

# Coronavirus Pandemic Threat to the Conservation of Protected Areas and Local Community wellbeing: A Case of Bwindi Impemetrable National Park

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**Abstract :** The outbreak of Coronavirus pandemic has continued to threaten the conservation of protected areas as well as the wellbeing of the local community especially those adjacent to the parks. Like other countries, the government of Uganda closed all parks for tourism activities. The problem in Bwindi park was that the closure led to illegal activities and no revenues which threatened the conservation of the park as well as the wellbeing of the local community. The specific objectives were; To ascertain the effects of COVID 19 pandemic on the conservation of Bwindi Park; To determine the consequences of COVID 19 pandemic on the wellbeing of the local community; To suggest the mitigation measures for the conservation of the park and the wellbeing of the local community. The researcher reviewed literature authored by earlier researchers in the same area. The study was majorly descriptive and the target population was 45 households and a sample of 30 households from three parishes around the park namely; Nteko, Rubuguri and Mukono. Primary and secondary data as well as the quantitative and qualitative approaches were used. Convenience sampling technique was used and data collection tools comprised of the questionnaires and the oral interviews. The results revealed that the protected area conservation efforts were threatened by the outbreak of the coronavirus. This was attributed to the drastically dwindled park sales revenues which affected effectiveness of daily operations. Also illegal human activities especially poaching had increased which also threatens the lives of gorillas and other fauna. Results also showed that the closure of the park, travel restrictions and lockdowns had impacted negatively on the wellbeing of the local community. For example, closure of businesses, lack of tourists to buy their items, dried up revenue sharing and donations to support their projects. Suggested mitigation measures were; outsourcing funds, creating awareness about the dangers of Coronavirus to people and animals and providing them with fast growing and high yielding crops to improve their wellbeing and protect the park. It was concluded that Coronavirus pandemic was a big threat to the conservation of the protected area and local community wellbeing due to financial constraints. It was recommended that the government should outsource for funding and also put tough rules in place to minimize the threat to the park as well encourage local community to become innovative to improve their wellbeing.

**Keywords:** conservation, wellbeing, local, community, threaten, Coronavirus, park

## **Introduction**

It is a general consensus that protected areas at the global scale safeguard natural capital which provides both ecosystem services and goods to the local community (Maekawa et al., 2015). According to studies by Hockings et al. (2020), the outbreak of COVID 19, has hit hard the tourism industry globally after putting the travel restrictions in place. The industry was hit hardest by the pandemic and recent assessment of the potential impact on both international and domestic tourists. The World Tourism Organization indicates that international tourist arrivals globally fell by 20-30% which in terms of money was estimated to be between US \$ 300- 450 billion loss in 2020 compared to 2019 figures (UNWTO, 2020a & 2020b). Basing on these studies it highlights that the situation economically at destination sites will worsen. Lockdowns and travel restrictions have greatly impacted on tourism in such a way that tourism in protected areas and conserved areas declined significantly. For example, a survey carried out by the Safari Bookings.com in April 2020 on 443 safari tour operators in East Africa showed that more than 90% of these companies experienced drop in bookings by approximately 75% as well as immense cancellations. Tourism plays a crucial role in Africa since it employs over 16 million individuals either directly or indirectly and also remains the main source of income to majority of rural families (Gibbons, 2020; Safaribookings.com, 2020).

Jayaram, et al., (2020) and Forti et al, (2020) argued that the pandemic has led to protected areas competing with other sectors for the limited financial resources governments have. Further, this concern was highlighted in recent research study carried out by Hockings et al, 2020. In the study the researcher emphasized that losses of nature based tourism in PA will have a profound impact on effective management of these conserved areas. The researcher added that travel restrictions and closure of borders and parks as a result of the pandemic has helped to reduce pressure on these sites on temporal basis but closure also leads to reduced financial incomes (Whitelaw et al., (2014) and Maekawa, et al., (2020). Additionally, Protected Area management strongly relies on revenues generated by tourism and the pandemic's influence on PA management effectiveness must be noted (Dudley & Solton, 2018; Emerton et al., 2006; Whitelaw et al., 2014; Hockings et al., 2020).

Dudley & Stolton, (2018), pointed out that as a result of decline in tourism revenue, it has led to a number of protected areas to trim their staff and activities that involve cash spending. Reduced budgets cause ripple effects on management of the PA (O'bryan et al., 2020). For instance, some conserved areas, particularly community related and privately managed areas that had been depending heavily on tourism revenues to pay salaries to their staff have been forced to retrench some of their staff. Hockings et al, (2020); Colette, et al, (2020) added that this has reduced the capacity of the few staff to run the park activities. As a result, there are reported increased illegal activities on forest resources such as illegal logging and harvesting. For example, in Nepal the first month of lockdown registered 524 cases which was far higher than the previous full year with 483 cases.

As a result of COVID 19, several management authorities of protected areas responded by discouraging visitors from accessing attractions as a way to cut down on the spread and transmission as well as to protect the health and safety of the local communities (IUCN, 2020; World Bank Group., 2020). The negative effects of COVID 19 outbreak is anticipated to create a profound effect on socio-economic aspects particularly the local communities adjacent to the protected areas (Hockings et al., 2020; Johnson et al, 2020). As much as studies are being carried out on local community and the pandemic, there is still limited empirical evidence on how Covid 19 restrictions have impacted on the wellbeing of the local community adjacent to the PA (Buckley et al., 2019; Naidoo et al., 2019; Romagosa et al 2015; Mell, 2020; O'bryan et al 2020).

Similarly, Lindsey et al., (2020) emphasized that a result of lockdowns, some of the parks have continued to experience negative impacts caused by the local communities surrounding these Pas. The increase in illegal and unsustainable activities that include poaching, plant harvesting and ecosystem degradation due to limited livelihood alternatives as a result of retrenched staff and lack of buyers of the local community products. Additionally, Lindsey et al., (2020) mentioned that failure of wildlife tourism to generate sufficient revenues has negatively affected the previous benefits the local community would effectively get. For example, revenue sharing programs have been disrupted and this has started threatening the wildlife conservation as well as the land-use activities. For example, URT 2007, argued that Tanzania, wildlife tourism in protected areas has been supporting rural communities through creation of jobs and provision of market for their commodities to visitors. Further, natural capital contributes greatly to rural wellbeing especially the local community living adjacent and within protected areas. In the same vein, URT, (2007), highlighted that it has outreach and benefit sharing projects that are managed by the wildlife management authorities to support communities sharing land with wildlife in several ways. For example, Tanzania National Parks Authority (TANAPA) has set aside 7.5% of its annual budgets to support the local community. TANAPA also provides support to poverty alleviation among the local community through small loans and income generating projects that are eco-friendly (Mashauri, 2017; NCAA, 2020).

The problem was that Uganda like other tourist destinations in the region was not spared by the consequences of the outbreak of COVID 19 pandemic in March 2020 (World Bank Group, (2020) and Mawerere (2020). Uganda's tourism service sector has been a major foreign exchange earner contributing approximately 1.6 million dollars during 2018-2019 financial year. However, this revenue has been threatened by the COVID 19 pandemic and this has led to the conservationists and tour operators to raise concern over what could be a long-term impact of the pandemic on tourist numbers both international and domestic (UWA, 2020). For example, the senior public health veterinary officer at the ministry of health, highlighted "that as a result of zoonotic illnesses outbreaks of recent threaten the survival of protected animals especially the apes due to the fact that they can easily

be transmitted from humans to them''. In the same way, the senior manager of veterinary services at the Uganda Wildlife showed concern especially transmission of these zoonotic diseases to wild animals in parks. He therefore emphasized that tourists should observe all necessary guidelines particularly keeping distance, observing hygiene as well sanitation to avoid cross transmission of zoonotic diseases to same animals they come view (UTB, 2020: World Bank Group., 2020).

Additionally, Athumani (2020) and UWA, (2020) added that Uganda Wildlife Authorities halted tourism activities in all the parks and other destination sites. This action by UWA, has negatively impacted on the amount of revenue collected due to COVID 19. As a result, many local communities adjacent to the parks who depended on tourists have been pushed into poaching activities which affects the same animals' tourists came to view. Athumani (2020) and Fisayo (2020) further highlighted that the Uganda Wildlife Authority Director for conservation emphasized that increase lock-downs due to COVID 19 has led to loss of income for the local community and all those who work in the industry. This has led to reduction in number of work force which has strained the conservation activities in the protected areas. Some of the stake holders, due to unemployment have ended up turning their spears for protection against wildlife as poachers. The director also pointed out that for example, the incident where the killing of Rafiki the silverback gorilla in Bwindi Impenetrable National Park was the clear COVID 19 consequence in protected areas (UWA, 2020; UTB, 2020).

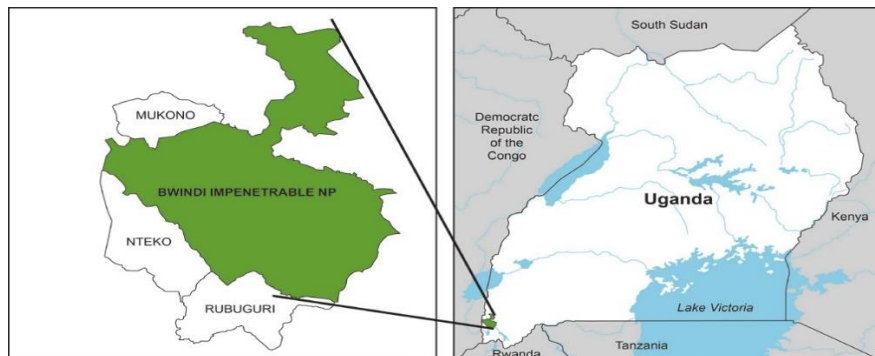
United Nations World Tourism Organization (UNWTO, 2020b) highlighted that the International Monetary Fund pointed out that Uganda's earnings were expected to fall by 54% in 2019/20 fiscal year and further decline to 52% in 2020. The report also revealed that the ministry of tourism, country's tourism earnings dropped by 73% due to COVID 19 pandemic. The report added that gorilla related tourism is popular across Uganda and on international scale and in 2018/2019 fiscal year over 40000 gorilla permits were sold which indicated a 40% increase from the fiscal year before. The gorillas sales revenue in 2018/19 fiscal year was more than 25.5 million dollars but as a result of the COVID 19 pandemic, only approximately 30% of the sales revenue were made (UTB, 2020)

Mawerere (2020); Athumani, (2020) mentioned that as a result of COVID 19 pandemic, Uganda national parks recorded double the number of poachers during the 2020 year as compared to 2019. For instance, between February and June 2020, the Uganda Wildlife Authority recorded 367 poaching cases in the entire country as compared to 163 cases recorded in 2019 in a same time period UWA, 2020). In addition, according to the Uganda Tourism Act, 20% of all the revenue collected by the National Parks is supposed to be directed to local community as well as \$10 of all the permits from Bwindi impenetrable National Park. However, due to the COVI 19 in this current situation, that amount is not available (UWA, 2020). The study was guided by the following specific objectives: (a)To ascertain the effects of COVID 19 pandemic on the conservation of Bwindi Impenetrable National Park; (b)To determine the consequences of COVID 19 pandemic on the wellbeing

of the local community; (c) To suggest the mitigation measures that may be used to overcome the effects of COVID on the conservation of the park and the wellbeing of the local community.

## **Materials and Methods**

The park is an ecological island forest of international importance and is the richest conservation area in Uganda because of its exceptional diversity of both flora and fauna. Its faunal community is considered to be East Africa's richest partly due to its extensive lowland montane forest continuum.



Source: IUCN, 2010

Geographically the park is located in the kigezi highlands of south-western Uganda on the east edge of the western rift valley. It covers approximately 31000 hectares and it is well known for its biodiversity (UWA,2020). The protected area has got more than 200 plant species, over 100 ferns species, 348 birds species as well as more than 200 species of butterflies in addition to many endangered and endemic species (Caldecott & Miles, 2005). Apart from that, the park is recognized for harboring over 40% of the population of the critically endangered mountain gorillas. The nearest key town known as Kabale is approximately 29 km south east of the park. The location is  $0^{\circ} 53'$  to  $1^{\circ} 08'$  S by  $29^{\circ} 35'$  to  $29^{\circ} 50'$  E and altitude that ranges from 1190 meters to 2600 meters. The annual rainfall ranges between 1130 mm to 2390mm. Also annual average temperature ranges from a minimum of  $7^{\circ} C$  to  $15^{\circ} C$  to a maximum of  $20^{\circ} C$  to  $28^{\circ} C$  (Stanford, 2000; WWF,2007).

Additionally, MacCarthy, et al. (2010) mentioned that the park is managed by Uganda Wildlife Authority and is managed under the provision of a number of national laws. For example; The Constitution 1995; Uganda Wildlife Act Cap 200 of 2000; National Environment Act 2000; Local Government Act 1997, The Land act 1998; the Forest and Tree Planting Act 2003 and the Uganda Wildlife Policy 1999. The protected area also has an approved management plan and is highly respected and supported by the local community as a conservation site. The Protected Area is located in area where it is surrounded by one of the most densely populated rural area in the country with some areas having 350-450 people per square km. the population in this area is believed to be in abject poverty which puts the park in a threatened situation. (Kasangaki et al., 2003) Around the park,

there no possibility for creating a buffer zone at the forest edge apart from the only existing buffer zone of 4km<sup>2</sup> which was given by the local community in the southern part of the park to protect the site. In most parts the park boundary are marked with planted tree and concrete pillars in situations where rivers don't exist to form a boundary (MacCarthy,2010). These have played a role in limiting encroachment, however, with population increase, agriculture encroachment still remains a challenge. The park and surrounding areas are jointly managed by Mgahinga Conservation Trust and Bwindi Impenetrable National Park. In these areas, the peripheral local communities are allowed access to some resources from the park through a multiple-use Program (WWF, 2007; UWA, 2020).

The study was majorly descriptive in nature and considered a target population of 45 households from the three parishes highlighted on the map with each parish contributing 15 households. The sample was 36 households with each parish contributing 12 households. This number of households were obtained by use of Slovene's formula ( $n = N/1 + Ne^2$ ). The sampling unit of the study was the household and from each household, two elders were selected to represent the rest of the family. The researcher got in touch with the local leaders through the park authorities. The local leaders from each parish were instrumental in selecting and identifying the households that were supportive in giving required data. The study used convenience sampling technique due to the fact that it was COVID 19 pandemic period and so only those who were accessible were the ones selected and included in the sample. Additionally, the study also used a target population of 10 park staff and by use of convenience sampling technique only 4 staff were able to be accessed for the data collection. For better understanding the study used both the quantitative and qualitative approaches as well as primary and secondary data. The data collection instruments comprised of questionnaires and interviews. To achieve this, the researcher contacted the local leaders of Mukono, Nteko and Rubuguri parishes to enable access to the targeted respondents among the local community and also through park authorities to have access to the park staff since many were not easy to find due to COVID 19 measures. These parishes were selected because many of the illegal cases reported came mainly from these areas as compared to other parishes around the park. This was a descriptive study and so the analysis was majorly by use of figures, Tables and explanations by use of averages and percentages.

## **Results**

The main purpose of the study was to give a descriptive perspective of the impact of COVID 19 on park conservation and local community wellbeing. The results obtained from the Key Information Informants (KII) who happened to be park staff indicated that as a result of COVID 19, the park had experienced a lot of conservation challenges. The findings revealed that 75% of KII pointed out that the protected area had experienced increased illegal human activities seen more than a decade before. In addition, 100% of the KII also highlighted that revenues had drastically dropped as a result of travel restrictions and lockdowns and this affected majorly international visitors who use to travel to view gorillas. In the

same line majority (75%) of KII argued that conserving the park has become a challenge due to reduced financial resources, lack of revenue sharing with local community and reduced park staff. Further, the results also revealed that due to COVID 19, there was fear of threat to gorillas and other apes to contract the virus and this has been a big challenge to the staff concerned and management. Finally, all of KII (100%) agreed that the pandemic has made it difficult to manage and conserve the protected area as a result of few staff that included the monitoring team and trackers and yet there was the problem of illegal plant harvesting by the local community surrounding the protected area.

Findings in Table 1, indicated that majority of the households (25%) agreed that unemployment had increased as a result of COVID 19 pandemic. These emphasized that many had lost their jobs due to lockdowns that had led to no tourists coming to buy from their products which had led to temporarily closing businesses. Some pointed to the fact that they were porters, park staff, accommodation staff and community guides but COVID had negatively affected their survival channels and puts pressure on the park resources. Similarly, some respondents (19%) mentioned that because of the pandemic scarcity of firewood was highly experienced. This was linked to the situation because they argued that lockdowns had limited transportation of firewood from other parts in the area. As a result, the local community had no alternative but to illegally enter the park and harvest firewood to either sell for supplementing on their reduced incomes or for domestic use. In addition, a reasonable number of respondents (17%) agreed that some of the local community had ended up illegally engaging in plant harvesting from the protected area as a way to earn income.

**Table 1: Local community views on the effects of COVID 19 on the conservation of the park**

<b>Respondent's arguments</b>	<b>Number of Households</b>	<b>Percentage</b>
<b>Increased Poaching of animals</b>	4	11
<b>Increased Illegal plant harvesting</b>	6	17
<b>Illegal water harvest increased</b>	3	8
<b>Increased Illegal honey harvesting</b>	2	6
<b>Increased fired wood collection</b>	7	19
<b>Increased number of wildlife snares</b>	3	8
<b>Increased problem animal cases</b>	2	6
<b>Unemployment increased</b>	9	25
<b>Total number of households</b>	36 HH	100

Source: Field April 2021

These said they had no alternative incomes so poverty drives them into illegal activities in the park to improve on the wellbeing of their households. In the same line the results revealed that 11% of the respondents agreed that some of their colleagues got involved in poaching activities to harvest game meat for sale to

supplement on household incomes or for domestic consumption. Also results revealed that 8% of the respondents emphasized that illegal water harvest in the protected area had increased due to travel restrictions and lockdowns which led to water scarcity. The local community with proximity to the park and those close to the park boundary ended up illegally fetching water inside the park. Finally, illegal honey hunting majorly by the Batwa families as well as cases of problem animals that raided people’s crops both 6% respectively were mentioned by the respondents as some of the outcomes of COVID 19 pandemic.

Results in Table 2, revealed that, the pandemic has hit hard the local community adjacent to the protected area. From the results, the majority of the respondents 22% strongly agreed that COVID 19 had impacted heavily on the tourism related businesses. They emphasized that accommodation facilities such as hotels, lodges, camping sites and guest houses reduced staff as they temporarily closed due to lack of tourists to sleep in them. In the same way 17% of the respondents argued that unemployment was on the increase and said that the restaurants, car hire companies, tour companies, food vendors, and most of the tourism related businesses have retrenched staff because of no tourists to buy their products and services. This has left many of those who were employed to lose jobs. Additionally, as a result of these businesses closure, 19% of the respondents agreed that incomes to the local community had drastically dropped. Drop in incomes has been attributed to loss of employment and sales in businesses among the local community adjacent to the park.

**Table 2: Local community views on the consequences of COVI 19 pandemic on the local community wellbeing**

<b>Respondent’s arguments</b>	<b>Number of Households</b>	<b>Percentages</b>
<b>Increased unemployment</b>	6	17
<b>Reduced incomes</b>	7	19
<b>Closure of businesses</b>	8	22
<b>No revenue sharing</b>	4	11
<b>No money to fund tourism projects</b>	5	14
<b>Cooperatives collapsed</b>	2	6
<b>Increased illegal park entry cases</b>	4	11
<b>Total Households</b>	36	100

Source: Field April 2021

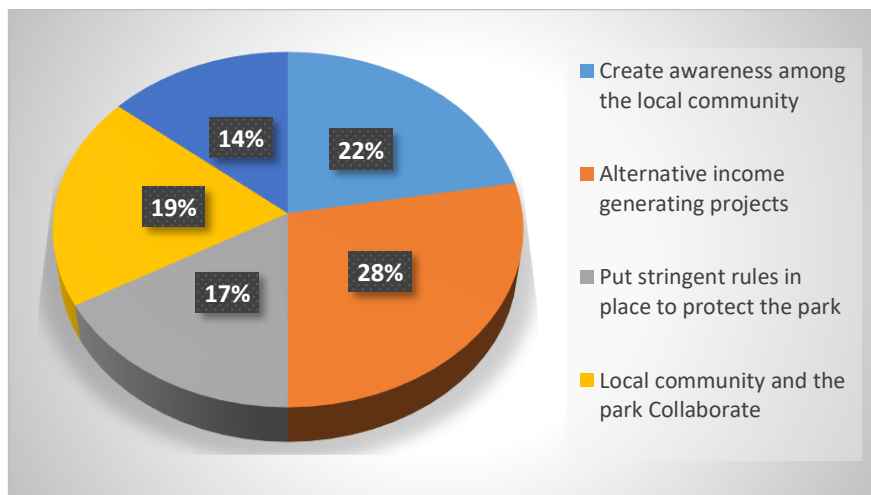
In the same line, based on the findings it was found out that 14% of the respondents said due to the pandemic outbreak and travel restrictions, most of the community related tourism projects around the park suffered financial dry out. The donors and the park contributions had dried out and as a result these projects also suspended their operational activities which also affected the local community livelihood. Data collected from 11% of respondents indicated that revenue sharing scheme had been hit hardest. They argued that they could not get any revenue



sharing money due to the fact that the money came from the entry fee and sale of gorilla permits which no-longer takes place.

The local community has been experiencing increased illegal park entry activities. As agreed and mentioned by 11% of the respondents, the local community around the park had no immediate alternative incomes to support their households and hence ended up engaging in illegal activities. Finally, the findings indicated that majority of cooperatives that were directly linked to tourism had closed. This was agreed by 6% of the respondents that art-craft cooperatives, dance troop cooperatives, and other community based tourism associations had temporarily closed. This was attributed to lack of the market which was majorly the international tourists and yet due to COVID 19 pandemic, they travel to visit them and buy their products and services.

**Figure 1: The suggested mitigation measures to the effects of CIVID 19 on the park and local community**



Source: Field April 2021

In line with the above challenges encountered as a result of COVID 19 pandemic, the respondents suggested some of the possible workable solutions. Key results in Figure 1, revealed that majority of respondents 28% pointed out that to overcome the challenge of unemployment and reduced incomes, it was better to come up with alternative and diversify sources of income. The respondents argued that agriculture and bee keeping were the easiest income generating activities many could indulge in. They highlighted that high yielding crops were the best alternative to supplement on income. In the same vein, 22% of the respondents agreed that creating awareness among the local community to know more about COVID 19 as well as sensitizing them to be innovative in their business and produce for local consumption. Also awareness of not contracting the pandemic as well as not entering the park and getting closer to the gorillas as they could easily contract the COVID 19 virus which can be dangerous to them.

Similarly, some of the respondents 19% suggested that, the park management and the local community collaborate in funding the income generating projects so that they could improve their resilience and financial constraints in order to reduce threat to the protected area. Whereas, some of the respondents amounting to 17% suggested that to reduce on illegal park entry cases and illegal park harvest cases, the protected area management needed to put in place stringent rules to deter the local community from encroaching on the park resources. Finally, findings also showed that 14% of the respondents suggested that the government needed to outsource funding from development partners, Non-Governmental Organizations and individual volunteers to fill the financial gap created by the outbreak of COVID 19.

## **Discussion**

The study was set out to investigate the effects of COVID 19 pandemic on the conservation of Bwindi impenetrable National park and wellbeing of the adjacent to the protected area. Firstly, the findings indicated that as a result of the pandemic, the park had found it difficult to run conservation activities because of the financial constraints. The results showed that some staff were retrenched and the facilitation of park operations were becoming a problem day by day. The revenues from tourist arrivals had drastically dropped due to the fact that travel restrictions had closed out majorly the international tourists who were the main market. The park experienced increased illegal human activities from the local community around the park. In agreement with these findings, Hockings et al, (2020) in their recent study pointed out that travel restrictions and closure of borders and parks as a result of the pandemic has helped to reduce pressure on these sites on temporal basis but closure also leads to reduced financial incomes. Additionally, (Dudley & Solton, 2018; Emerton et al., 2006; Whitelaw et al., 2014; Hockings et al., 2020). Highlighted that protected Area management strongly relies on revenues generated by tourism and the pandemic's influence on PA management effectiveness faces a challenge. Hockings et al, 2020 added that this has reduced the capacity of the few staff to run the park activities. As a result, there are reported increased illegal activities on forest resources such as illegal logging and harvesting. For example, in Nepal the first month of lockdown registered 524 cases which was far higher than the previous full year with 483 cases.

The local community wellbeing has been hit hardest as a result of the pandemic due to the fact that most of them were relying on the tourists to buy their products and services. The COVID 19, travel restrictions and lockdowns directly impacted on the locals because the market that would buy from their business stopped. The results revealed that the local community businesses and employment opportunities that existed before the pandemic had come to a halt and as such affected their wellbeing at household level. The revenue sharing scheme which was initiated by the government of Uganda to enable the local community to appreciate the value of the protected area had stopped due to the pandemic. These findings were in agreement with those found out earlier by, Lindsey et al., (2020) who emphasized that failure of wildlife tourism to generate sufficient revenues has

negatively affected the previous benefits the local community would effectively get. For example, revenue sharing programs have been disrupted and this has started threatening the wildlife conservation as well as the land-use activities. For example, URT (2007), argued that Tanzania, wildlife tourism in protected areas has been supporting rural communities through creation of jobs and provision of market for their commodities to visitors. For example, Tanzania National Parks Authority (TANAPA) has set aside 7.5% of its annual budgets to support the local community. TANAPA also provides support to poverty alleviation among the local community through small loans and income generating projects that are eco-friendly (Mashauri, 2017; NCAA, 2020). In addition, according to Mawerere (2020) the Uganda Tourism Act, directs that 20% of all the revenue collected by the National Parks is supposed to be directed to local community as well as \$10 of all the permits from Bwindi impenetrable National Park. However, due to the COVI 19 in this current situation, that amount is not available and thus affected the local community wellbeing.

## **Conclusion**

The study concluded that the results revealed that the pandemic has caused a lot of harm to both the park and the local community wellbeing. The park has witnessed increased illegal activities as well as drastic decline in revenues which affected the payment of staff salaries as well as the daily park activities. It was conclusively found out that the results pointed to the fact that conservation of the protected area was a challenge. The study also concluded that COVID 19 directly threatens the tourism products such as the gorillas and other apes and therefore made the conservation of the protected area difficult. In conclusion, the pandemic did not spare the local community surrounding the park. The local community experienced massive unemployment, decline in incomes as well as increased poverty at household level. It was concluded that the pandemic had long term impact on the sustainability of the local community livelihood. The local community pose a threat to the protected area due to the fact that they did not have alternative incomes and so some were prompted to illegally enter the park to harvest the natural resources.

## **Recommendations**

The study gave the following recommendations basing on the specific objectives and results discussed in the previous section;

- The government and park management should work out a collaborative strategy with local community to form a team that involves the park patrol staff and the volunteer group from the community to monitor and control illegal activities that affect the park conservation.
- The park should set up a small team that is responsible for sensitizing the local community about the dangers of COVID 19 as well as alerting them to avoid going close to the fauna in the park as that may lead to cross

contamination of the virus and in the end destroy the very tourist products that tourists would visit when the pandemic subsides.

- The local community should be innovative and start producing unique items that can be appreciated by the community around as well as the domestic tourists so that they can make sales and improve their wellbeing.
- Finally, the local authorities in partnership with the park authorities should outsource some funding from friendly NGOs, and individuals to support them in agricultural crops that grow in short time and produce high yields so that they can supplement on their subsistence harvests and uplift their wellbeing.

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