Research Article

AN EVALUATION OF THE EFFECTS OF FOREST PROTECTION ON FOREST DEPENDENT LIVELIHOODS IN COMMUNITIES AROUND MOUNT CAMEROON NATIONAL PARK, SW CAMEROON

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Abstract

Development efforts in relation to forest conservation had primarily focused on building natural capital, with minimal or no equal efforts to combine these natural resources with other assets relevant to sustain or improve livelihoods, especially among the poor. In line with the above logic, this work evaluated the effects of forest protection on forest dependent livelihoods of communities around the Mount Cameroon National Park (MCNP). Eight villages were sampled within the four clusters of the MCNP based on their proximity to the protected area. Data was collected through the use of techniques from the participatory appraisal tool box. This involved a triangulation of; semistructured interviews, focus group discussions and field observation with respondents. Data was coded and analyzed using the tools in statistical package for social science (SPSS) software version 21. Findings revealed that; 15% of the population's changed their source of livelihood as a result of forest protection, 51% of the population income have been affected by the creation of the park and average income dropped from 84,615 FRS before the creation of the park to 82,508 FRS after the creation of the park. Also, 53% of the population living around the national park still depend on farming as a major source of livelihood. Thus conservation stakeholders should rethink strategies that will improve biodiversity conservation without jeopardising the livelihoods standards of the community

Keywords: Protected Area, Conservation, Livelihood And Income.

INTRODUCTION

Forest represents a point where ecological, economic and social systems intersect. Everywhere in the world people have devised ways of utilizing their surrounding natural resources (Farrell, & Twining-Ward, 2005). Worriedly, however, initiatives and plans to conserve forests have failed to recognize the important role played by forest resources in rural livelihood. This oversight has been primarily associated with lack of relevant information to justify the role of forest resources in forestry sector development. With regard to rural livelihoods, forests present an opportunity for development and a challenge in achieving conservation goals (Timko *et al.,* 2010). In addition to providing immense socio-economic and cultural benefits to forest fringe communities, forest in Fako Division particularly in the Mount Cameroon region support one of the richest flora and fauna in tropical Africa with high levels of endemism (MINFOF, 2005). Unfortunately, high rates of deforestation, estimated at 0.51% annually (Samndong, 2009), has contributed in undermining the socio-economic, cultural and ecological functions of forest in the Division. Past development efforts to conserve forest have primarily focused on building natural capital, with minimal or no equal attention to how these natural resources such as forests, combine with other assets will help sustain or improve livelihoods, especially among the poor. However, there is limited awareness on the contribution that forests make towards achieving sustainable livelihoods and poverty alleviation as well as the impact of forest conservation on this contribution primarily due to poor forest statistics and valuation (Luyssaert *et al.,* 2008).Thus, an urgent need to recognize the contribution and potential of the forestry sector with regards to sustainable livelihoods is needed. While the decision on forest management is to ensure protection and conservation of forest resources, the poor forest

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users and households equally need forest resources for poverty mitigation. In order to ensure sustainable forest livelihoods, there is need to have their access to resources protected. In practical terms, there is always a need to recognizing the many and varied stakeholders in any forest management case and sort ways to avoid loss of access to resources or to compensate people who will lose access to resources as a result of forest management decisions (Levang *et al.,* 2005). The sense of traditional ownership, responsibility and control of forests and their benefits by local communities have largely been ignored. Most communities therefore view government control and management from a negative perspective thus making them indifferent to conservation initiatives led by the government. As population increases, pressures on the forests increase and this has exacerbated the conflict between the local communities and the government (Smith *et al.,* 2012). Hence despite various governments' effort to conserve forest, the dilemma is how to ensure that there is a sustainable forest livelihood for the local communities. The necessity of ensuring clear incentives for communities to limit local resource use to sustainable levels, including the provision of non-forest alternative sources of income and subsistence and of legitimate participation in forest management are cited as important components of sustainable natural resource management strategies across Africa (Emerton and Mogaka, 1996). If properly managed, these forest products can serve as incentive for forest communities to protect existing forest and restore degraded areas to sustain their source of income (Timko *et al*., 2010).Though Cameroon still has extensive forest cover, the country may become the next to fall in the chain of West African countries that have seen their formerly abundant forests lost or degraded (Killeen *et al.,* 2008). This situation is crucial around the Mount Cameroon Landscape (MCL) where the local community depend on forest resources for income and livelihood. Furthermore, Kah *et al.* (2008), reported that, the Mount Cameroon Landscape (MCL) is undergoing radical

changes in forest cover due to creation of vast plantations by Cameroon Development Corporation (CDC). The Mount Cameroon landscape (MCL) is a biodiversity hotspot harbouring the most diverse ecosystem in Cameroon (Killeen *et al.,* 2008). The area harbours the last near isolated and threatened population of the forest elephants in the region. The forest resources in and around the MCL constitute an important asset supporting rural livelihoods. These tropical forests are of significance to the well-being of the increasing population on the landscape. However, the forest resources and high biodiversity are also under threat from unplanned land uses like; agro-business expansions, and uncontrolled exploitation of forest resources are major threats to biodiversity in the region, hence a need for sustainable management of these forests (Killeen *et al.,* 2008).In the past few decades, the MCL has witnessed remarkable forest fragmentation and degradation due to anthropogenic activities and natural pressure. This pressure is on-going and presents a potential threat to wildlife, other natural resources and sustainable development. The recurrent human-elephant conflicts around the Bakingili area speak volumes to conservation stakeholders to re-coin strategies. Measuring impacts of protected areas is necessary during implementation to ensure that interventions do not negatively affect local people (Schreckenberg *et al.,* 2010).This study, therefore, assessed livelihood changes around the mount Cameroon area as a result of forest protection, the effects of forest protection on household income and determined the impacts of current livelihoods on conservation efforts.

METHODOLOGY

Location

The Mount Cameroon National Park was created through the Prime ministerial Decree No. 2009/2272 of 18th December 2009. It has a total surface area of 58,178ha. The top of the mountain is located 4°13' N and 9°10' E. This park is part of one of the eight biodiversity hotspots in the "Gulf of Guinea Forests", with a rich, diverse, and partly endemic flora and fauna. The park and its surroundings host a variety of ecotourism potentials. Mount Cameroon, also known with its Bakweri name as Mount Fako, is the highest mountain in West and Central Africa and the fourth prominent one in Africa situated just a few kilometers from the Atlantic coast of the Gulf of Guinea. The park stretches from evergreen lowland rain forests near sea level through sub-montane and montane forest to montane and sub-alpine grassland to an altitude of 4,070m. Part of the park is a large satellite peak, Mount Etinde (1700m) and is also known as "little Mount Cameroon" located on the southern flank near the coast. Mount Cameroon is known for its exceptional plant diversity and high number of endemic species. Evidence of this richness is justified by the fact that over 2,435 species of plants in more than 800 genera and 210 families, 49 plant taxa (species, subspecies, and varieties) are strictly endemic (only occurring on Mount Cameroon) and 50 near endemic plant species (also occurring in Bamenda Highlands, Oku, Kupe, Korup, Obudu Plateau and Bioko) are found in the area (Cable & Cheek, 1998). Cheek *et al.* (1996), argued that almost all of the plant families are endemic to tropical Africa such as; Huaceae, Medusandraceae, Lepidobotryaceae, Octocknemataceae and Hoplestigmataceae are found on Mount Cameroon and the surrounding foothills. Of the 49 endemic species, 11 occur in lower montane (also

referred to as "submontane" or "cloud") forest between 800 and 1,800 m, and 29 in lowland forests.

Methods

The unit of analysis for this study were the households and this was where the respondents for the study were derived. Here, household heads were the target respondents. The study was carried out in the mount Cameroon area and its peripheral zone. These areas were purposively selected due to their proximity to the forest and because these areas are highly impacted by the effects of forest protection. The study area is made up of 41 villages divided into 04 clusters based on their Geographical Location. These zones include Buea cluster (13 villages), Bomboko cluster (12 villages), Muyuka cluster (9 villages), and West coast cluster (7 villages). Villages from the four clusters were sampled depending on; their proximity to the Mount Cameroon national park, accessibility and the security situation of the village. The choice of villages sampled was also guided by accessibility and the security situation of the villages. For this study, a sample of 200 households was considered appropriate since it covered the acceptable sampling size. The respondents identified and selected were within a four kilometer distance from the MCNP as adopted by Kiragu, (2002). A random sampling technique was used to identify and pick households living adjacent to the forest location and within a 5km radius. This sampling technique was appropriate for the study because it provided a representative sample that was used to generalize on the opinion of the population. It was also a convenient technique to use since it gave minimal chance for human bias to manifest itself. The key informants in this study comprised of; the conservator of mount Cameroon national park, staffs from the management of national park, staff from the ministry of forestry and wildlife, staff from GIZ, Village forest management committee members and the Chiefs of the sampled villages. These key informants were purposively selected on the basis of their expertise relevant to the study. Qualitative data was obtained using both primary and secondary sources. Questionnaires were administered for the qualitative data. A total of 200 questionnaires were sent out, at the end of the exercise, 32 were rejected because of incomplete answers. Semi-structured closed questions were used to allow for qualitative discussions with the household concern and hence provide enough qualitative data. The questionnaire content consisted of questions on how conservation has impacted livelihoods, effects of conservation on household incomes and how current household livelihoods activities impact or affect the conservation efforts in Mount Cameroon National Park. The two hundred (200) questionnaires were administered in the four clusters of mount Cameroon; one hundred and sixty eight (168) were responded giving a response rate of 84%. Some questionnaires were not administered because the respondents were busy while some had left their area of residence because of the current Anglophone crises and insecurity at the time. A key informant checklist and guide was used to provide an overall direction for interview. The key informant guide consisted of Semi-structured questions to elicit responses and give more information regarding the study. An in-depth field interview was then conducted with the key informants to collect first-hand information on the effect of forest protection on household income and their livelihood in general around the park. Completed questionnaires were cross-checked for data integrity and data cleaned. Data was then coded for analysis along key themes, emerging patterns and consistency.
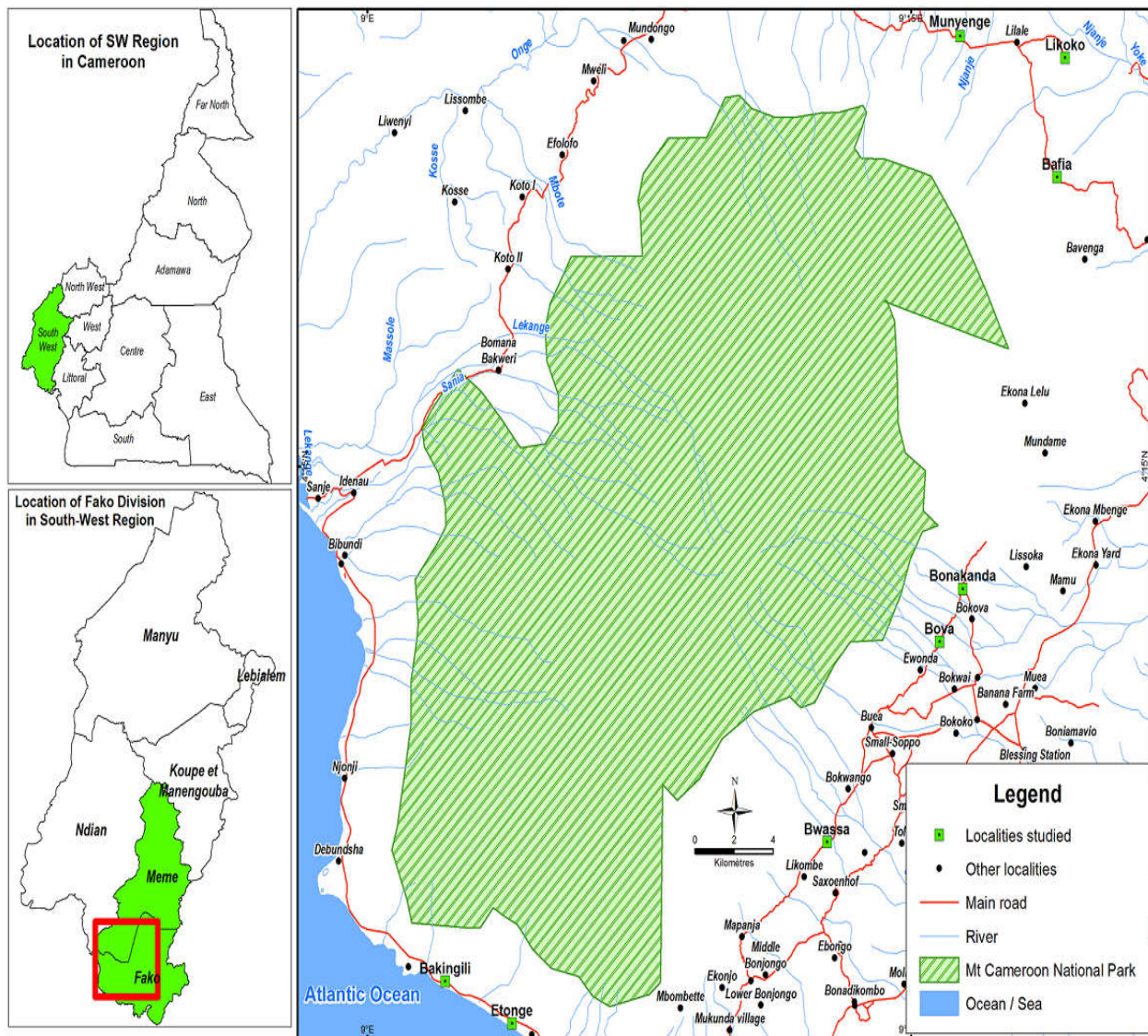
Figure 1. Map of study area

Qualitative data was analysed by content analysis categorizing the issues that emerged into themes (Robson, 2011). Thematic analysis and coding interpretation was done along key themes to determine its relevance in answering the research questions. The results of the study were presented in the form of tables, pie charts explanatory texts, and summary statistics to show relationships between key variables. Qualitative data analysis was done using tools in Statistical Package for Social Sciences (SPSS) version 21 and Ms Excel version 2013.

RESULTS

Effects of forest protection on livelihoods

Findings of this study revealed that before the creation of the Mount Cameroon national park (59%) of the population depended on farming as their main source of livelihood while the rest of the population did diverse activities (hunters, government and other small businesses) for livelihood (Figure 2). After the creation of the Mount Cameroon National Park, farming still remained the highest source of livelihood (53.60%) though the percentage of people engaged in it has dropped. Fishing on the other hand was the least source of livelihood (2.40%) in the study area (Fig 3).
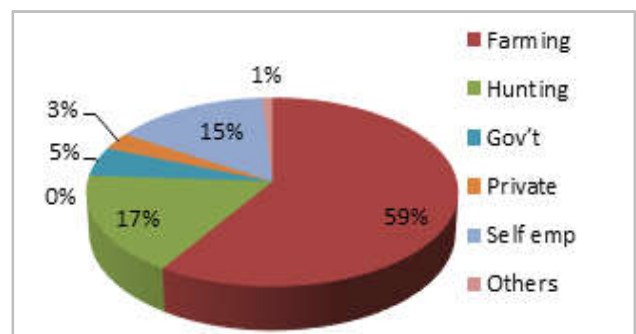

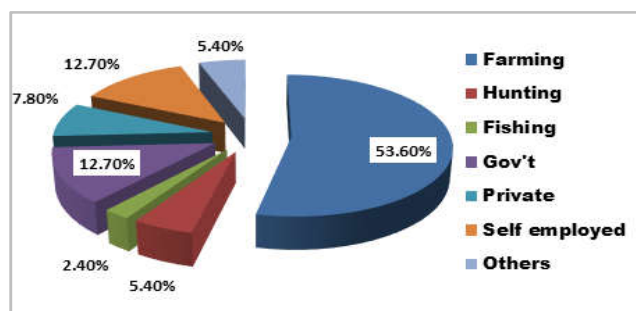**Figure 2. Sources of Livelihood before forest protection**

Figure 3. Sources of Livelihood after forest protection

Further analysis reveals that 15% of the population have changed their source of livelihood as a result of forest protection while the livelihoods of 85% of the population have not been affected by forest protection (Figure 4).
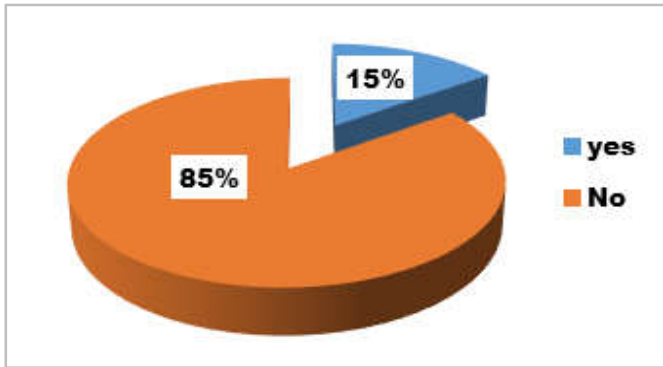

Figure 4. Effects of forest protection on livelihood change of respondents

Location of the sampled area, the results revealed that few (15%) respondents; Bonakanda (05), Bova (4) and Bakingidi (04) had changed their source due to forest protection while respondents from Bafia and Boasa were least changed their livelihood source as a result of forest protection (Table 2).

Table 1. Response to livelihood change as a result of Forest protection

Villages	yes	No
Bafia	2	13
Bakingili	4	26
Boasa	2	13
Bonakanda	5	25
Bova	4	25
Etome	3	17
Lykoko Mile 14	2	11
Munyenge	3	12
Total	25	143
%Total	15%	85%

Also, 48%, of the population stated that the reason for change of livelihood was as a result of forest restriction by park management authorities, 20% of the population stated that the park management provided them with alternative employment sources while 32% of the population gave other reasons (Figure 5).
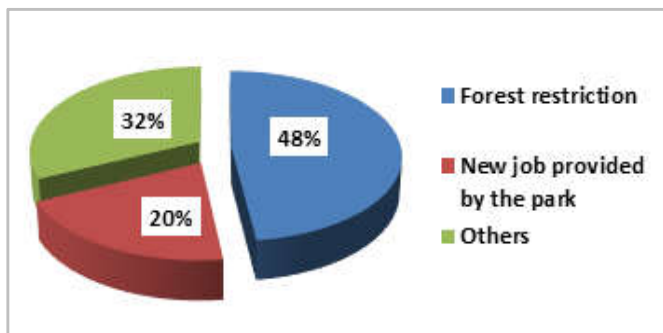

Figure 5. The response for changes in livelihood due to forest protection

According to most respondents, access to forest have been prohibited as a result with the coming into existence of the mount Cameroon national park which have had serious consequences on their livelihoods especially respondents who depended sole on forest related activities for their livelihood

sustenance. In effect the creation of the MCNP has restricted almost all the activities of the population with farming being the most highly felt (Figure 6).
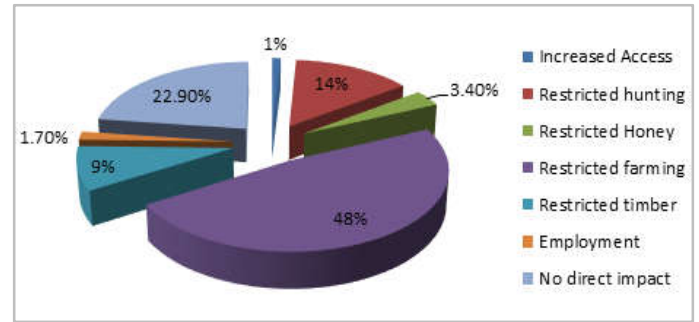

Figure 6. Effects of Forest protection on Access to the forest

Effects of forest protection on household incomes

Findings revealed that the incomes of 51% of the population have been affected by the creation of the park meanwhile for incomes of the population 49% had witness no change due to the creation of the Mount Cameroon National park (figure 7). Respondents who were affected were mostly those who carried out activities in the park and are now restricted as a result of the creation of the park.
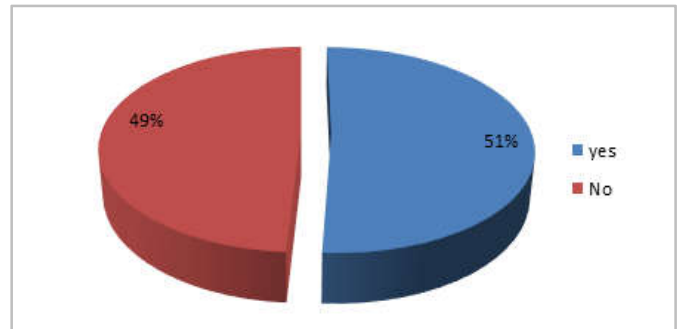

Figure 7. The effects of the Mount Cameroon National park on household incomes

Findings revealed that average incomes of those affected had dropped from 84,615 FRS before the creation of the park to 82,508 FRS (figure 8). This means the creation of the park has reduced the average income of those affected by 2,107 FRS. Majority of respondents had an income below 100,000 FRS while just few had incomes above 100, 000 FRS.
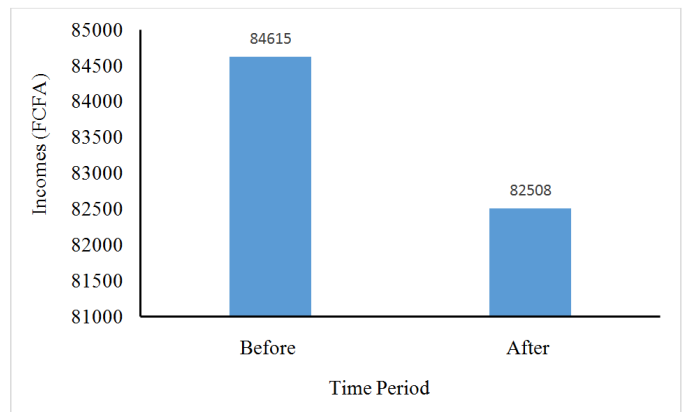

Figure 8. Effects of creation of mount Cameroon national park of incomes of those affected

Impacts of alternative livelihoods strategies on conservation efforts

Findings showed that; while 53% of the native population who are inhabitants around the national park still depend on farming as a source of their livelihood, 5.04% of the population still depend on hunting as a source of livelihood (Figure 9). Some of them farm and hunt close to the protected area which is leading to gradual encroachment and has an effects on the main species found within the protected area with consequent human wildlife conflicts especially elephants human conflicts.
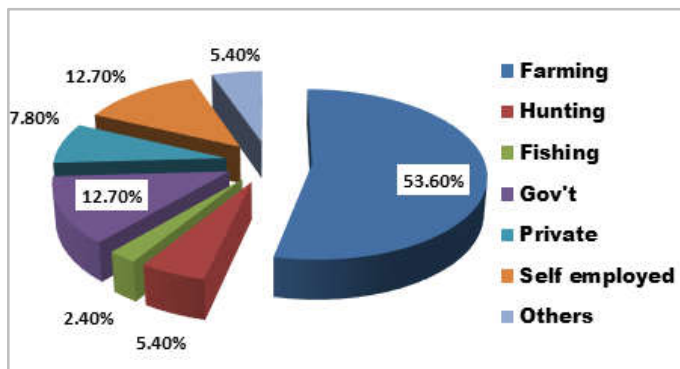

Figure 9. Livelihood sources around Mount Cameroon

DISCUSSION

The results of this study revealed that forest protection have affected the livelihood of just a limited number of people within the study area. With the mount Cameroon area, forest protected has positively affected only a limited number of livelihoods. The reasons why forest protection may have even affected this limited number of livelihoods could have been due to the introduction of the aspect of community forest in some localities around the national park. The creation and management of community forest around Mount Cameroon national park such as Bakingili community forest and other community forests may have reduce the over dependence of communities on the Mount Cameroon National Park. In contrast the result of this study is not in line with other studies which indicate that parks do not only limit access to resources but also can limit the range of livelihood options available to the local people. Cases of crop raiding are reported almost wherever a park exists (Gillingham & Lee 2003; Plumptre *et al.,* 2004 and Lepp 2007). Communities affected by wildlife raiding may have to forfeit growing some crops or livestock or otherwise take up labour intensive means of reducing crop and livestock damage. Moshi, (2016) studied the impacts of the Saadani National Park, on livelihood of local people, and results showed that people were found to have little access to natural, physical and financial resources because of the laws and regulations surrounding the establishment of the protected area and hence the protected area undermined their livelihoods. Local communities engaged in different activities, but agriculture and fishing were the main source of income in the two groups of villages. Findings from this study show that in the Mount Cameroon national park most respondents attest that management of the park have provided them with improved seedlings which has help boost their agricultural production and output. This findings are in line with those of Tom *et al.* (2014), in "The Impacts of Protected Areas on Local Livelihoods in Cambodia", where the author used the

evaluation methods to investigate the effect of protected areas on poverty and livelihoods in Cambodia. The authors found no evidence that protected areas exacerbated local poverty or changed significant livelihood strategies in comparison with controls. According to these authors, households bordering the protected areas were significantly better off due to greater access to markets and services. Non-timber forest product (NTFP) collectors inside protected areas were significantly better off than controls and had greater rice harvests, because they had more secure access to land and forest resources. The authors concluded that protected areas in Cambodia therefore have some positive impacts on households that use forest and land resources for their livelihoods. Further findings also revealed that the incomes of most respondents have been affected by the creation of the park though some few have witness no change due to the creation of the Mount Cameroon National park. It was also revealed that average incomes of those affected had dropped from when the park was created. This is not in line with the findings of Child and Dalal-Clayton, (2004) who investigated the effect of forest on neighbouring communities in Lupande Game Management Area, adjacent to the South Luangwa National Park. Child and Dalal-Clayton, (2004), found out that the creation of the protected area led to the creation of two hunting concessions where communities earned an annual revenues of US$230,000 for the 50,000 residents. The revenue was distributed both in cash to the local community and to village projects such as schools. The findings of this study are also not in line with the findings of O'Gorman, (2006) who reported a total amount of US$175,000 from wildlife viewing in the Royal Chitwan National Park. The difference is as a result of overall park conditions, park usage, and physical activity levels, especially within low-income, minority neighbourhoods. Studies have shown that low-income, minority neighbourhoods have access to parks, but the parks in these neighbourhoods are often in poorer condition than those in higher-income, non-minority neighbourhoods (Weiss *et al.,* 2011).

Findings from this study show that some common threats facing the mount Cameroon protected area include human encroachment from activities such as farming, hunting, lumbering and industrial agriculture which can be attributed to increasing population. These findings are similar to the findings of Joseph *et al.* (2014), who analysed human activities in and around protected area in the Kakum conservation area in Ghana. Effects of human activities in a 5km buffer zone were investigated and authors noted some illegal activities within the protected area which had major impacts on elephant raiding and loss of important natural resources. The findings of this study are also similar to the findings of Che *et al.,* (2012) who studied community Activities around Protected Areas and the Impacts on the Environment at Krau Wildlife Reserve, Malaysia. Authors found out that the community activities were glaring and encroached into the Krau Wildlife Reserve and poses great threats to the latter. Findings of this study also revealed the importance of incorporating a more participatory approach into protected area decision-making processes in order to foster the implementation of conservation strategies. This is similar to cases where conservation agencies have maintained some degree of access to resources from the park by local people and/or instituted other transfer mechanisms to ensure that local costs are transferred to national and international levels (Balmford and Whitten 2003). These approaches range from revenue sharing like in Uganda (Archabald and Naughton-Treves 2002) and implementation of

other types of integrated community development projects (ICPD) Implementation of ICDPs may include infrastructural developments like local schools and health centers (Makombo, 2003 and Lepp, 2007). Such infrastructural developments improve local attitudes towards the park. More telling success stories can be found in southern Africa like the Luangwa Integrated Resource Development Project (LIRDP) in Zambia (Child and Dalal-Clayton, 2004). In contrast to findings of Aswani and Weiant, (2004) assert that, when local communities' are excluded from protected area management and their needs and aspirations are ignored; it becomes extremely difficult to enforce conservation policies. However, it is not clear to what extent the involvement of local communities in protected area decision-making processes in general contributes to enhancing compliance of local communities with protected policies (Ban *et al.,* 2008).

Conclusion

Forest protection affected the livelihood sources of communities resident around the national park meanwhile average incomes drop after the creation the of park. Although the MCNP imposes costs and benefit on local community it depends on the relationship between local poverty and forest resource use, external drivers, conservation policies and alternatives like community forest creation implemented within protected areas. The protected area livelihood relationship is dynamic and may be different for different groups of people, implying that social impact assessment needs to consider who gains or losses, and when in other to amend the loop holes in conservation efforts.

REFERENCES

Abbot, J. I., Thomas, D. H., Gardner, A. A., Neba, S. E. and Khen, M. W. 2001. Understanding the links between conservation and development in the Bamenda Highlands, Cameroon. *World Development*, 29(7), 1115-1136.

Adger, W. N. 2001. Scales of governance and environmental justice for adaptation and mitigation of climate change. *Journal of International development, 13*(7), 921-931.

Agarwal, B. 1990. Social security and the family: coping with seasonality and calamity in rural India. *The Journal of Peasant Studies*, 17(3), 341-412.

Ahmad, C. B., Abdullah, J. and Jaafar, J. 2012. Community activities around protected areas and the impacts on the environment at Krau Wildlife Reserve, Malaysia.*Procedia-Social and Behavioral Sciences*, 68, 383-394.

Ahmed, A. U. 2006. Bangladesh climate change impacts and vulnerability.

Apu, A. S., Bhuyan, S. H., Prova, S. S. and Muhit, M. A. 2012. Anti-inflammatory activity of medicinal plants native to Bangladesh: A review. *Journal of Applied Pharmaceutical Science*, 2(02), 07-10.

Archabald, K. and Naughton-Treves, L. 2002. Tourism revenue-sharing around national parks in Western Uganda: early efforts to identify and reward local communities. *Environmental Conservation*, 28 (02): 135-149.

Aswani, S., and P. Weiant. 2004. Scientific evaluation inwomen's participatory management: monitoring marine invertebrate refugia in the Solomon Islands. *Human Organization,* 63(3):301–319.

Balmford, A. and Whitten, T. 2003. Who should pay for tropical conservation, and how could the costs be met? *Oryx*, 37 (02): 238-250.

Child, B. and Dalal-Clayton, B. 2004. Transforming approaches to CBNRM: learning from the Luangwa experience in Zambia. In Getting biodiversity projects to work: towards more effective conservation and development, pp. S. 256-289. New York, Columbia University Press.

Gillingham, S. and Lee, P. C. 2003. People and protected areas: a study of local perceptions of wildlife crop-damage conflict in an area bordering the Selous Game Reserve, Tanzania, 37, 03,Cambridge Journals Online. pp. 316-325.

Hansen, A. J. and Defries, R. 2007. Ecological mechanisms linking protected areas to surrounding lands. *Ecological Applications*, 17(4), 974–988. doi:10.1890/05-1098

Jones, D. A., Hansen, A. J., Bly, K., Doherty, K., Verschuyl, J. P., Paugh, J. I. and Story, S. J. 2009. Monitoring land use and cover around parks: A conceptual approach. *Remote Sensing of Environment*, *113*(7), 1346–1356. doi:10.1016/ j.rse.2008.08.018

Juan José Miranda, Leonardo Corral, Allen Blackman, Gregory Asner, Eirivelthon Lima. 2014. Effects of Protected Areas on ForestCover Change and Local Communities, Evidence from the Peruvian Amazon. IDB WORKING PAPER SERIES No.IDB-WP-559.

Kah, E., Tchindjang, M., Tonye, E. and Talla, T. 2008. Combined supervised classification methods in remote sensing for the evaluation of forest dynamics along the slopes of Mount Cameroon. Pp 1–6.

Kai, S., 2003. Rural Livelihood and Social Infrastructure around Mount Cameroon. GmbH Back ground information for the M.C-SE GIS.

Killeen, J., Anna G., Miki C., Lisette C., Veronica C., Lillian S., Belem Q. and Marc K., 2008. Total Historical Land use change in Eastern Bolivia. Who, Where, When and How much? Ecology and Society, 13(1): 36-49.

Lepp, A. 2007. Residents' attitudes towards tourism in Bigodi village, Uganda.*Tourism Management*, 28 (3): 876-885.

Makombo, J. 2003, September 08 – 17, 2003. Responding to the Challenge – "How Protected Areas can best provide benefits beyond boundaries" A case study of Bwindi Impenetrable National Park in Western Uganda.World Parks Congress Durban, South Africa.56

Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A. and Kent, J. 2000. Biodiversity hotspots for conservation priorities.*Nature*, *403*, 853-858.

MCNP., 2006. Mount Cameroon National Park, Annual report 2006.

Mogaka, H. 2001. Economic aspects of community involvement in sustainable forest management in Eastern and Southern Africa (No. 8).IUCN.

Nyaupane, G. P. and Poudel, S. 2011. Linkages among biodiversity, livelihood, and tourism.*Annals of tourism research*, *38*(4), 1344-1366.

Neumann, R. P. and Hirsch, E. 2000).Commercialisation of non-timber forest products: review and analysis of research. Center for International Forestry Research.

Nguyen ThiThuy, H. 2014. Linking Rural Livelihood and Conservation in Hoang Lien National Park, Lao Cai Province, Vietnam (Doctoral dissertation, CIRAD).

Plumptre, A. J., Kayitare, A., Rainer, H., Gray, M., Munanura, I., Barakabuye, N., Asuma, S., Sivha, M. and Namara, A. 2004. The Socio-economic Status of People Living Near ProtectedAreas in the Central Albertine Rift. *Albertine Rift Technical Reports*, CARE, IGCP, WCS. 127 p.

Robson, C. 2011. Real World Research: A Resource for Users of Social Research Methods in Applied Settings (3rd ed.. Cornwall, UK: John Wiley and Sons.

Sayer J.A., Harcourt C.S. and Collins N.M. 1992. The Conservation Atlas of Tropical Forests. Africa. WCMC-IUCN, NewYork.

Schreckenberg, K., Camargo, I., Withnall, K., Corrigan, C., Franks, P., Roe, D. 2010. Social assessment of conservation initiatives: Areview of rapid methodologies. Natural resource issues no. 22. London: IIED.

Tom Clements, Seng Suon, David S. Wilkie, E.J. Milner-Gulland, 2014. Impacts of Protected Areas on Local Livelihoods in Cambodia.World Development *Vol. 64, pp. S125–S134, 2014.*

Tumusiime, D. M., Vedeld, P. and Gombya-Ssembajjwe, W. 2011. Breaking the law? Illegal livelihoods from a protected area in Uganda.*Forest policy and economics*, *13*(4), 273-283.

Timko J. and Alemagi D. 2010. An assessment of the community forest model in Cameroon. Proceeding of the XXIII IUFRO World Congress "An honest conversation about decentralization and forest livelihoods in a globalized world" 28 August 2010.

Vedeld, P. and Angelsen, A. 2004. *Counting on the environment forest incomes and the rural poor* (No. 33328 Caja (531).

Venter, O., Fuller, R. A., Segan, D. B., Carwardine, J., Brooks, T., Butchart, S. H., ... and Possingham, H. P. 2014. Targeting global protected area expansion for imperiled biodiversity.*PLoS biology*, *12*(6), e1001891.

Weiss C., Purceil M., Bader M., Quinn J.W., Lovasi G., Neckerman K.M., Rundler A.G. 2011. Reconsidering access: Park facilities and neighborhooddisamenities in New York City. J. Urban Health, 88:297–310. doi: 10.1007/s11524-011-9551-z. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

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