electronic media. The rate of deforestation in Nigeria has been estimated by central bank of Nigeria (C B N) to be at annual rate of 400000ha against reforestation of 1043

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ha only. The best way to alternative energy for domestic purpose is to provide fuel subsidies for domestic purposes among rural communities (Ajayi and .Ikporukpo, 2005). This could be by subsidising kerosene and gas for the public used. Medugu, (2009) observed that the traditional method of land clearing in developing countries is through the use of bush burning, while the use of fire wood as domestic fuel, extraction of timber wood, and non-wood raw materials for traditional medicine; farms expansion into the dry lands, these activities increases the concentration of the carbon monoxide and trapping heat which advances environmental change globally.

1.4. Minimizing Depletion of Non-Renewable Forest Resources (Wild Life)

The LEEMP encourage in the conservation strategies and enlightened rural people in the importance of conservation of biodiversity and wild resources. The LEEMP, agency work hand in hand with other relevant agencies in improving legal frame work to guard against illegal hunting of wild animals, improve technical skills in conservation of wild resources in games reserves, national parks and zoos. The Nigerian wild life is disappearing quickly due to activities of illegal hunting and bush burning in different vegetation belts of the country (Ajayi and Ikporukpo, 2005). To improve Biological diversity in terms of fauna and flora species is one of the cardinal objectives of raising the community forest .Kelly and Bliss, (2009) argue that the best option of raising community forest is to have a number of species of trees in stand as well as different in size and age group, he added that with diversity you will always have the most productive species growing in your own forest.

1.5. Decentralise the Management of Forest Resources

One of the Strategies used by LEEMP to combat desertification include management of community forest, conservation of natural ecology, to sustain agro forestry system, which involved planting multipurpose trees and shrubs around the rural environment, species include, the Sylva pastoral system,(planting woody vegetation for livestock feed), a forestation campaign programme, and sand dune fixation which involved , establishment of shelter belt around communities and water shed management system around floodable river bank.. These environmental conservation programme required genuine commitment from the communities, NGOS, government and individuals in order to control the spread of desertification in the arid regions. The current status of deforestation in the developing countries, where by large amount of trees is being extracted for fuel wood is on the leading factors of desertification in those countries. Fresh trees are been destroyed without having conscious of replanting another. Qingjuan et. al. (2011) observed that: rural land scape is the act of planting trees, shrubs, and plants to manage land outside the settlement area. He argues that land scape is to be integrated to human, economic and cultural activities of the rural area such as agriculture, ethics and values of the people of the land. A forestation programme in rural area is always preceded with pre - research to determine the ecological characteristics' of the vegetation of the area. The deserts areas require the drought resistance species that have long tap root with adaptive mechanism that can with stand slow water evaporation.

1.6. Study Area

This study area covers Adamawa state, of Nigeria, one of the(9) nine States participated by LEEMP project in Nigeria, Adamawa State is located in the north eastern part of Nigeria, it lies between latitude 7° and 11° N of the equator and between longitude 11° and 14° E of the Greenwich meridian. Consisting of (9) nine local governments areas of the State. Namely: Fufore, Ganye Girei, Lamurde, Madagali, Maiha, Michika, Shelleng and Song, which were selected as (3) each in the 3 senatorial districts of the State. It is characterized by high population growth of 3.6% and rapid urbanization of about 7%. (Cour, 2006). Based on 2006 population census, the study area has population of 3,178,950 people. Incidentally the areas with of dense population are drought- prone areas, considering the areas low level of environmental conservation. There is visible mixed stratification of the livelihood systems .The peasant farmers and sedentary pastoralist lives in same communities in most of the rural areas, while the farmers practice sedentary rain- fed faming, the pastoralist follow the traditional

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pastoral route from north to southern blocks in the dry season for seeking of greener pastures. In general the deforestation in the State has increased by 25-40%.The mean annual rainfall of the study area is between 700-900 mm at present, while the mean annual temperatures is 26 c^{o} and relatively humidity is below 70%, and the vegetation cover is savannah. In mitigation of climate change the LEEMP and ministry of environment encourages the rural communities to maintain community's' forest in their own environs.

2. Methodology

The study used data from both primary and secondary sources, to study the community forest management under the LEEMP project in Adamawa State, Nigeria. Data on the stocking of the community forest in Adamawa state, and the decline in wild and vegetation resources in the State were from secondary sources such as Adamawa State local empowerment and environmental management agency, as well as Adamawa State Ministry of environment. While data on community participation, management in community forest and sources of energy used by the communities was obtained from primary sources.

2.1. Primary Data.

The primary data was obtained through household study, the data include data on back ground of the household, community participation, assessment of conservation culture and distribution of project among rural communities. Total of (500) respondents were designed for this study. A stratified random sampling was used and questionnaires were administered proportionately to (9) local government areas participating in LEEMP project in Adamawa State, Nigeria being the study area. Also sample with the study are forestry officers in the State. Interviews were held with the head of the households of the selected compounds across the rural communities in the study area. A total of (500) household heads were sampled, and this is supplemented by focus group discussion, and stakeholder analysis. All the respondents are concerns with the deforestation and poor conservation of vegetation resources in the area which; they attributed as main causes of environmental changes being experience in the region

2.2. Secondary Data

The secondary data has been sourced: from Adamawa state LEEMP as well as the divisional offices of forestry and wild wife offices, in the State ministry of environment. The data included the stocking of the community forest in Adamawa state, and the decline in wild and vegetation resources in the State. The community forest data include the size of land occupied by each community forest, stocking varieties and the number of community forest while the rate of deforestation and diminishing of wild resources, conversion of forest reserve to other land uses leading to the land cover change of the area were analysed from previous records of environmental studies.

3. Results and Discussion

The data and findings of this study is presented using descriptive analysis. The study findings, shows that the expanding of deforestation was a serious environmental problem facing the State in recent times. A combination of bush burning, deforestation and vegetation resources extraction renders about 42 % of the total land area of the State. It reflected low environmental conservation culture of rural people in the State this also reduced the wild animals thrive to about 90 % in the State due to hunting activities. The community forest under the LEEMP experience low participation from rural people and hence with low conservation attitude recorded an account of 36%i in most of the communities, some stake holders claimed of exclusion from the community forest programme, due their own status in their communities which recorded 46%. Other finding was that the community forest did not go round the communities of serious needs that the LEEMP community forest only covered about 10% of the rural communities in the State.

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Table 1: Educational Background

Status	No. of Respondents	Percentage (%)
Adult education	100	20
Primary education	120	24
Secondary education	150	30
Tertiary education	130	26

Source: Field work 2014.

In Table 1, 24% of the respondents attended primary school education only, while 30 % had secondary school certificate, and 26% attended tertiary institution. However 20% of the respondent attended adult education only.

Table 2: Availability of Community Forest, Community Participation and Bush Burning.

Item	Before		After	
	No.	%	No.	%
Availability of Community Forest	0	0	180	36
Forest Conservation	0	0	220	44
Bush burning	420	84	220	44

Source: Field work 2014.

As indicated in Table 2: all the respondents replied that there was no community forest(0%) in the State before the LEEMP Project. while 180 respondents representing 36% replied having a community forest in their own communities. Respondents also indicated there were not (0%) Practicing forest conservation exercise before the coming of LEEMP project. However with the introduction of LEEMP (220) respondents representing 44% of the respondents now practices forest conservation in the rural communities. Other item is bush burning, where 420 respondents accounting for (84%) indicating experiencing bush fires around their own communities before the LEEMP project. However with the mobilisation exercise from LEEMP only 220 respondents representing 44% admitting they are still experiencing bush fires around their own villages.

Table 3: Distribution of Forest Abuses Identified With The Sampled Community Forests.

Forest Abuses	Respondents	Percentage (%)
Wood cutting	256	51.2
Roots/back/leaves extractions	102	20.4

Source: Field work 2014.

Table 3 shows different form of forest abuses has been identified during the survey of Adamawa State LEEMP community forest. They include, Ideal wood cutting has recorded, 256 respondents, accounted for about 52.2% of the problem survey, while the non-wood extraction recorded 102 respondents, accounted for 20.4 % of the problem in the abuse of the community forest. During the survey an informants narrated that the wood cutting is an action of desperate community members who prefer cutting early for used as local hut building materials and temporary electric poles. On the hands the reason for excessive extraction of roots back and leaves for the community forest is for the used as herbs by the villagers.

Table 4: Sources of Energy Used For Domestic Activities in the Rural Areas

Sourced of Energy	Number of Respondents	Percentage (%)
Wood	500	100
Kerosene	175	35
Charcoal	100	20
Gas	0	0
Electricity	0	0

Source: Field work 2014.

Table 4 shows that all respondents (100%) use commercial fuel wood suppliers who collect both dry and fresh wood, as cooking fuel and 35% uses kerosene sometimes as an alternatives domestic fuel. While 20% sometimes uses charcoal as an alternative, however gas and electricity is not used either as domestic fuel. Manual hand axe is being used to cut green trees. These trees are felled illegally in all over the state as revelled by the forestry department. It was noticed that fuel wood extractors do not have any conscious of reforestation exercise in mind.

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Table 5: Decline in Forest and Forest Resources and Availability of Building Materials

Item	Yes respondents	%	No respondents	%
Decline in Major Forest Resource	300	60	200	40
Decline in wild and natural resources	320	64	180	36
Availability of buildings materials	180	36	320	64

Source: Field work 2014

Table 5 shows that majority of the (300) respondents representing (60%) indicated decline in major forest resources in their areas against 200 respondents accounting (40%) who opined that there was no significant declined in the major forest resources. There was also majority of the (320) respondents representing (64%) indicated declined in Wild and natural resources in their areas against (180) respondents who represented (36%) who responded with no significance in diminishing of wild and natural resources. moreover, few of only (180) respondents representing (36%) indicated the avaiabity of building materials in their community forest, while more of (320) the respondents represented (64%) reported that, their community forest is not matured enough for harvest. The declined in major forest resources has been attributed due to indiscriminate cutting of green trees in the rural areas. These trees are felled illegally in all over the state as revelled by officials in the State Ministry of environment. It was observed, that fuel wood vendors do not have any conscious of forest conservation exercise in mind. Moreover the decline in wild resources has been regarded as due to indiscriminate of illegal hunting and bush burning in the past. From a focus group discussion, the Forestry department, of the State Ministry of environment indicated that the sparse trees and shrubs are being destroyed for use as firewood, livestock enclosure, building materials and tress are also intentionally being cleared away for farm plots. The few tress remaining are only the drought resistant type such as: accacis senegalenssi, propis chelindis, and euphorbias blammaifera. Elders in the State also noticed decline in the following species, dinya (vitex didoniana). Magarya (Ziziyphus mauritaina), Kaya (diospyrus mesphiliforms) Tsamiya (Tamarindus indica), Kuka (adansonia degitata) and doruwa (parkia clappertoniana). The 20, local forest reserves in the State, are under pressure, which are often been converted for farmlands, rangelands and hamlets. The department also, reported with dismay the disappearance of 90% of some endanger species of wild animals in the State They include the following: the cheetah, the hippopotamus, the giraffe, rhinoceros, and eland.

3.1. Management and Policy Recommendation

Attempt to address the scenario of environmental degeredaration cause by abuse of forest and vegetation resources, needs to be strengthened. Village leaders and stake holders must remain committed and response to the environmental management. The environmental degradation is real with serious consequences on vegetation cover; the findings indicated that there is 60% and 64% decline of forest and natural resources respectively. While the community forest covered only about 10% of the rural communities in the study area. The use of fire wood as cooking fuel is 100% among the rural dwellers .Although few others sometimes uses, charcoal, and kerosene as an alternative fuel with account of 20% and 35% respectively. The use of electricity and gas as domestic fuel is observed very low even among the urban dwellers in the State. This is attributed to high cost of tariff and ecliptic supply of the electricity .The culture for electricity consumption among household is limited to house lighting, radios and television, while the community participation in environmental conservation is also rated low. The study recommends more investment in the energy sector, not only to get all the rural areas electrified, but with stable and subsidised electricity supply and then communities would be encourage with a culture of use of electricity as main source of domestic energy among rural and urban dwellers of the State.

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4. Conclusion

The environmental degradation arising from the increasing deforestation in Adamawa State, Nigeria is serious and disturbing. One of the effects of environmental degradation is increase in temperature, wind storm, change in micro climatic condition, agriculture and health problem. Over the years customary and environmental institutions control this deforestation. The failure of these institutions to sustain this campaign could be could be attributed due to the rural poverty. One of the holistic approaches in reducing this deforestation is to adapt to the use of alternative energy of electricity and gas as a domestic fuel among rural and urban communities in the State. The Stable electricity and gas supply can also help in alleviating the rural poverty and deforestation, as this generates main apprentice skills among the rural dwellers. Environmental management, in the State, will involve a plan to improve the conservation of community forest throughout the State. A study by C.G. Flint et.al(2014), has observed the options of improving community forest scheme is through " establishing a common space shared by common way of live and collective action among the local citizens who overcome small difference to recognised the common good for their wellbeing, economic sustenance and cultural orientation common to all" .Finally the study recommended the enhance private and public participation in the establishment of community forest ,and also government subsidy With the pump price of gas and kerosene.

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