

Gender Participation in Forest Resources Exploitation and Rural Development of the Forest Communities in Cross Rive State, Nigeria

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Abstract

The exploitation of forest resources is carried out by both male and female; they do this because they have material gains they make from such exploitation. These gains include both timber and non timber forest products like food especially during shortfall in food supply as safety net, income from the sales of timber and non timber forest products, materials for building houses, medicine for ailments and other diseases and other environmental benefits like soil fertility replenishments. This study set out to assess how male and female participate in the exploitation of forest resources, what they benefits from the exploitation and how this benefits could translate to the rural development of the park enclave communities of the Cross River National Park, Nigeria. Two hypotheses were formulated for the study in the null form. Questionnaire was used as the instrument for data collection, this is divided into section A and B, with section A eliciting respondent's socio-demographic data, while section B elicits data on gender participation in forest resources exploitation and rural development of the park enclave communities. Using the stage-wise random sampling technique, a sample of 638 respondents representing 15% from the total population of 4249 people within the enclave communities of the park (Okwangwo, Okwa 1 and 2, Mkpot, Abung and Iku) was sampled for the study. The researcher with the help of three trained research assistants administered the instruments and collected same back. Chi square and Pearson Product Moment correlation was used to test the hypotheses at 0.05 significant levels. Both hypotheses tested significant. That there is a significant difference between male and female in forest resources exploitation and there is a significant relationship between benefits from forest resources exploitation and rural development of the park enclave communities. Forest resources exploitation is done along gender disaggregated line with the male harvesting timber and animal products and also harvest few of non timber forest products, the female harvest non timber forest products and very little of animals and timber for fuel wood. The implication of this finding is that both male and female exploit forest resources, the male harvest more of timber forest products and a little of non-timber forest products, whereas the women harvest more of non timber forest products and very little of animals and timber forest products. The benefits derived from gender participation in forest resources exploitation can be used for the rural development of the park enclave communities. Hence benefits from forest exploitation had been used to improve the quality of lives of these communities and also built iron roof houses for themselves. There is increase in the number of schools built by the forest communities with commensurate increase in school enrolment of pupils and students. The study concluded that there is community self help development project executed by community members within the park enclaves and their lives improved, but this development in terms of infrastructural development is limited and relative as compared to other areas where forest resources are protected. It was recommended that government should design sustainable development projects that will better the lives of the rural enclave communities and also provide facilities that will discourage forest resources exploitation.

Keywords: gender participation, rural development, forest resources exploitation, benefits from forest resources, enclave communities, and protected areas.

Introduction

The forest and its resources play a central role in the daily lives of most rural communities; this is because most rural communities depend to a greater extent on the natural resource base of their rural territories. The harvesting of forest resources is carried out by both male and female who also have different gains and interests for which they look out for. According to Coulibaly- Lingani, *et al.* (2011) women constitute about 75% forest users globally because of their roles as carers and those who feed the family; they are always in the forest at one point or the other, harvesting one forest specie or the other, hence they have the knowledge about the relative abundance of forest species, their location, state and rates of depreciation and also bear the brunt of most negative forest management policies (Ogunjobi, *et al.*, 2010, Coulibaly- Lingani, *et al.* 2011).

Gender participation in the context of this research is the different mechanisms for people to express opinions and ideally exert influence regarding the issues that influence or affect their lives. For well-informed

participation to occur, some version of transparency e.g. radical transparency, accountability and responsibility is necessary, but not sufficient. This is necessary because those most affected by a decision should have the most say while those that are least affected should have the least say in a topic. Eneji, *et al.*, (2009) therefore observed that participation encompasses the various activities that citizen's employ in their efforts to influence policy and decision making in order to redistribute benefits to the disadvantaged and marginalized groups in the society. Thus for any forest programs to be effective, gender differences must be addressed and women's intricate relationship with forest resources recognized, this is so because women are the primary beneficiaries of the forests, and the ones most directly impacted by their loss (Nussbaum, 2000; McElroy, 2002a; McElroy, 2002b; Buchy and Subba, 2003 and Loudermilk, 2004).

In the discourse on gender participation in project and forest resources exploitation and management, three group of research outcomes have been established. The first groups are of the view that participation in resource and project management should be restricted to male alone. Because of this, Vodouhe, *et al.* (2010) strongly holds that no matter what women may do, they are and must be under men's authority and control. The likes of Okin, (1989), Arnold, (1998), Connell, (2005); Agrawal and Redford, (2006) and Manfre and Rubin, (2012) vehemently challenged these group for being too androcentric and self-centered. The second group agreed that gender participation in project management should be restricted to only some aspect of project implementation and resource management (Cohen, 1992, Marchand and Runyan, 2000). While the third group agreed that there should be gender participation in project and resources management, (Cornwall, 2003, Cornwall, *et al.* 2007, Giri, *et al.*, 2008a and 2008b). This position is further upheld by the likes of Mwaipopo-Ako, (2000), Tanya, (2006), Agrawal and Redford, (2006) who all lend their voices to the importance of gender participation in project implementation and forest resources management. They claim that women have an intimate relationship with one another and with the community, so their participation will increase the commitment of the project host communities and also increase project delivery efficiency. When women are given the proper place in participation they have an enchanting prowess that if properly harnessed can be beneficial to project implementation and forest resources management. Therefore any project without gender participation is incomplete and unsustainable. Due to this assertion, Mwangi *et al.*, (2011) observed that every development project has the external actor wrap up and the sustainability of such project must be borne out of the willingness and commitment of the project host communities, therefore they must be an effective gender participation who will be an efficient drivers of the remaining project to enhance project continuity and sustainability (see Reed, 2008 and Eneji *et al.*, 2009b).

Gender role analysis refers to methods used to assess and understand the differences in the lives of female and males, girls and boys and the relationships between and amongst them including: their access to resources and opportunities, their activities, and the constraints they face relative to each other. It is a process that identifies the varied and different roles and responsibilities that female and males, girls and boys have in the family, the community, and in economic, legal, political, and social structures. Rocheleau *et al.* (1996), observed that the "science of survival is largely in the hands of women." When women's work, such as gathering firewood or using non-timber forest products (NTFPs) for household goods or handicrafts, are not considered as a measure of economic activity, it means then that the usefulness of women is overlooked and underrated. Based on this, Lidestav and Ekström, (2000), Lama and Buchy, (2002), posited that it is now apparent that limiting access to the forest or dwindling availability of forest products has drastic impacts on women's livelihoods.

In an analysis of the value chains of three internationally important dry forest non-timber forest products, (NTFPs), namely gum arabic, gum olibanum (frankincense) and honey from Burkina Faso, Ethiopia and Zambia respectively, were assessed in terms of the roles played by women and the benefits they obtain from their involvement by Shackleton, *et al.* (2011). The authors observed that women perform a variety of functions at different stages in the value chains, but their roles tend to be poorly visible and inadequately acknowledged, largely because they are either operating in the informal sector, are part-time employees, or because they carry out their activities at home between family responsibilities. Shackleton, *et al.* (2011) further posited that where women's roles are more prominent, this is primarily due to gender orientated interventions by external agencies. They concluded that several constraints to foster women's empowerment were identified, with some easier to overcome than others. Particularly difficult to address are gender based, social-cultural barriers.

Shackleton and Campbell (2001) averred that male and female roles vary enormously from one society to another. There can be significant differences depending on socioeconomic class, family status, and ethnic or religious background. They further observed that men tend to play a greater role than women in extracting timber and non-timber forest products for commercial purposes. Like in Akamkpa and indeed Cross River State and other forest communities, Women typically gather non-timber forest products (like Afang, hot leaf, otasi, pepper, bitter kola, bush mango etc.) and wood for fuel, fencing, food for the family, fodder for livestock and raw materials to produce natural medicines, which help to increase family income. CIFOR (2008) and Mwangi *et al.* (2011) observed that in People's Democratic Republic of Lao, studies had shown that women collected: 18 different animal species, 37 different types of food, and 68 different medicinal products (Agrawal and

Chhatre, 2006 and Agarwal, 2001).

While in Nigeria, Oloruntoba and Adetokumbo, (2006) in their study found out that women were able to name 66 non-timber forest products and their uses, 34 animal species, 23 hardwood species and about 15 spices and 28 mushrooms from the forest, (Oloruntoba and Adetokumbo, 2006). This finding led Eneji, *et al.* (2009) to conclude that women are then much more versatile in forest resources exploitation and management than men. They further posited that although rural women and men's roles and responsibilities vary across regions and cultures, they often follow similar gender divisions of labor. In most regions men use natural resources in agriculture, logging, and fishing for commercial purposes more than women, but this does not mean that they are most vested with the knowledge of these resources than women (Shackleton *et al.*, 2001; Spinner-Halev, 2001; Williams, 2006; German, 2008 and Torri, 2010).

Women in every forest community concentrate more on the exploitation of non-timber forest products which require less input and less energy in its exploitation and management, whereas timber needs a considerable amount of inputs and energy coupled with cultural constraint, so this is largely done by men. Koirala, *et al.* (2008) therefore concurred that this predisposition therefore makes women become more committed to the exploitation of NTFPs and less of timber product, whereas men become more committed to the exploitation of timber and less of NTFPs. Women are mostly involved in the harvesting of NTFPs and are always close to the forest, therefore excluding them from participating in any forest exploitation and management activities will mean neglecting their all important roles in the forest. This conclusion has also been confirmed by Eneji *et al.* (2009); other authors share this view and conclusion, (see Mwangi, *et al.*, 2011, Agarwal, 2010, Agrawal and Redford, 2006). Other timber forest products exploited by men are also useful to the rural economy of the forest communities.

It is worthy to know that people engage in certain activities because they benefit or get some satisfaction from such activities. In the exploitation of forest resources by male and female, there are some benefits or satisfaction they look out for, it is this benefit or satisfaction that pushes them to participate in the exploitation of forest resources. This is why it is pertinent that an assessment of these benefits should be done to see how it can contribute to the rural development of the park enclave communities.

In a study to examine the role of forest resources in rural development in a South African suburb from 5 forest communities, Sunderland, *et al.* (2013) found out that in South Africa the role and importance of non-timber forest products (NTFPs) in the daily lives of rural people in South Africa is very important. The most commonly used of such products are wild spinaches, fuel wood, wooden utensils, edible fruits, grass hand-brushes, and twig hand-brushes, used by 85% or more of households. More than half the households investigated also make use of edible insects, wood for construction, bush meat, wild honey and reeds for weaving. The study also found out that individual households may exploit dozens of animal and plant species. The range in annual, direct-use values is large, from less than R1000 per household per year to over R12 000. The value to rural households is manifest through a daily net function which represents a cost saving to the families involved and to the state, as well as through an emergency net, which serves as an insurance in times of misfortune, such as drought, disease, and unexpected economic hardship. Ofulhast-Othamot (2014)

The term Rural Development (RD) has been variously conceptualized as having myriads of definition. Rural Development is generally used to denote the actions and initiatives taken to improve the standard of living and quality of lives of the rural communities, villages, neighborhoods or countryside. Rural development is seen as a process integrated with economic and social objectives, which must seek to transform rural society and provide a better and more secure livelihood for rural people. Rural development, therefore, is a process of analysis, problem identification and the proposal of relevant solutions. This process is usually encompassed within a program or a project which seeks to tackle the problem identified. However, Lee *et al.* (2005) defined rural development as the improvement of the spatial and socioeconomic environment of rural space which leads to the enhancement of the individual's ability to care for and sustain his or her wellbeing. Stone and Wall, (2004) studied the relationship between people, parks, tourism and the socioeconomic development of host communities, they observed that park, tourism and socioeconomic development of the host communities have received significant attention in recent years, recognizing the potential for mutually beneficial relationships. Ecotourism has been promoted and widely adopted as a strategy for funding conservation initiatives, while at the same time contributing to the socioeconomic development of host communities and providing for quality tourism experiences since parks are among the most common ecotourism destinations

In another study which was a retrospective study carried out by the Park and People Group (PPG) (2006) to examine the social, economic, and political effects of environmental conservation projects on the rural community's livelihoods and development as are manifested in protected areas. The authors paid special attention to people living in and displaced from protected areas, analyze the worldwide growth of protected areas over the past 20 years, using both focal group discussions and interview with questionnaire, the authors found out that a protected areas is a way of seeing, understanding, and protecting nature (environment) and culture (society) and as a way of attempting to manage and control the relationship between the two. PPG (2006) focus

their research on social, economic, scientific, and political changes in places where there are protected areas and in the urban centers that control these areas and how these brings about development to the protected areas adjacent communities. The authors also examines violence, conflict, power relations, and government influence over resource management amongst their conflicting values and interest and how these translate to economic and social development. They therefore concluded that the fact that no meaningful development took place here, but that the forest contribute to the improvement of the quality the lives of the forest people.

In another study on the criteria for measuring rural development of Nsukka, in the south eastern part of Nigeria, Madu, (2007), observed that in measuring rural development, basic infrastructures like electricity, pipe borne water, health and medical services, police station for security of lives and properties, court, schools and other social activities for recreation should be available. But for a claim to be made that a rural area is developed, there should be some baseline data to compare what was from what is now (Coleman and Mwangi, (2012). Madu, (2007) further observed that in contrast, rural development policies in developing countries often focus on meeting more basic needs.

Dwyer *et al.* (2007) observed that the general statement of the objectives of rural development was given in the chapter on sustainable agriculture and rural development in Agenda 21 (United Nations, 1992) which is summarized to imply that rural development can generally be thought of as meeting the following three principles or objectives:

- To enhance food security
- To alleviate poverty, and
- To encourage the sustainable management of natural resources particularly the primary resources base like forest resources.

Manfre and Rubin, (2012) therefore postulated the following as indicators for measuring rural development, these indicators include: Economic: The development of the economic or productive base of any society, which will produce the goods and materials required for life. Social: The provision of a range of social amenities and services (i.e., health, education, security, welfare) which care for the non-productive needs of a society. Human: The development of the people themselves, both individually and communally, to realize their full potential, to use their skills and talents, and to play a constructive part in shaping their own society. Other indicators have been proposed to include: Availability of water, how much time is required for a round trip walk to get drinking water from home to the source and back home? Human capital: infant mortality, number of children dying below one year etc., health facilities to cater for the health needs of the community, government presence in terms of police stations, court, schools, hospitals, commercial banks, recreation facilities etc.

While Oyekale *et al.* (2004) observed that a major feature of most developing countries like Nigeria is that humans and economic activities are dominated by primary production. This essentially involves the extraction of natural resources including forest, such as cutting of trees and hunting of wildlife. It also includes grazing livestock and the cultivation of crops. Wood provides one of the major building materials and the major source of fuel in rural areas and in cities too. They are the raw material for charcoal, an alternative or refined source of fuel. Other uses at the local level include: Pole-size wood for housing, fencing, and furniture; sawn timber for constructions and joinery; weaving fibers for baskets, nets and furnishing; special woods for drugs, incense and carving. Others include watershed protection, control of runoffs, storage and soil nutrient maintenance; atmospheric regulation as in the case of absorption of solar heat in evapo-transpiration and sequestration of carbon dioxide (CO₂). In erosion control, they serve as shelter belts, dune fixation and rehabilitation of eroded terrain and in land bank for soil nutrient and structure maintenance. Forests are also useful in industries and for export: pulpwood for newsprint, papers and boards, containers, textiles; Veneer logs for ply wood and furniture, sawn timber for lumber, furniture, joinery and construction, poles for electricity transmission and residues for particles boards (Stiglitz, 2002; Lee *et al.*, 2005; Defra, 2006; Madu, 2006 and Morrison, 2006).

Hodge and Midmore (2008) in their study on the role of forest resources in rural development, found out that rural households spend income realized from non-timber forest products to buy food to maintain their families, buy household facilities and also build their residential houses. Golder and MacDonald (2002) agreed that forest resources can be used to make contributions to community development projects like road, hospitals, recreation center, electricity, boreholes among others. Success of rural development from forest resources use was recorded in the Communal Area Management Plan For Indigenous Resources (CAMPFIRE) projects, CANARI and the ECOGEN projects in Zimbabwe, the Caribbean and Kenya respectively. This provides a supplement to the economic status in the lives of the generality of the rural dwellers within these projects and forest sites (Leon, 2005, Agrawal and Redford, 2006; Lowe and Ward, 2007 and Hodge and Midmore, 2008).

Cornwall *et al.* (2007) posited that in Philippines, rattan gathering for sale to furniture makers is a major source of income for half the people in an area where income and food supplies are insufficient to meet basic needs. Agarwal (2009) posited that in Bangladesh, Zambia, Honduras, Egypt, Jamaica and Sierra-Leone, forest product processing enterprises were found to be a major rural employer, employing well over 65% of the

community members. While in Africa (e.g. Botswana) gathering of non-timber forest products is a more important economic activity for the poor than farming (Cornwall, 2003, Nkemb, 2003 and Hodge and Midmore, 2008). In Ghana, charcoal making from forests and trees grown on fallow agricultural land, provides the only source of household cash income (Torri, 2010). Dwyer, et al. (2007) averred that beside timber, forest contains some other useful wood products like cattle stick, chewing sticks, wrapping leaves, medicinal plant, cam wood, sheabutter, sheanut, gum arabic, Niger Gutta, Bees wax, snail, mushroom, etc which are of very social and economic importance to the local communities. These products are referred to as minor forest products, because of inadequate documentation of their trade in international markets, but they contribute seriously to the income of the rural communities (Fishbein, 2001 and Henderson *et al.*, 2001). Hodge and Midmore (2008)

Discussing how forest resources contribute to rural development, Agbogidi, (2010) cited in Booth and Halseth, (2011) concluded that the income from the sales of both timber and non-timber forest products contribute to the development and improvement of the quality of lives of the rural poor. Agbogidi, (2010) cited in Booth and Halseth, (2011) found out that this was achieved in the study area through the use of income generated from the sales of forest products to sponsor children in school, buying equipment or items that could improve one's life like television, radio, means of mobility, construction of development projects like schools, health centers or health post, buying of electricity generating sets, construction of town hall, post office, building of churches, television viewing centers among others. Medicine from the forest can also contribute in reducing health problems like infant mortality, malaria, measles, and typhoid fever among others. Firewood also from the forest is use in heating and cooking food which prevents the thriving of germs on human food, reducing the incidence of diseases while contributing to longevity. His finding that forest resources contribute to improving human wellbeing, quality of live and rural development only came to support the earlier findings of Reimer, 2002; Madu, 2003a, 2003b and 2004, who had earlier found out that forest resources contribute to rural development like the CAMPFIRE, CANARI and ECOGEN projects in Zimbabwe, Ghana and Kenya respectively. Rural development was seen from either the perspective of improved quality of lives or provision of infrastructural facilities. Indicators for measuring rural development were also reviewed to include presence of infrastructure like good roads, court, police station, hospitals, health centers, schools recreation centers, television viewing centers, improved housing structures and housing units. In this study therefore, the indicators proposed by Shackleton, *et al.*, (2011) was therefore adopted and used to measures rural development.

A lot of research work has been carried out on the roles of forest products in sustainable livelihoods, usefulness of forest products as shock absorbers during shortfall in food supply, the role of timber products in meeting the economic challenges of forest communities, forest products as raw materials for primary industrial use, non timber forest products as bases for community livelihoods, the role of ecotourism on the rural economy, public participation in forest resources management, management of forest timber product for sustainable development, community participation in protected area management, conflicts, conservation and natural resources use in protected area systems, relevance of effective protected area for biological natural resources conservation in the Cross River National Park, buffer zone management in Cross River National park, Oban division, challenges of buffer zone management in Cross River National Park, Southeastern Nigeria among others. It is unfortunate that no research has been done to assess gender participation in the exploitation of forest resources and how benefits derived from forest resources exploitation could contribute to the rural development of the park enclave communities. Worried by this near absence of research in this area, this research therefore is intended to assess how male and female participate in the exploitation of forest resources and how this can contribute to the rural development of the park enclave communities of the Cross River National Park, Nigeria.

Methodology

The study area is the enclave communities of the Cross River National Park. Cross River National Park is located in Boki and Akamkpa Local Government Areas of Cross River State. The park was established under Decree 36 of 1991 of the Federal Republic of Nigeria. The park is one of the seven National Parks in Nigeria. The concept of National Park in Nigeria was introduced in 1979 through decree No. 46 of 1979 which approved the establishment of Kainji Lake National Park, later other s like Chad Basin, Gashaka-Gumti, Kamuku, Okomu, Old-Oyo, Cross River, Lekki and Yankari, were established (Ogunjobi, *et al.*, 2010). The Cross River National Park lies between latitude 5° 05' 49.63" and 6°29'N, and longitude 8° 15' 54.16" and 9° 30'E and covers a landmass of 4000km² in the south-east corner of Nigeria, lying south and east of a loop of the Cross River and extending along the Republic of Cameroun border. The park is segmented into two non-contiguous divisions: the Oban division in the southern part covering 3000Km² and Okwangwo division in the northern part covers 1000Km² which is also ecologically contiguous with the Karup National Park the Takamanda forest reserve (proposed national park) in the Republic of Cameroun. The entire park area is surrounded by 89 villages with a total of 105 support zones and 6 enclave villages within the two divisions (Okwangwo, Okwa I and Okwa II, Mkpot, Iku and Abung villages). The combine population of the two segments of the park (Okwangwo and Oban) is about 15400 (fifteen thousand, four hundred) persons (Oathes, 20013, Ojobor, 2005, Eneji, *et al.*, 2009;

Ogunjobi *et al.*, 2010). Farming is the predominant occupation of the people of Cross River state and the National Park host communities, Palm oil and kernels, timber, cocoa, and rubber are the major cash crops grown in the area. Major food crops include yam, cassava, rice, and corn (maize), cocoyam, banana, plantain, melon, millet, guinea corn among others.

Both quantitative and qualitative research design was adopted for this study (Probst, *et al.*, 2003; Berg, 2009). The instrument used for the collection of data is a structured questionnaire, divided into two sections, section A is the respondent's socio-demographic characteristics, and while section B is the main questionnaire items with binary response options (agree and disagree). The researcher decided to take a manageable study sample of 638 (15% of 4249) of the entire enclave community population for the study. The populations for this study were both male and female; drawn from amongst hunters, farmers, traditional leaders, Non-Governmental Organizations, (NGOs) and Community Based Organizations (CBOs), women organization, staff of other conservation agencies- Drill Ranch, Center for Research and Conservation on Primate in Nigeria (CERCOPAN), youths and women groups in the forest communities. This population was selected because at one time or the other they have interacted very closely with the forest, they are vested with a wide range of interest and their daily lives impact on the forest and its resources. The chi square statistical tool was used for data analysis

Results and Discussion

Socio-demographic Characteristics of Surveyed Population

Information analyzed here came from section A of the questionnaire which is the respondent's personal information. The sex of the respondents used for the study, 313 respondents (49%) were male, while 325 respondents representing 51% are female. Respondent's age shows that 58 respondents representing 9.1% are between the ages of 15-25 years, 88 respondents, representing 13.8% were between the ages of 26-35 years of age, 144 respondents (22.6%) are between the ages of 36-45 years, 273 respondents (42.8% are within the age brackets of 46-55 years while 75 respondents representing 11.7% are 56 years and above. On respondents marital status, 242 respondents (38%) said they are married, 261 respondents (41%) are single and never married, 57 respondents (9%) said there are divorced while 76 respondents representing 12% are both widows and widowers.

The educational qualification of respondents shows that, 19 respondents (3%) were graduates, 83 respondents (13%) were NCE holders, 89 respondents (14%) are holders of National Diploma (ND), 134 respondents, (21%) holds the senior school certificate result, 160 respondents (25%) had the first school leaving certificate as their highest educational qualification while, 153 respondents representing 24% of the respondents did not have any formal education. On the issue of respondent's major sources of family income, 115 respondents (18%) said their major sources of family income is from salaries from government and other organizations, 313 respondent's representing 49% of the respondents said their sources of income is from business, 166 (26%) said they get their family income from the sales of non-timber forest products for their daily living while 45 respondents (7%) said they get their income from other occupations. On respondent's occupational status, 115 respondents representing 18% said they are either civil or public servants, 108 respondents (17%) are traders and business people, 13 respondents (2%) were either NGO/CBO staff, 51 respondents (8%) were unemployed, 166 respondents representing 26% are students, 77 respondents (12%) are artisans and tradesmen while 108 respondents representing 17% are farmers/self-employed and others.

Table 1: Summary of chi square analysis of Gender and Participation in Forest Resource Exploitation

| S/NO | Variable | Type | Forest exploitation | | | Total | N | X ² | Sig |
|------|----------|--------|---------------------|---------|------|-------|-----|---------------------|-----|
| | | | Low | Average | High | | | | |
| 1 | Gender | Male | 140 | 165 | 13 | 318 | 638 | 73.728 ^a | .05 |
| | | Female | 247 | 69 | 4 | 320 | | | |
| | | Total | 387 | 234 | 17 | 638 | | | |

*Significant at .05; df = 2; X²-critical = 5.991

From the analysis shown on table 1, the calculated X² value is 73.728 with a degree of freedom of 2 at 0.05 significant level, while the critical table value is 5.991, since the X²-calculated value of 73.728 is higher than the X²-critical of 5.991, the null (H₀) hypothesis which stated that there is no significant difference between male and female in forest resources exploitation is rejected, while the alternate hypothesis which stated that there is a significant difference between male and female in forest resources exploitation is accepted, hence there is a significance difference between male and female in forest resources exploitation. That is to say there is significant difference between male and female participation in forest resources exploitation because the result is statistically significant.

This difference lies in the type of forest species exploited by both males and females. It is observed from the study that males exploit more of forest timber and animals, while they also exploit some of non timber forest products; females on the other hand exploit more of non timber forest products and less of animals and timber species. Gender participation in forest resources exploitation is done along a gender differentiated line,

where both male and female intensely and actively participate in the exploitation of forest resources within the allowable forest lands within the park enclave communities. This boils down to the fact that most of the respondents living within the enclave communities depend to a large extent on what the forest can provide for their existence, hence there is continuous exploitation within these forest communities.

From the demographic characteristics of the studied population as reported above, it was discovered that forest resources exploitation is also done along age brackets, with ages between the age brackets of 26 years-35 years, 36 years to 45 years and 46 to 55 years that are mostly engaged in the exploitation of forest resources. Exploitation within this ages brackets are carried out mostly in Okwangwo, Mkpot, Okwa 1 and Okwa 2 respectively. With age brackets between 26-35, (146, 22.9%), 36-45 years (144, 22.6%) and 46-55, 42.8%) years of age carrying out the highest level of exploitation of forest resources within the park enclave communities. It therefore means that the exploitation of forest resources is done mostly by people within the age brackets of 26-55 years, while the ages below 25 and above 55 do not significantly exploit forest resources. Incidentally this age brackets of 26-55 are the normal active workforce in every society, by implication, this means that most of these people are not gainfully employed, so their poverty status push them into the exploitation of forest resources to make ends meet.

The analysis shown on table 2 shows the Pearson Product Moment Correlation of the relationship between benefits from forest resource exploitation (income from sales of forest products, wood for construction, food for consumption and sales, medicine, quantity of fuel wood harvested, amount sold, quantity of cattle sticks harvested and amount sold, quantity of bags of chewing sticks harvested and amount sold, quantity of kola harvested and amount sold, bitter kola harvested and amount sold, snails harvested and amount sold, other NTFPs harvested and amount sold) and rural development (corrugated iron roof houses, purchase of household items, ownership of means of mobility,(motor bike, cars, bicycle), ownership of TV, DVD,VCD, Radio, increase in school enrolment, construction and building of schools, increase in number of persons employed within the community by government, increase in number of persons educated, expanding of roads, and presence of electricity). This implies that there is a positive significant relationship between benefits derived from forest resources exploitation and development of the park enclave communities.

Table 2: Pearson Product Moment Correlation Analysis between Benefits from Forest Resources and Rural Development of Enclave Communities of Cross River National Park

| Variables | N | Mean | S | $\sum X$ $\sum Y$ | $\sum XY$ | R | Sig level |
|--|-----|-------|--------|----------------------|------------|-------|-----------|
| Number of educated persons within the communities | 635 | 20.51 | 9.16 | 44887.93 | 17605.69 | .13* | .00 |
| Purchase of household items, | 635 | 9.86 | 8.41 | 37668.76 | 25678.63 | .20* | .00 |
| Number of existing roads opened up | 635 | 9.36 | 5.57 | 16574.94 | 1282.82 | .45* | .27 |
| Establishment/construction of schools | 635 | 13.39 | 5.71 | 17469.43 | 31362.53 | .36* | .00 |
| No. TV, DVD, VCD, VCR and radio, | 635 | 14.54 | 4.19 | 9405.60 | 6884.47 | .43* | .00 |
| Increase in school enrolment | 635 | 18.04 | 10.74 | 60353.99 | -12715.94 | -.10* | .03 |
| Number of persons engaged in forest products exploitation | 635 | 9.36 | 5.57 | 16574.94 | 1282.82 | .02 | .70 |
| Number of persons living in corrugated iron roof houses, | 635 | 14.67 | 2.64 | 3629.67 | 2012.57 | 0.3* | .23 |
| Number of persons employed in government | 635 | 8.33 | 5.24 | 14581.43 | 9542.43 | .12* | .01 |
| Number of people who owned electricity generating set | 635 | 1.61 | .49 | 130.09 | 288.48 | .44* | .38 |
| Number of person engaged in NTFPs harvesting and amount sold. | 635 | 24.83 | 8.00 | 33415.86 | 26643.92 | .31* | .00 |
| Number of persons engaged in sales of Snails and the amount from the sales | 635 | 21.68 | 8.40 | 21900.45 | 17457.35 | .26* | .00 |
| Ownership of means of mobility | 635 | 19.30 | 8.47 | 37358.57 | 16059.37 | .15* | .00 |
| Rural development | 635 | 519 | 139.13 | 29.12 | 4394442.56 | | |

* $p < .05$

The forest enclave communities see rural development as an avenue for them to improve their income, household items, assets, employment, quality of lives and their wellbeing. If this then is their idea of development, then it means revenues accruable from the sales of forest resources could therefore be used to provide some of these facilities. This link according to the result of the analysis is seen in terms of the use of income generated from the sales of both timber and non-timber forest products for sponsoring children in schools, building of corrugated iron roof houses, purchase of household items, ownership of means of

mobility,(motor bike, cars, bicycle), ownership of TV, DVD,VCD, Radio, increase in school enrolment, construction and building of schools, increase in number of persons employed within the community, increase in number of persons educated, expanding of roads, and purchasing electricity generating machine, contributing to community development projects e.g. building of health centers among others through levies and materials and the procurements of some rental materials like plastic chairs, canopies, plates etc where they can make some income from such rentals.

The use of income from the sales of forest resources for daily, weekly and monthly contributions where proceeds from such contributions are used for the purchase of household items including means of mobility e.g. motor bike, cars, bicycles and construction of corrugated iron roof houses are all benefits from forest resources. These houses and other benefits contribute to rural development, because this improve their quality of lives and also provide basic social amenities at their level. Oloruntopa and Adetokumbo, (2006), and Barnes, (2006)

This discovery has come to support the earlier findings of Golder, and MacDonald, (2002), who averred that forest resources exploitation could contribute to community development through the funding of community development projects like road, hospitals, recreation center, electricity, boreholes among others through income generated from tariffs and royalties and from the sales of forest timber and other non- timber forest products, though this proposition by Golder and MacDonald (2002) was only a suggestion which was not implemented then to create this desired development. This finding also supported the earlier findings of Lebo and Schelling, (2001) who stressed that the yardsticks for measuring rural development should be through infrastructural development. Similar positions have been held by some researchers like Oluwole, (1999), Cornwall, (2003), Nkembu, (2003), Kuhn's et al., (2004), Cornwall et al, (2007), Agarwal, (2009) and Torri, (2010), these authors found out that rural development can be achieved through the use of income from the sales forest products, this is through the purchase and construction of corrugated iron roof houses, purchase of life enhancing items like means of mobility, household items, personal effects, schools etc.

It was also found that in terms of infrastructural development, the communities had no baseline data to compare what was before the establishment of the park and what is now within the park enclave communities, but however, a qualitative comparison was done using items on the questionnaire. The result of the analysis using simple percentage shows that 109 respondents (17%) said they had no better schools then, while 529 respondents (87%) agreed that they had better schools now than when the forest was under the community 's management. In terms of health care facilities, 21 respondents (3.3%) of the respondents ticked that they had health care facilities before the coming of the park, while 617 respondents (96.7%) said they have better health care facilities now than before the park was established. There was no market in the community before now, 68 respondents (10.7%) said they had markets, while 570 respondents (89.3%) said before the establishment of the park, they used to take their goods to markets in other communities, but when they began the park, community members saw the need for a community market.

It is pertinent to also inform that though the money used in the construction of some of these projects came mostly from the sales of forest resources, money was also raised from the sales of food crops grown on opened forest land and hunting of rodents and other wild animals, by extension these are all from the forest resources since the cultivation of these farms and hunting takes a serious toll on the forest. This finding is against the earlier findings of Lockwood, et al. (2006), Madu (2003a), Helsath and Ryser (2006) who found out respectively that the benefits derived from forest resources exploitation can sufficiently contribute to rural development. In some forest communities like in Zimbabwe, income accruable to the rural communities through the CAMPFIRE project were used to further improve their education facilities, increase the income of rural forest communities, this generated employment and also brought government presence into the communities, (bank, court, police station or post office, portable drinking water, health centers, or hospitals were also provided to curtail their poaching and encroachment into the protected areas of the park (Madu, 2004; and Kanbur and Venables, 2005; Morrison, 2006 ; Helsath and Ryser, 2006 and Madu, 2007).

All these are indicators for rural development. It is also pertinent to inform that though the cultural perspectives of these two study areas are both rural, but the extent of community understanding, knowledge and literacy are not the same, hence this may influence the extent of achievement of rural development as is indicated in the respective results, similar results were also recorded by Tanya, (2006), Agrawal and Redford, (2006), Cornwall *et al.* (2007), Giri *et al.* (2008a and 2008b). Though it is observed that the CAMFIRE project of Zimbabwe, the CANARI project in the Caribbean all have community ownership of their respective conservation projects, but the ECOGEN project in Kenya and the Cross River National Park project lack community ownership of the project, the projects were designed by external actors without any inputs by the stakeholders, transferred to the community for implementation, hence the commitment of the communities to the project is near absent, hence these abysmal failure of the rural development engineered by the park management. The community sees the park management and heir activities as one of government projects where they make money from government but do now care about the community and their welfare, hence the unnecessary restriction placed on resources exploitation into the park area.

Conclusion

The contribution of this research to knowledge is from the perspective that most national parks are perceived to exist without commensurate development of the park enclave communities, but no serious reason has been given for this near absence of development within the enclave communities. This research has therefore unearthed the underlying reasons why almost all national park enclave communities are relatively underdeveloped. This is because park management purposefully avoid developing park communities for fear that such development could open access roads to poachers to illegally exploit protected park resources. Therefore there is an inherent limit to development put in place by park management and administration on these communities.

This is observed from the analysis which shows a positive correlation between benefits from forest resources exploitation and rural development, there is development in the enclave communities of the Cross River National Park, but this development as compared to other places where forest resources have been used for development is relative and minimal like in Zimbabwe, the CAMPFIRE project, Ghana, the CANARI project and Kenya, ECOGEN project. What was initially obtained in the ECOGEN project in Kenya is partly adduced to what is obtained in the enclave communities of the Cross River National Park.

Recommendations

Despite the inherent restrictions put on development, government, park management and donor agencies should make efforts to provide the basic necessities of lives to the rural enclave communities; this will better their living conditions and reduce dependence on forest resources, thereby reducing illegal poaching and harvesting in the main park area.

There is the urgent need for the re-introduction of most of the improved seed and animal variety, but before such improved varieties can be introduced, there should be a thorough capacity building and training to enable those who may wish to partake have the very necessary prerequisite knowledge of how to plant, control, harvest, store and market such crops to bring about an increase in the farmers income and wellbeing. For this to happen, government and other donor agencies should commission a soil analysis research to test the various soils within the state and the enclave communities in particular to know the type of soils, their nutrient capacities and the type of crops that can grow best on such soils before adequate provision of improved seed varieties can be acquired for the local communities, this will avoid a repeat of what happened during the early days of the park and the popular Donald Duke pineapple project in Cross River State.

Government should formulate a price regulatory policy standard for all agricultural products, where need be, government should personally buy all the food produce from the forest areas and give standards for buying such crops, this will make more people become farmers since they have a ready-made market for whatever goods produced, this will distract their attention from the forest resources exploitation.

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