

Biodiversity Conservation as a Strategy for Poverty Alleviation Around Protected Areas. A case of Bwindi Impenetrable National Park

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Abstract: It is also a general consensus that biodiversity loss and poverty are interconnected. The challenge is that conservation and poverty alleviation ought to be tackled together. Conservation of biodiversity and poverty alleviation have both been recognized as social and political goals by both developed and developing countries. In addition, there is growing concern that combined efforts to conserve biodiversity are in disagreement with those to alleviate poverty particularly of the local community around the protected areas. In Uganda the government has recognized tourism through biodiversity conservation as a vehicle for poverty alleviation particularly around the protected areas. The specific objectives of the study included; to determine the local community perception about conservation of biodiversity in the protected area; and to find out the challenges the local community adjacent to the protected area face in trying to alleviate poverty. The methodology was descriptive and comprised of qualitative and quantitative approaches as well as primary and secondary sources of data. The target population was 129 households and by use of Slovene's formula a sample of 98 households were selected. The results indicated that well managed biodiversity conservation can generate a lot of benefits for the local community. However, if the local community don't see the benefits and poverty bites hard then they grossly engage in activities that threaten conservation or even destroy completely the biodiversity. Finally it was concluded that proper conservation of biodiversity can be a vehicle to poverty alleviation among the local community adjacent to the protected area.

Keywords: Biodiversity, conservation, poverty, alleviation, protected areas, local community.

Introduction

Conservation of biodiversity and poverty alleviation have both been recognized as social and political goals by both developed and developing countries in the past two decades that must be achieved save human race from vicious circle of poverty. In 1992, the Conservation on Biological Diversity agreed to formulate a response to increasing loss of biodiversity whereas the Development Assistance Committee of the organization for economic cooperation and development identified seven poverty reduction strategies in 1996 (OECD, 1996; Adams, 2013) which were later in 2000 developed to Millennium Development Goals (MDGs) that resulted to high level of international commitment to poverty eradication through biodiversity conservation (Millennium Ecosystem Assessment, 2005a).

It is also a general consensus that biodiversity loss and poverty are interconnected challenges and the argument is that conservation and poverty alleviation ought to be tackled together. Though, it is observed that integrated strategies are still unsuccessful (Kepe et al., 2004; Barret et al., 2011). Therefore, clear theoretical frameworks are required if the policies in these two crucial areas are to be combined. In addition, there is growing concern that combined efforts to conserve biodiversity are in disagreement with those to alleviate poverty particularly of the local community around the protected areas (Adams 2013). These are observed in decline of populations, extinction of species, and transformation of habitats which demand urgent action (Barret et al 2011; MA, 2005b; Mace et al 2012). Most responses to these threats have been the establishment of the protected areas (MA, 2005a). In addition, the technical capacity to design effective protected area systems is growing (Mace et al, 2012). This has allowed the identification of attention and remaining gaps in international protected areas. So these combined with positive assessments of effectiveness of protected areas is promoting the consolidation and expansion of the network of protected areas (Koziel, 2001)).

According to IUCN, (2002), the creation of protected areas leads to limited land-use options, especially those with potentially significant economic opportunities. This implies that, establishment of protected areas can have great negative impacts on local community (Fisher et al, 2005; Daily, 1997). For instance the eviction of former right holders can easily lead to increased poverty as they will have no natural resource to sustain their livelihood (Hulme and Murphree, 2001). Also, the concern is that the costs of conservation are not distributed in proportion to their benefits and usually the local community benefit less (Sheil and Lawrence, 2004).

The Convention on Biological Diversity recognizes that economic and social development and poverty alleviation are the primary and overriding priorities of developing countries (Koziell and Saunders, 2001; Shackleton, et al, 2008). In 2002; the United Nations, (2008) adopted to achieve by 2010 a significant reduction of the current rate of loss of biodiversity at the global, regional and national level as contribution to poverty alleviation and to the benefit of all life on earth (Colchester, 2002; Adams, 2004). The Millennium Ecosystem Assessment (MA) published in 2005, emphasizes the relation between biodiversity conservation and poverty eradication (United Nations 2010). Further, the conceptual framework of MA looks at biodiversity as crucial foundation for the delivery of ecosystem goods and services on which human wellbeing depends and poverty being the pronounced deprivation of well-being (MA, 2005c). The MA further highlights that many aspects of biodiversity decline have got a disproportionate impact on poor people. These studies are reaffirmed by The Economic of Ecosystems and Biodiversity (TEEB) (Leisher et al, 2013).

According to Caldecott et al, (1994) argues that many countries with high biodiversity, which have been measured in terms of species richness and endemism are the ones noted to be having high levels of poverty. This has been

particularly true of the countries in sub-Saharan Africa and large areas of Asia where the biggest number of poor people are found (Fisher and Christopher, 2006). Equally, some of the areas identified as global significantly hotspots of threatened biodiversity by conservation bodies occur in regions with severe and multifaceted poverty. Whereas many poor people live in urban areas, abject poverty still remains in rural areas where biodiversity degradation is increasingly growing (MA, 2005). Not only that, acute poverty is observed in remote or inaccessible areas of low human population density where biodiversity is most intact (Hernandez- Morcillo et al, 2010). However, poverty and biodiversity are measured, it is clear that practicing biodiversity conservation and poverty alleviation will always find themselves side by side in same location (MA, 2005).

Further, persistence of acute poverty and continued fast loss of biodiversity seem to be closely linked, it has been observed that abject poverty and biodiversity hotspots are geographically conterminous, concentrated in rural areas where the local community depend excessively on natural resources such as forests, rangelands, soils, water and wildlife (Hernandez- Morcillo et al, 2010). Additionally, as a result of existing close proximity to each other plus the fact that human managed natural resources are threatened due to poverty, puts more dilemma on sustainability. This is coupled by lack of resources, institutions and governance structures that usually leave the local community poorly equipped to implement strategies to ensure long term conservation of biodiversity and hence poverty alleviation (Barret, 2001).

In line with the previous discussions, poverty has been looked at more broadly as multi-dimensional, encompassing material deprivation, the lack of access to other basics needs for example education, health, nutrition and food security as well as the absence of political autonomy and empowerment together with lack of freedom of choice and social inequity (Addison et al, 2009). Therefore, the general consensus is that biodiversity supports the livelihood strategies of the poor community in rural areas (Godoy and Bawa. 1993). A strong body of opinion, conversely emphasizes that poverty elimination and conservation of biodiversity usually occur together. In addition it is also argued that the term pro-poor has been used to identify conservation strategies that are designed to deliver both poverty eradication and biodiversity conservation (Tuxill and Nabhan, 1998; Bojo and Reddy, 2002; Balmford, 2002). Other scholars point out that long term positive outcomes of conservation projects seem to be elusive (Barret et al, 2011 and Kepe et al 2004). The reason being that these projects try to integrate conservation and development are too ambitious and end up underachieving in terms of poverty eradication. The point in contention is achieving conservation and poverty eradication simultaneously. It can only be possible under specific institutional arrangements, ecological situations and environmental conditions (Adams and Sandbrook, 2003). Also the links between biodiversity and local community livelihoods as well as between conservation and poverty alleviation are dynamic and locally specific (Bojo and Reddy 2002).

Tekelenburg et al (2009) argued that poverty is a critical constraint on conservation. This position makes the empirical and pragmatic argument that poverty limits biodiversity conservation success to a particular extent and conservation is likely to fail if it does not address poverty eradication. Such a scenario can occur where the poor community overharvest the wildlife species, poaching critical species or cultivate and modify land (Hall and Bawa 1993). Poverty eradication would be undertaken in such a situation simply as a means to achieve effective biodiversity conservation. In this situation, to achieve its goal, conservation must offer effective contribution to poverty alleviation including both benefits to the poor and avoidance of significant local costs to any social group (Wunder, 2001; Fisher and Christopher, 2007).

Further, Shackleton et al, (2008); Korbe, (2007) and Blomley (2003) emphasize that conservation bodies have been investing in addressing the poverty of critical protected area local community adjacent and key actors with power to frustrate conservation of biodiversity. These strategies include for example outreach programs such as provision of service to adjacent villages, employment of local community and participation in conservation processes. Also income generating activities such as sharing revenue from wildlife tourism and integrated conservation development projects (Wells and Brandon, 1992; Hulme and Murphree, 2001). Therefore conservation cannot compromise poverty reduction because as much as these agencies have conservation as their primary goal. However, as they pursue their goal, it hoped that they have to reduce poverty or should not undermine the livelihood of the local community around the protected areas (Adams, 2013).

The increasing consensus by researchers (Ticktin 2004 and Bojo 2004) argue that poverty reduction depends on biodiversity conservation. This is based on the premise that, financially poor and socially as well as politically marginalized individuals depend on living species in bio-diverse ecosystems for livelihoods and ecosystem services. This implies that their livelihoods are most likely to be improved through appropriate conservation activities (MA, 2005b).

Kepe et al. (2004); Redford and Sanderson (2006); Birdlife International, (2007); Fisher et al (2005), all argue that conservation is therefore a tool for achieving poverty alleviation. They emphasize that this can be achieved through sustainable use of natural resources which are the foundation of reducing poverty. Biodiversity benefits may not immediately lead to this goal but play a key role to achieve both conservation and poverty (Bojo, 2002). This situation might lead to the rejection of a protected area strategy because, except under particular circumstances such as shares of ecotourism revenues surpass all other land-use benefits (Wunder, 2001). Also alternative approaches can be executed that may include the sustainable use of living resources to optimize ecotourism incomes and or positive impacts on the rural or urban poor (Kepe et al, 2004). To support conservation for poverty reduction, influencing aspects such as policy on implementing conservation programs outside the protected areas; to promote the local management of common-pool resources with the limits of ecological

sustainability such as fish farming, wildlife management, grazing or forestry that are targeted at improving the livelihoods of the local community around the protected area (Fisher and Christopher, 2007).

Bwindi Impenetrable National Park was gazetted as a national park in 1991 to majorly protect the endangered primates, the mountain gorillas (*Gorilla beringei beringei*) and its habitats (Wunder, 2000). It is within one of the poorest and most densely populated regions of Africa where rural communities depend on natural resources for their livelihood (Plumptre et al 2004). Denying access to Bwindi natural forest resources by the local community created resentments and escalated to continuous conflicts between park management and the adjacent local community. As a result, the park management came up with an integrated conservation and development program that was aimed at conserving biodiversity sustainably while alleviating poverty among the local community (Walpole and Goodwin, 2001). Blomley et al (2010) and Baker et al (2011) argue that with these initiatives to involve the local community through poverty alleviation. Bwindi Impenetrable National park has been able to achieve biodiversity conservation to some degree. Despite these positive trends, it has been observed that biodiversity degradation has been ongoing even if there has been shifts in areas for grazing far away from pristine places (Tumuhairwe et al, 1998). The specific objectives of the study included; to ascertain income generating projects related to biodiversity conservation that were used to alleviate poverty; to determine the local community perception about conservation of biodiversity in the protected area; and to find out the challenges the local community adjacent to the protected area face in trying to alleviate poverty.

Methodology

The National Park is located in south-western Uganda at latitude 00 53' S to 10 08'S; longitude 290 35' E to 290 50'E and its elevation ranges from 1160-2607 meters above sea level. It is located in the districts of Kabale, Kisoro and Kanungu to the border of Democratic republic of Congo covering an area of 331km². At first it was established as a forest reserve and sanctuary mainly to protect the threatened mountain gorillas (Chapman and Peres, 2001). As a result of a study carried out by Butynski (1984) about the ecological and socio-economic aspects, it was decided that strict conservation methods should be implemented. It was discovered that the local community around the protected area is one of the highest population densities with acute poverty in the region its continued increase led to high demand for the forest resources and thus required serious conservation measures (Plumptre et al, 2004). The local community surrounding the protected area indulge intensive subsistence farming as an economic activity that sustains their livelihood. The soils are very fertile composing of mainly humic ferralsols which have high acidity. The annual average rainfall ranges between 1400 to 1900 mm with two peak wet seasons where the rainy period occurs in the months of March to April and September to November. The annual average minimum

temperature ranges from 7 to 150 C and maximum average temperature ranges from 20 to 270 C (Howard, 1991). The protected area is rich in plant species and the vegetation has been classified as medium altitude wet evergreen forest and evergreen high altitude sub-montane forest (Butynski, 1984; Forrest et al, 2008). As a result of poverty and need for basic requirements, the local community has been engaging in illegal activities mainly to harvest timber, firewood, bamboo, building and thatching materials, minerals, honey, meat and livestock forage. So the park has put up great effort to stop extractive exploitation of forest resources through poverty alleviation programs and allowing the local community to carry out selective harvest of plants for medicinal and weaving purposes (Ambrose and Bratton 2005).

The research methodology of this study was descriptive considered both qualitative and quantitative approaches. Use of primary data and secondary data was considered. The primary data was gathered by help of semi-structured questionnaire and interview guide. The target population was 129 households from five villages within one kilometer from the park boundary that have been involved in economic activities in order to sustain their livelihood and not engage in illegal activities that undermine conservation of forest resources. The sample was obtained through use of Slovene's formula $n = N/1 + (Ne^2)$. Where n was the sample, N was the target population and e was the estimated error. The villages were; Nkwenda, Kamuhoko, Kigarama, Kikomo and Murore. For ethical purposes, the researcher wrote a letter through the local leaders and park management to have access to information from both the park staff and the local community. The households were purposively selected, only those that were among the first to have been involved in economic activities that in one way or another support conservation of the forest resources and have been in existence for the last ten years. The study focused on collecting data from two household leaders and focus group discussion was used among the local community from the selected households but a questionnaire was purposively used to interview the park staff. By use of Slovene's formula a sample of 98 household in addition to purposively selected five (5) staff of the park. The table below gives a summary of the target population and sample of the study

Table 1: Households of the targeted population and sample of local community

Village	Total Number of households	Targeted Number of household	Sampled Number of households
Kigarama	138	33	25
Kikomo	101	22	16
Kwenda	116	25	21
Murore	87	21	14
Kimuhoko	104	28	22
Total	545	129	98

Source; Uganda National housing and population census 2012

Results

The purpose of the study was to determine how biodiversity conservation could be used as a strategy to alleviate poverty among the local community around the protected area. The results indicated that there were several government initiatives that were put in place to improve the livelihood of the local community as a way to eliminate illegal activities that negatively affect conservation of biodiversity. The results after a survey among the local community in their households indicated that every household engaged in some economic activity. It was revealed that many households in these sampled villages were involved in tourism projects that were initiated by government with the aim of improving their livelihood and hence enhance conservation of biodiversity. The findings in figure 1 below suggested that majority of the households 13.2% greed that the reformed poachers trail was the tourism project that generates income for them. The respondents added that it was one of the first projects and the trail goes through most of the villages sampled and so many households take part to earn income. Also results showed that the high number of households 12.2 % said that the women's cultural group was another tourism project that government supports. It was pointed out that majority in the area were women and so the women in the households surveyed were able empowered and helps improve the welfare of their families which makes them not to indulge in illegal activities in the park. Further, figure 1 shows that a big portion of household participants 11.2 % highlighted that wood art-craft cooperatives was another key local community project supported by government that substantiates on the local community earnings to improve their wellbeing and thus not indulge in forest harvest that undermines conservation. Additionally, honey making process was another project supported by government as it was pointed out by 10.2% of the households. It was found out that the processing activity adds value to the honey and creates more products such as candle wax which enabled many households to expand on their revenues. Apart from those projects mentioned above, the households 9.2 % added that basketry making among the members in the community was another project initiated and supported by government. These products were made and sold to the tourists who visit the area or after visiting the park. The households added that the local community in the sampled villages initiated the community walks that involved tourists visiting the local community to learn more about their lives. Also the women weaving group which mainly practice cloth and beads making was another tourism project. These activities were mentioned by the households and constituted 8.2% respectively. The Batwa cultural initiative was mentioned by 6.1% of the households. The participants emphasized that majority of Batwa had been evicted from the park and had no income but this project was initiated so that tourists can visit them and enjoy their culture, honey so that the Batwa can earn income to alleviate poverty and discard the idea of illegally entering the park to harvest the resources. The government initiated a project to equip the young individuals with skills that were to enable them improve their livelihood. Results

in figure 1 also showed that 6.1% of household mentioned that a project for specialized guides was established which was to train cultural guides, community guides and birder guide for those interested in bird watching . Finally a project in agro-tourism was supported with 5.1% of the households arguing that tourists paid the local community for guided tours through tea plantations while 4.1 % of the households argued that tourists also paid for tours in coffee plantations to enjoy tea harvesting and processing. All these activities have improved the local community earnings and thus strengthened their wellbeing as well as made them appreciate conservation of the park since they are benefiting in their households.

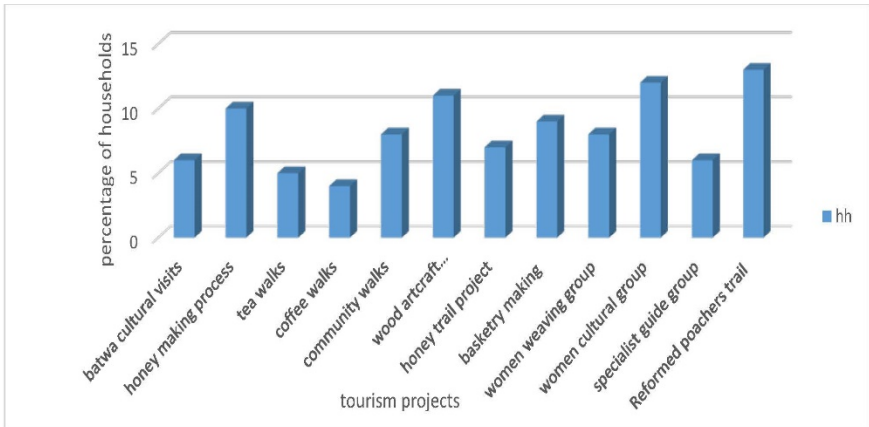


Figure 1: Local community Tourism projects supported by government to alleviate poverty and conservation biodiversity

In connection to the above findings, the study also ascertained the key items that the households offered to the market for sale to improve their livelihoods. Table 2 below summarizes the results which indicated that the highest number which was 25 household agreed that honey was their main income generating item. The participants said that most customers who happened to be tourists demand for honey and that why it was their main income earner. In addition, 18 households strongly emphasized that the agricultural products such as tea, coffee, Irish potatoes, beans and mushrooms. These they said were mainly sold to the lodging facilities but also for barter trade to improve their wellbeing at household level. One of the key items highlighted by a big number of respondents 15 households were cultural dances. The households agreed that they carried out the cultural dances for tourists who pay and the money is collected and later shared among the members. The results in Table 2 also revealed that some of the households mainly earned from weaving the baskets and these were in two categories. The baskets were the winnowing baskets that were pointed out by 9 households and the tea baskets which were mentioned by 12 households. The tea baskets were sold to those who had tea plantations because they were used for tea picking while the winnowing baskets were sold to the farmers who planted millet and beans. Lastly the study found out 8 households emphasized that their income generating source

was the wood carvings. The households said they have a variety of these items and sell to tourists who visit the park or sleep in their surrounding accommodation facilities as shown in Table 2 below.

Respondents were asked to highlight key income generating activities that reduce poverty.

Table 2: Key Items sold by the households to sustain their livelihoods in the selected villages

Items	Number of households selling mainly such an item (n)
Honey	25
Winnowing Baskets	9
Wood carvings	8
Tea baskets	12
Hand crafts	11
cultural dances	15
Agricultural products	18
Total	98

The results showed that as a result of conservation and increased number of tourists to the park, the government initiative of revenue sharing has increased. Findings in Figure 2 below indicated that the trend that the amount of money in terms of revenue sharing has been increasing. The study in the sampled households found out that the park management in the recent past has been supporting income generating projects of the local community adjacent to the park. The strategy has been as a way of persuading the community especially those with close proximity to the park boundary to avoid illegal entry in the park. Figure 2 indicates that in 2012 the revenue sharing amount disbursed totaled 662million Uganda shillings to empower the local community three income generating projects like those highlighted in figure 1. The amount of revenue sharing however, in 2013 dropped due to few tourists, due to insecurity and ebola disease in Democratic Republic of Congo that borders the park. The results though indicated that from 2014 the amount of revenue sharing increased and in 2018, the park management disbursed approximately 616 million shillings to support projects in the 101 villages around the park. Taking the sampled villages therefore it implies that as biodiversity conservation gains ground and improves, the benefits to the local community starts to increase and thus tourism growth.

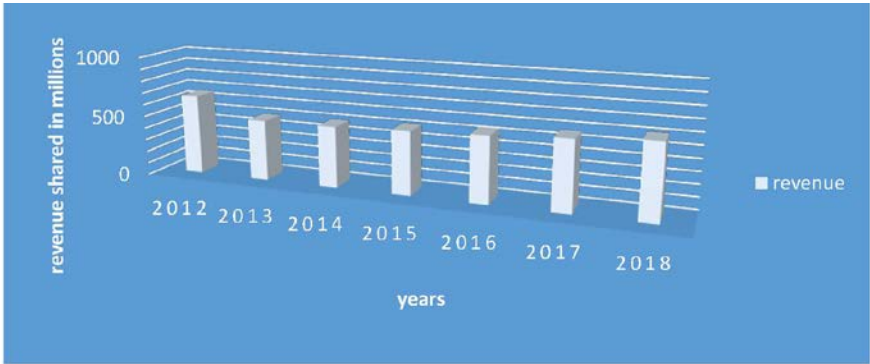


Figure 2: Trends in government revenue sharing initiatives purposively to empower locals to sustain conservation.

In line with the previous discussions, the study also surveyed the household to ascertain their perception about biodiversity conservation and whether in their views they believe it to alleviate poverty among the local community. The results in Table 2 below suggested that in Kigarama village 10, in Kikomo 4, in Kwenda 7, in Murore 6, in Kimohoko 8 households respectively strongly agreed that conservation of the biodiversity has alleviated poverty through the income generating projects and government initiatives such as revenue sharing. In Table 2 also results revealed that 7 households in Kigarama, 8 in Kikomo, 12 in Kwenda, 3 in Murore and 9 in Kimohoko households respectively agreed. In the same vein, 8 households in Kigarama, 3 in Kikomo, 2 in Kwenda, 3 in Murore and 5 in Kimohoko respectively fairly agreed that poverty was alleviated as a result of the park conserving biodiversity for tourism purposes. However, results in Table 2 highlight that one household in Kikomo and one household in Murore agreed but one household from Murore strongly disagreed that biodiversity has alleviated poverty.

Table 3: Local community perception if biodiversity conservation reduces poverty in their households

Village	Sampled households	Strongly agree	Agree	Fairly agree	Disagree	Strongly disagree
Kigarama	25	10	7	8	0	0
Kikomo	16	4	8	3	1	
Kwenda	21	7	12	2	0	0
Murore	14	6	3	3	1	1
Kimuhoko	22	8	9	5	0	0

Conversely, results revealed that apart from the positives highlighted above, the key informants who happened to be the five staff of the park argued that the park still faces some challenges. According to the key informants, as reflected in Figure 2 below, some of the local community members engage in illegal activities.

The challenges included illegal entry in the park for instance in 2003 and 2004 the highest recorded harvested item was pole wood for construction purposes. However, the trend showed that numbers had dwindled by 2018. Results in Figure 2 also suggested that 2011 registered the highest number of bamboo for construction purposes, bean sticks for climbing beans and hand craft materials for making baskets and art-crafts. Further, firewood collection cases were highest in 2007 but the trend showed that there has been a decline and few cases were recorded by 2018. Generally, the key informants agreed that the trend revealed that from 2012 to 2018 the number of cases of illegal activities inside the park had showed a downward trend as indicated in Figure 2 below. This was attributed to the work done by the park and government to have collaborated and empowered the local community thus improved their household incomes and wellbeing. Also the park instituted a monitoring team that works with the law enforcement group that regularly patrols the inside the park to arrest the culprits who are later penalized heavily. Hence the majority of the local community do not indulge in activities that undermined the sustainability of the biodiversity.

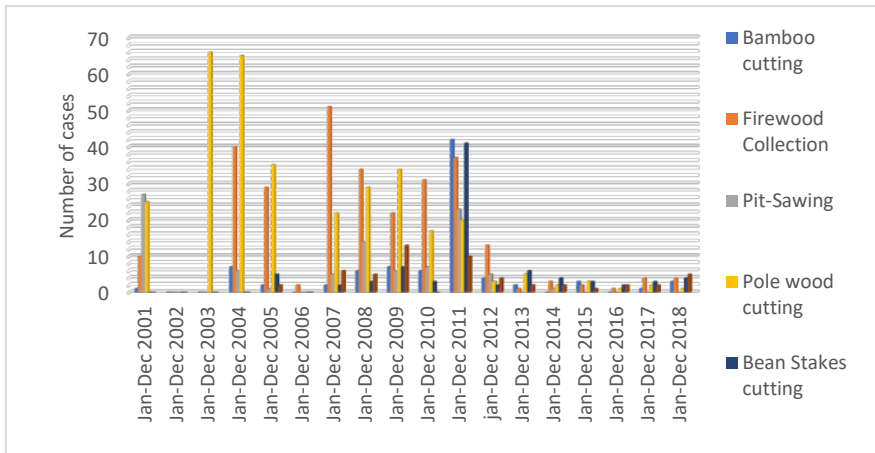


Figure 3: Trend in Illegal activities practiced by the local community adjacent to the park from selected villages.

In the same line results indicated that households experience hardships that hinder them to alleviate poverty. Table 4 below showed that the majority indicated that one of the biggest limiting factor was shortage of land in terms of size of parcel and 19 households argued that a small piece of land cannot produce much agricultural products that can be enough and even sell some to sustain the family. Most of them agreed that due to high population around the park, land has continued to reduce in size and yet it is used for cultivation, settlement and animal grazing. This they added cannot be sustainable and so it generates little since it's the main asset they own. Additionally, high number of 17 households highlighted that poverty among the local community is acute. The respondents pointed out that

basic necessities were hard to come by and this was linked to lack of sufficient income generating avenues. Also poverty was noted to be due to limited diversified incomes and many dependants which they said has led to their children not access education. Furthermore, in Table 4 again it can be observed that respondents mentioned that the negative perception of the local community about conservation of the protected area. On this point 16 household emphasized that as much some revenue sharing is distributed but it is not enough. In addition, especially the batwa argued that they could be allowed by management to access the park to harvest honey and medicinal herbs. While others expressed concern about the stringent restrictions about the park and said the punishments were tough and yet that was their source of life. The results in Table also showed that 12 households highlighted that as much as they were doing their best to improve their incomes, there was a big challenge about duplication of the products produced since they are targeting one customer that is the tourist. So members from around the villages will end producing the same kind of products and this increases the competition. In the same vein another group of 14 household argued that the market of these products was not enough because most of their buyers were the tourists and mostly foreign tourist. To add insult to injury, these were seasonal markets and so it made it difficult to get sufficient markets to buy their products to improve income at household level. That aside, 12 households pointed out that they face a challenge of lack of seed capital that can enable to start any business venture. They have got ideas of what they needed to trade but the seed capital has made it difficult to break out of the vicious circle of poverty. Finally, the least number of 9 households emphasized the challenge of lack of security to get a loan to invest in income generating venture has hampered the alleviation of poverty in their households as indicated in Table 4 below.

Table 4: Common challenges experienced by the Households that hamper poverty alleviation

Hampering factor at Household level	Number of household experiencing such a factor
Lack of seed capital	11
Lack of security for loans	9
Perception about the park(Conservation)	16
Lack of sufficient market for the products	14
Land shortage	19
Duplication of produced products	12
Poverty	17
Total	98

Conclusion

In conclusion, well conserved biodiversity in protected areas generates benefits that alleviate poverty among the adjacent local community. The benefits such as the natural resources that can be used sustainably by the surrounding local community lifts them gradually from poverty. In addition, revenue sharing from tourism activities due to conservation, employment and small businesses enabled the local community to earn income that improved the household wellbeing. Most of the households were generating income from items such as basketry, honey and agricultural products. As a result of poverty, the local community indulged in illegal activities such as harvesting plant materials for making baskets, pole wood cutting for construction and firewood collection to earn an extra income to improve the wellbeing of the families in their households. Land shortage was found out as one of the hindrances to poverty alleviation. Majority of the adjacent households had a problem of land and this led to knock on effects to other income generating projects because without land then there was nowhere to put any business or cultivate. Also poverty due to limited alternatives was key to most of the illegal activities that threaten the conservation of biodiversity.

Recommendations

- There should be inclusive participation especially local community decisions in conservation programs so that they may feel ownership of the protected area and agitate for its continued conservation
- There is need for vigorous sensitization among the adjacent community on benefits of the biodiversity in the protected area and also be encouraged to diversify their incomes
- There is also need for government to come up with proper funding procedures so that the funds trickle down to the lowest person other than being diverted by some few to promote conservation to alleviate poverty

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