Determinants of the non-timber forest resources conservation of the Falgore Game Reserve Kano, Nigeria

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Abstract

This study is designed to assess the determinants of non-timber forest resources conservation of the Falgore Game Reserve (FGR) Kano, Nigeria. Specifically the study seeks to determine the spatial temporal quantity of non-timber forest resources for the last three decades; investigate the contribution of non-timber forest resources to the livelihoods of the agro-pastoral communities; assess the role of different actors involve in non-timber forest resources conservation of the FGR. It will also determine the factors that influence uses and decision of the agro-pastoral households to participate in forest resources conservation and lastly to establish the perception of agro-pastoral communities on changes in the forest condition, exploitation pattern and degradation of the forest resources in the study area. Both primary and secondary data will be used for the study. The data obtained will be analysed using descriptive and inferential statistics in order to figure out the general over view about the management and utilization of the non-timber forest resources. It is expected that The overall objective of this study is to contribute to development of sustainable management and utilization of the non-timber forest resources and also to build livelihoods resilience among agro-pastoral communities by suggesting reliable and valid alternative income sources. Furthermore the findings of this study will be of enormous important to policy makers, interested national and international conservation bodies and researchers as it will provide a framework for policy formulation and further interventions that will enhance the conservation strategies in and around the reserve.

Key words: Spatial temporal quantity of non-timber forest resources, livelihood, participation

Résumé

Cette étude est conçue pour évaluer les déterminants de la conservation des ressources forestières en dehors du bois de la réserve du parc de Falgore (FGR) de Kano, au Nigeria. Plus précisément, l'étude vise à déterminer la quantité spatio-temporel des ressources forestières en dehors du bois pour les trois dernières décennies; enquêter sur la contribution des ressources forestières en dehors du bois pour les moyens de subsistance des communautés agro-pastorales; évaluer le rôle des différents acteurs qui sont impliqués dans la conservation des ressources forestières de la FGR autres que le bois la FGR. Elle permettra également

de déterminer les facteurs qui influent les usages et la décision des ménages agro-pastoraux à participer à la conservation des ressources forestières et enfin d'établir la perception des communautés agro-pastorales sur les changements dans l'état de la forêt, le mode d'exploitation et de la dégradation des ressources forestières dans la zone d'étude. Les données primaires et secondaires sont utilisées pour l'étude. Les données obtenues seront analysées à l'aide de statistiques descriptives et déductives afin de comprendre dans l'ensemble la gestion et l'utilisation des ressources forestières autres que les bois. Il est prévu que l'objectif général de cette étude soit de contribuer au développement de la gestion et l'utilisation durables des ressources forestières autres que le bois et aussi de construire des moyens de subsistance résilience au sein des communautés agro-pastorales en suggérant des sources de revenus alternatives fiables et valides. En outre, les résultats de cette étude seront d'une énorme importance pour les décideurs, les organismes de conservation nationales et internationales intéressées et les chercheurs, elle fournira un cadre pour la formulation de politiques et d'autres interventions qui permettront d'améliorer les stratégies de conservation dans et autour de la réserve.

Mots clés: quantité temporelle spatiale des ressources de la forêt en dehors du bois forêt, des moyens de subsistance, la participation

Background

Non-timber forest products (NTFPs) constitute an important source of livelihood for millions of people across the world. In India alone it is estimated that over 50 million people are dependent on NTFPs for their subsistence and cash income (Shaanker et al., 2004). In addition to the wider industrial applications in developed countries, the products are consumed locally as traditional medicines, foods and beverages, and are used in religious and cultural rituals (Chikamai, *et al.*, 2009). Meanwhile in developing countries Nigeria inclusive, forest-based activities which are mostly in NTFPs area provide an equivalent of 17 million full-time jobs in the formal sector and another 30 million in the informal sector, as well as 13-35% of all rural non-farm employment (Duong, 2008).

The rate of increase in population in Nigeria has brought about an increase in the demand for food (forests products inclusive) which presently the country's agriculture sector cannot meet (FMA, 2008). However, because of the closeness of the rural population to the forest, they have resorted into harvesting of NTFPs to meet up their food demand and also to supplement their little income from the agriculture sector (Madi *et al.*, 2010). According to Egunjobi (1996; 2003) while reporting on the potentials of Non-timber forest products of Omo Forest reserve observed that the contributions of non-timber forest products to the rural economy in Nigeria is as much if not more than that of timber. To support this position, Ojo (1999) reported that the income of rural dwellers from NTFPs was between 50-70% in Nigeria. At the present time harvesting and processing of NTFPs in many places in the country have graduated from the subsistence level of household dietary needs alone and sales at local market to international cross-boundary trades. For instance In the high forest zones of Eastern and Western Nigeria, bush meat and snails, harvesting and sales are now part of the major income generating activity almost all year round. While in the savannah

zone of the central and northern Nigeria, honey, fuel-wood, locust-bean seeds, gum Arabic and charcoal making generate a lot of income to the rural dwellers. In fact there are individuals who derive up to 80% of the incomes from the sales of these products (Jimoh, 2006).
Natural ecosystems in Nigeria are highly vulnerable to many adverse influences deliberate or inadvertent (Marguba, 2002). According to the report published by Federal Environmental Protection Agency (2005) Nigeria possesses more than 5,000-recorded species of plants, 22,090 species of animals, including insects and 889 species of birds, and 1,489 species of microorganisms. It estimated that 0.4% of the plant species are threatened and 8.5 % endangered, with 0.14% of the animals and insects threatened and 0.22% endangered. Most of these deliberate adverse influences come as a result of illiteracy and lack of awareness among the greater number of the populace around the protected areas. Moreover, most people around the areas are unemployed and most of their soil texture is unsuitable for agriculture leaving nothing other than hunting and harvesting of natural resources from forests around them. Harvest/exploitation of forest fruits, seeds, nuts, vegetables, herbs and fuel wood for the day to day needs of human are the only and main occupation of most the people that dwell around most of the protected areas. These actions are among the main problems protected areas usually face in the country (Ejidike and Ajayi, 2013).

However, there are numerous studies conducted on NTFPs in Nigeria, yet, these studies are far less sufficient to cover the wide ecological and forest types found in the country, thereby showing some form of ecosystem bias. FGR is among the least exploited by the researchers in the last three decades with most of the studies carried out on the reserve tilting toward natural resources depletion with little or no emphasis on the anthropogenic and natural causes of resources degradation in the reserve, this action literally create a serious gap among policy makers and researchers at national and international level. Therefore this study is set to contribute toward bridging this gap. And it specifically aimed to: (i) determine the spatial temporal quantity of non-timber forest resources for the last three decades; (ii) investigate the contribution of non-timber forest resources to the livelihoods of the agro-pastoral communities; (iii) assess the role of different actors involve in non-timber forest resources conservation of the FGR; (iv) determine the factors that influence uses and decision of the agro-pastoral households to participate in forest resources conservation; (v) and lastly to establish the perception of agro-pastoral communities on changes in the forest condition, exploitation pattern and degradation of the forest resources in the study area.

Literature summary

Forest resources utilization has been recognized as a precondition for the livelihood attainment of forested communities who do not have alternative sources of income (Chilalo and Wiersum, 2011). However, humans as economic agents do not decide on how much natural resources to conserve but rather how much to use (Van Kooten and Bulte 2000). It is widely recognize that, common pool resources (CPRs) management plays a crucial role in livelihood security and conservation of natural resources. Recent estimates indicated that 98 percent of the forests (Barrow *et al*. 2009), and almost all the pastures in Africa (that account for 28 per cent of the global pastures) are owned by the public (Lambin *et al*. 2003). Therefore, if managed in a sustainable manner, CPRs can be a key factor in poverty reduction and

livelihood improvements of the rural poor (Beck & Nesmith 2001). The nature of management and exploitation pattern of these resources remains a source of worry among policy makers and other conservation bodies in the region. For instance Berhanu and Swinton (2002), among others, pointed out that degradation of CPRs is among the major threats to sustainable rural development in Sub-Saharan Africa (SSA). Although diversity in terms of agro-ecological zones, culture and resource endowment makes wide global and continental generalisations difficult (FAO 1999; Berry & Anderson 2004), degradation of agricultural land, degradation of permanent pastures and degradation of the area covered by forests and woodland was estimated to be 38 per cent, 21 per cent, and 18 per cent for the world and 65 percent, 31 percent, and 19 percent for SSA, consecutively (Scherr, 1999).

Human activities affect the dynamics of ecosystems (especially natural vegetation cover) and other earth systems. For instance, the modification of vegetation cover, with a predominant clearing of natural vegetation may have long term impact on sustainable food production, freshwater and forest resources, the climate and human welfare (Foley *et al.,* 2007). Indiscriminate exploitation and utilization of natural resources such as overgrazing of rangeland, lopping of tree branches and cutting down of trees for livestock feed and fuel wood as well as timber are among the adverse influences of the people dwelling around protected areas. It is therefore opined that, over-extraction of natural resources in all its ramifications has been identified as one major cause of vegetation/forest cover change in addition to climate change (Mortimore, 2002; Maconachie, 2004; 2007).

Conservation areas are largely administered by government in Nigeria with little or no participation of the local communities. This situation has led to unprecedented degradation of most of the protected areas designated nationwide. It has now become the current notion among both conservationists and development practitioners that poverty reduction and environmental protection should go hand in hand and with absolute participation of local communities (Adams 1990; Roe and Elliot 2004). Empirical evidences presented by many scholars (Agrawal & Gibson 1999; Ferraro 2002; Ostrom 1999; Robertson; Lawes, 2005 and Wiggins *et al*., 2004) in the areas of environmental ecology suggested that local communities living within the vicinity of protected areas are critical to the success of any conservation efforts. Therefore perceptions of these communities towards exploitation of natural resources should be of concern to conservation professionals. This is due to the fact that local communities are thought to have the knowledge, information and incentive required managing and conserving the resources on which they depend upon (Johnson 2001; White and Martin 2002).

Study description

This study will be carried out in Kano State and specifically Falgore Game Reserve (FGR). Falgore Game Reserve (formerly Kogin Kano Game Reserve) is located between longitudes 8^0 30' and 8^0 50' East and latitudes 10^0 46' and 11^0 20' North, 150 km south of Kano city. It has an estimated area of 92,000 ha. The FGR is shared among three local government areas namely: Doguwa, Sumaila and Tudun-wada. The study is set to utilize both quantitative and qualitative research approach in order to elicit both primary and secondary data. The primary data will be collected through a household survey using semi-structured questionnaire

while the secondary data will be obtained from published and unpublished records of different organizations such as State Ministries and Department of Agriculture and Environment, National Centre for Remote Sensing Kano, Nigeria. The target information to be elicited include spatial temporal quantity of the non-timber forest resources, socio-economic characteristics of the respondents, different non-timber forest resources collected from the reserve, and modes of utilization as well as information on prevailing livelihoods activities in the study area. However, Geographic Information System and Remote Sensing Technique using satellite imagery analysis will be integrated in the quantification of non-timber forest resources available in the reserve.

Research application

The rationale for this study is to contribute to development of conservation strategies and policy decisions for sustainable management and utilization of the non-timber forest resources as well as building livelihoods resilience among agro-pastoral communities by suggesting relevant alternative income sources and sustainable ecosystem management. The study will also identify and recommend appropriate areas of collaboration among different actors involve in forest resources conservation in the study area. Lastly the finding of this study is expected to provide framework for policy formulation and further interventions that will enhance the conservation strategies in and around the reserve.

Acknowledgement

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