Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

African Journal of Tourism and Hospitality Management
ajthm.eanso.org
Volume 4, Issue 1, 2025
Print ISSN: 2790-9603 | Online ISSN: 2790-9611
Title DOI: https://doi.org/10.37284/2790-9611

EAST AFRICAN NATURE & SCIENCE ORGANIZATION

Original Article

From COVID-19 Crisis to Solutions for Community Conservation and Nature-Based Tourism Enterprises: The Case of Amboseli Ecosystem, Kenya

Prof. Stanley Maingi Makindi[1], PhD, Dr. John Mwanzia Musau, PhD[1], Dr. Stellah Mshai Mwawaza, PhD[1] & Wedgener Sindani Mugatsia[1]*

[1] Machakos University, P. O. Box 136-90100, Machakos, Kenya.
[*] Author for Correspondence ORCID ID; https://orcid.org/0000-0002-3174-995X; Email: mankindsm@gmail.com

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

Date Published:

10 February 2025

Keywords:

Amboseli Ecosystem, Biodiversity, Community Conservation, COVID-19, Tourism.

ABSTRACT

The Coronavirus Disease (COVID-19), a global pandemic, impacted livelihoods, economies and industries worldwide. The conservation and nature-based tourism sector was one of the leading economic casualties, resulting in a conservation crisis. Tourist attractions, hotels, sporting events, visits to cultural sites and most of the leisure activities that required travel and gatherings were destabilized by lockdowns, travel and other restrictions. This study aimed to assess the range of community conservation and nature-based tourism enterprises and their responses post-COVID-19 in the Amboseli ecosystem in Kenya. Using a bottom-up approach, a questionnaire survey targeting the local communities involved in conservation and ecotourism enterprises, and conservation agencies, was undertaken to understand how the measures taken to control the spread of the COVID-19 pandemic and understand how the interventions and investments that were employed impacted their operations and programmes. The results show that the measures taken to contain the spread of the COVID-19 pandemic had significant impacts on local communities, conservation and nature-based tourism operations and programmes. Most communities and enterprises reported high impacts in activities related to loss of jobs and income, protecting biodiversity, loss of livelihoods for neighbouring communities, heightened threats from human-wildlife conflicts, and diminished support to development projects and neighbouring communities forcing some communities to turn to unsustainable conservation activities to support their livelihoods. Nevertheless, the study identifies the areas that need urgent support to strengthen the ability of communities and conservation enterprises to respond to future pandemics. They include funding to minimize human-wildlife conflicts and support the livelihoods of local communities, enhanced technical support and strengthening, and broadening collaborations and partnerships. This opens an opportunity for national dialogue between the government and conservationists to rethink the way that conservation and ecotourism-related enterprises are planned and the introduction of strategies on how to prevent and manage future pandemics of this nature.

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

APA CITATION

Makindi, S. M., Musau, J. M., Mwawaza, S. M. & Mugatsia, W. S. (2025). From COVID-19 Crisis to Solutions for Community Conservation and Nature-Based Tourism Enterprises: The Case of Amboseli Ecosystem, Kenya. *African Journal of Tourism and Hospitality Management*, *4*(1), 37-47. https://doi.org/10.37284/ajthm.4.1.2685.

CHICAGO CITATION

Makindi, Stanley Maingi, John Mwanzia Musau, Stellah Mshai Mwawaza and Wedgener Sindani Mugatsia. 2025. "From COVID-19 Crisis to Solutions for Community Conservation and Nature-Based Tourism Enterprises: The Case of Amboseli Ecosystem, Kenya". *African Journal of Tourism and Hospitality Management* 4 (1), 37-47. https://doi.org/10.37284/ajthm.4.1.2685.

HARVARD CITATION

Makindi, S. M., Musau, J. M., Mwawaza, S. M. & Mugatsia, W. S. (2025) "From COVID-19 Crisis to Solutions for Community Conservation and Nature-Based Tourism Enterprises: The Case of Amboseli Ecosystem, Kenya" *African Journal of Tourism and Hospitality Management*, 4(1), pp. 37-47. doi: 10.37284/ajthm.4.1.2685

IEEE CITATION

S. M. Makindi, J. M. Musau, S. M. Mwawaza & W. S. Mugatsia "From COVID-19 Crisis to Solutions for Community Conservation and Nature-Based Tourism Enterprises: The Case of Amboseli Ecosystem, Kenya", *AJTHM*, vol. 4, no. 1, pp. 37-47, Feb. 2025.

MLA CITATION

Makindi, Stanley Maingi, John Mwanzia Musau, Stellah Mshai Mwawaza & Wedgener Sindani Mugatsia. "From COVID-19 Crisis to Solutions for Community Conservation and Nature-Based Tourism Enterprises: The Case of Amboseli Ecosystem, Kenya". *African Journal of Tourism and Hospitality Management*, Vol. 4, no. 1, Feb. 2025, pp. 37-47, doi:10.37284/ajthm.4.1.2685

INTRODUCTION

The Coronavirus disease was first brought to global attention in December 2019 and declared a pandemic by the World Health Organization (WHO) on 11 March 2020. The outbreak had devastating impacts on the conservation and tourism sector which is dependent on and sensitive to the mobility of people and goods as shown by Hoque *et al.* (2020); Nhamo *et al.* (2020), UNWTO (2020) and the WEF (2020). As a result, most conservation and tourism operations were scaled down or suspended, visitor facilities closed to the public, workplaces shut, non-essential staff withdrawn from their duty stations, and important supply chains disrupted (Lock, 2020; Waithaka, 2020), all significantly affecting critical day-to-day operations in the conservation and tourism industry.

Tourism is one of the world's major economic sectors. It is the third-largest export category (after fuels and chemicals) and in 2019 accounted for 7% of global trade (UNWTO, 2020). Nature-based tourism and related activities drive over 80% of visits to the African continent, creating revenue for wildlife authorities, local economies, communities, and national governments (Lindsey *et al.,* 2020; UN, 2020). Tourism revenues go towards critical conservation operations, such as poaching reduction, wildlife monitoring, endangered species protection, and often, local community benefit-sharing programmes. Tourism was one of the leading economic casualties of the COVID-19 outbreak. Many community-conserved areas had to close their doors to local and international tourists. Without the funding received from guests, the operations of these conservation areas were seriously compromised. Thus, the COVID-19 impacts were wide-ranging and included socio-economic, political, environmental and health-related effects, with spillover effects on a range of stakeholders, such as tourists, local communities, tourism businesses, tourism agencies and government departments (Lendelvo *et al.,* 2020; Waithaka, 2020).

As Brouder (2020) asserts, dealing with major disruptions such as the COVID-19 pandemic has become a key externality impacting the community-based conservation and ecotourism enterprises and the tourism sector, generally. The extent, scale and impact of the pandemic further highlighted the weakness of the heavy dependency of communities and conservation areas on nature-based tourism income (Hockings *et al.,* 2020). At the same time, many analysts and commentators expressed concerns that unprecedented anthropogenic disruptions to

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

habitats may provoke extreme climate changes that may increase the likelihood of future pandemics (Aruho, 2021; Madhay *et al*. 2018). An argument also made is that the present pandemic is, or should be, a call not to adopt the 'business as usual' but to adapt to the 'new normal' post-COVID-19. Such calls are made partly in recognition that the hyper-mobility underscoring, ecotourism, and other forms of 'high-end' nature consumption are contributors to planetary habitat alterations linked with climate change and the risk of uncontrollable disease outbreaks (Aruho, 2021; Kate *et al.,* 2018; Lendelvo *et al.*, 2020; Makindi *et al*., 2019). Thus, evaluations such as this study were used to inform policy and intervention strategies to make the nature-based tourism sector more resilient now and in the future.

Tourism contributed to around 70% of the Kenya Wildlife Service (KWS) budget (KWS, 2020) and around 8.5% of the Gross Domestic Product (AUC, 2020; UNWTO, 2020). Before the COVID-19 crisis, wildlife-based tourism in Kenya contributed more than £740 million to the economy, providing 1.6 million jobs, in 2029 alone (Aruho, 2021). Various policy interventions have been implemented over time that integrate tourism as a crucial link between communities' livelihoods and conservation (Western, 2007). Most conservancies in the Amboseli ecosystem have partnered with private investors who operate nature-based tourism enterprises fashioned around tourist lodges. Moreover, community conservancies have been integrated with community enterprises as strategies to maximise community livelihood options (Lamers *et al.*, 2013; Makindi, 2010; Ndlovu *et al.*, 2017). The investors have initiated conservation-based Non-governmental organisations (NGOs) to fundraise for and coordinate conservation and livelihood initiatives of the conservancies and group ranches. The KWS, for instance, shares benefits from the entrance fees for Amboseli National Park through the support of education in the group ranches. Other policy interventions include land lease and concession fees provided by conservancies, community ecotourism enterprises, predator compensation programmes that pay consolation fees for livestock killed or injured by predators (Anyango-Van Zwieten *et al.,* 2015; Makindi *et al.,* 2014), community-centred wildlife security programmes, and community livelihood support programmes.

The objectives of this study aimed at assessing the interventions and investments that were employed by community conservation and nature-based tourism enterprises in the Amboseli ecosystem to control the spread of the COVID-19 pandemic, and understand how the interventions impacted their operations and programmes.

This study therefore sought to provide an overview of the post-COVID-19 resuscitation needs for the conservation sector, and the measures to motivate local communities in conservation practice in the post-COVID-19 period. The study provides important lessons and experience in sustainable conservation and tourism practice in the post-COVID-19 recovery period. The real concern precipitated by the pandemic is the question of how community conservation and nature-based tourism enterprises will remain viable if these radically disrupted circumstances continue, given the current conservation policy that tightly couples conservation with tourism and activities.

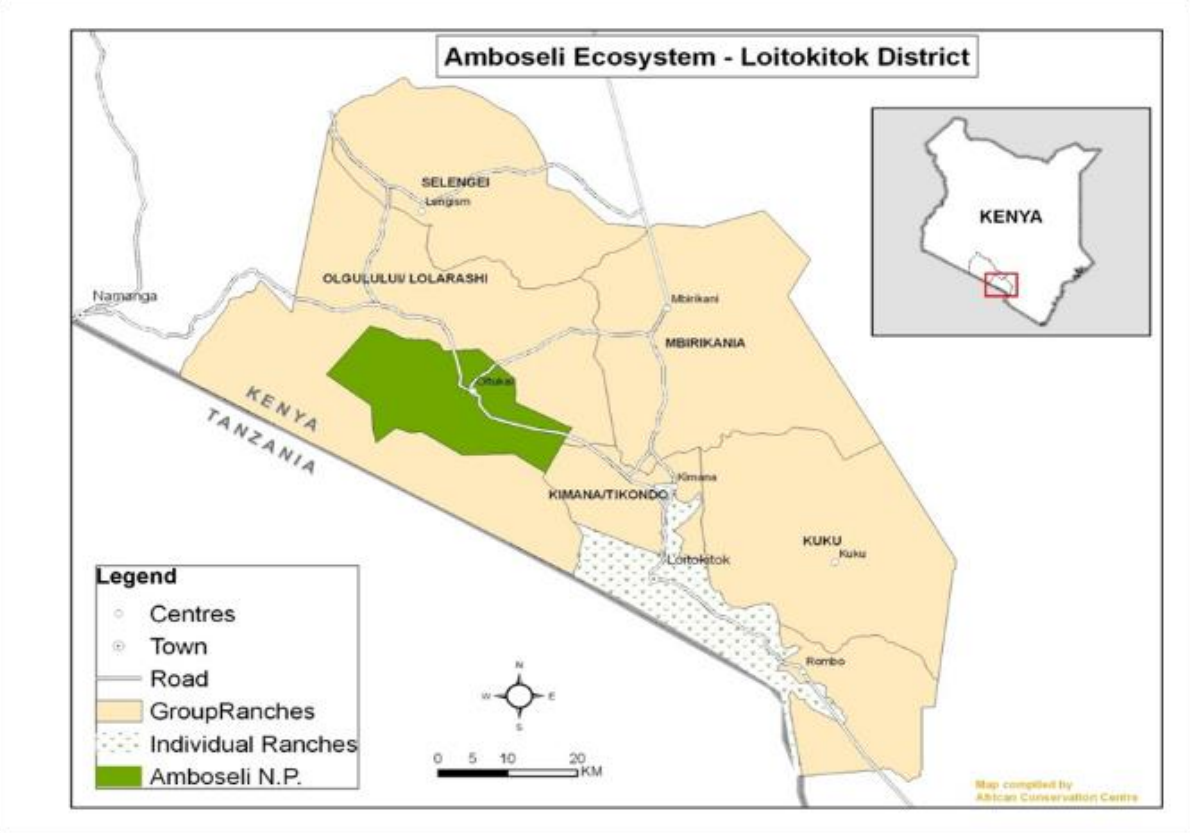
MATERIALS AND METHODS

Study Area

The Amboseli ecosystem covers an area of approximately 5700 km² stretching between Mt. Kilimanjaro, Chyulu Hills, Tsavo West National Park and the Kenya/ Tanzania border (Figure 1). Administratively, the Amboseli ecosystem consists of Amboseli National Park and the surrounding group ranches, namely: Kimana/Tikondo (now subdivided), Kuku, Olgulului/Olalarrashi, Mbirikani, Rombo, and Eselenkei in Loitokitok, Kajiado County. It also includes the former individual ranches located on the slopes of Mount Kilimanjaro that are now under crop production, mainly rain-fed agriculture.

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

Figure 1. Map of the Amboseli Ecosystem (KWS, 2020)



The area is generally arid to semi-arid with a very small variation in its agroecological zones and is more suitable for pastoralism rather than cultivation with a high potential for the conservation of wildlife and tourism enterprises. It has one of Kenya's national premier parks (Amboseli National Park) and many community-based conservation and ecotourism enterprises with a big premise both in terms of biodiversity conservation and tourist visitation.

The Amboseli ecosystem has long been facing persistent challenges regarding conservation and development. Since the 1980s there has been a gradual change in land tenure through subdivision of group ranches into smaller individual and privately-owned parcels of land (Western *et al.*, 2009). Changing land tenure aggravated an array of interlinked conservation and development challenges that include changing land use (Kioko & Okello, 2011), human-wildlife conflicts (Okello, 2005), biodiversity loss and habitat fragmentation (Makindi, 2010), poaching (AET, 2014), unplanned and uncoordinated tourism development, inadequate income from wildlife conservation for communities (Makindi, 2016), and the recent disruptions by the COVID-19 pandemic (Brouder, 2020; Lendelvo *et al.*, 2020; Waithaka, 2020). To mitigate these problems various policy interventions have been initiated, mostly in the form of government-private-community partnership arrangements, such as with KWS, Tourism Regulatory Authority (TRA), Amboseli Ecosystem Trust (AET), the Big Life Foundation (BLF), academia and research institutes (School for field studies), Kimana wildlife community sanctuary, and tourism enterprises that focus on wildlife policy implementation, community conservation, ecotourism and wildlife security. The partnerships have only partially managed to bridge conflicting conservation and development discourses.

Study Design and Data Collection

The choice of the Amboseli ecosystem was informed by its multifunctional landscape – with multiple actors, interests and challenges. The study employed a mixed methods approach

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

advocating a multidisciplinary stance due to the diversity evident in the conservation practice in the area. Specifically, a multi-staged approach was used that combines quantitative (conservation enterprise and public surveys) and qualitative (Key informant interviews) approaches.

In terms of the surveys, both face-to-face and online surveys were the primary data collection approach for both the tourism enterprises and community surveys with conservation and tourism regulators, hotel and lodges staff, conservancy management, committee members, staff and conservancy members, local women and youth groups, and local community elders.

An inventory of the entities within the Amboseli ecosystem involved in tourism and conservation activities was obtained from the Kenya Tourism Regulatory Authority and Kenya Wildlife Service from which 25 participants were selected for the study, using a purposive convenience and snowball sampling methodology (Lendelvo *et al.*, 2020; Monette, 2018). The 25 participants included tourism enterprises, conservation agencies, community-based organisations and groups, and institutions in charge of regulating tourism and conservation activities, as follows; Amboseli National Park, Tourism Regulatory Authority, Africa Acacia Limited, Kimana Community Wildlife Sanctuary, Big Life Foundation, School for Field Studies, Amboseli Bush Camp, WWF-Kenya, Amboseli Gateway Hotel, Amboseli Sopa Lodge, Elephant George Camp, Game Watchers, Selenkay Adventure Camp, Kibo Safari Camp, Kilima Safari Camp, Ol Tukai Lodge, Porini Amboseli Camp, Tawi Lodge Limited, Tortilis Camp Limited, Tulia Amboseli Safari Camp, African Plate Hotel, Asia Africa Lodge Amboseli, Women cultural Boma, Local youth, and Community elders.

The survey questionnaire included fixed-choice and open-ended questions, targeting managers and workers of tourism enterprises, conservation agencies, and local communities. The questionnaire included information on conservation operations and operations impacted, an understanding of coping strategies and support measures implemented, the interventions and investments that would be needed to sustainably enhance the operations, and expected changes in conservation in a post-COVID-19 future.

To supplement and validate the interview findings, secondary data was collected through the analysis of policy documents, which provided useful information on the collaborations' implications for biodiversity conservation and people's livelihoods in the Amboseli ecosystem. Where possible, interviews and Focus Group Discussions (FGDs) were recorded, while field notes were taken at all times.

Data Analysis and Reporting

Data analysis involved a thematic content analysis which involved transcription of in-depth interviews and FGDs due to the wide range of responses in open-ended questions. Each transcription was analysed and coded – with all the related responses in each question grouped together and then tallied. Themes were then compared and related, or grouped according to their coding based on literature until no new themes or groupings came up. The number of agencies/ enterprises providing similar responses to the same question was counted and presented as a percentage of the total number of entities that responded to the question. Additionally, the results (especially from the survey data) were analysed using descriptive statistics, and thematic integration of qualitative research findings and the literature review undertaken.

RESULTS AND DISCUSSION

Impacts of COVID-19 on Conservation and Tourism Operations and Programmes

From the interviews and FGDs, the activities and programmes impacted upon by the COVID-19 pandemic and the measures instituted to contain its spread within the Amboseli ecosystem were categorised into the following thematic areas; wildlife security and anti-poaching, community conservation and education, tourism development and management, revenue generation, development and maintenance of infrastructure,

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

support to local communities, and partnerships and collaborations.

Table 1 shows the conservation and tourism programmes that were impacted by COVID-19 across the surveyed conservation agencies and tourism-related enterprises. The impacts were assessed using a 5-point rating scale: 'Not Significant' for impacts of 0-20%, 'Low' for impacts of 21%-40%), 'Moderate' for impacts of 41%-60%, 'High' for impacts of 61%-80% and 'Extremely High' for impacts of 81%-100 %.

Table 1: Impacts of COVID-19 on the Conservation Operations and Programmes (n=25)

Conservation operations and programme	**Rating of the Impacts of COVID-19**				
	Not Significant (0-20%)	*Low (21-41%)*	*Moderate (41-60%)*	*High (61-80%)*	*Extremely High (81%-100 %).*
Wildlife security and anti-poaching operations	4.0	7.4	9.5	27.1	52.0
Community conservation and education programmes	3.3	4.6	9.9	32.5	49.7
Development and maintenance of infrastructure	9.7	15.2	17.7	23.1	34.3
Revenue generation	2.3	5.0	23.3	34.1	35.3
Support to local communities	3.1	4.3	9.7	27.1	55.8
Partnerships and collaborations	4.3	14.6	19.0	23.1	39.0

Changes of COVID-19 on the Conservation and Tourism Operations and Programmes

Asked about the changes that COVID-19 brought about in the activities and programmes of conservation agencies and tourism-related enterprises, the following responses were highlighted (Table 2).

Table 2: Changes brought about by COVID-19 in the conservation and tourism operations and programmes (multiple responses)

Change	**Description**	**Percentage (%)**
Community	Social changes among communities, loss of employment, reduced income, and disruption of community development and social projects.	78.9
Economy	High cost of living, Losses of revenue, reduced income generation, e.g., tax reliefs, discounted rates.	74.4
Conservation	Reduced wildlife patrolling and monitoring, increased human-wildlife conflicts, high operational costs, cessation of recruitment, and sharing of conservation benefits.	67.6
Collaborations	Reduced donor funding, low technical support and halting of physical mobility exchange programmes.	69.1
Health and Safety	Improved health and safety practices because of health and safety protocols and amenities introduced.	87.1
Technology	Diversification through disruptive communication technologies and equipment, adaptive management and working online, e.g., e-conferencing, e-tracking, remote patrols and online reservations.	72.7

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

Measures to Enhance Sustainability of Conservation and Tourism Operations and Programmes

The measures the entities proposed to be put in place to better cope with COVID-19 challenges are analysed and described in Table 3 below.

Table 3: Measures to enhance sustainability and resilience of operations and programmes (multiple responses)

Measures	Description	Percentage
Education and Awareness	Sensitizations of local communities, promoting domestic tourism.	69.5
Staff redundancies	Reduction of staff and rationalising operations.	58.6
Health and Safety	Enhanced cleanliness and compliance with health and safety protocols.	87.1
Technology use	Use of innovative technologies, online forums, e-reservations and e-tracking.	77.8
Capacity building	Empowering local communities by creating sustainable revenue sources (to reduce pressure on the conservancies), skill and staff development.	62.3
Income diversification	Increasing government support, tapping into the various existing funding mechanisms, fundraising from external sources, grants-aid, endowment/trust funds, debt conversions, payment for ecosystem services, biodiversity offsets and reducing taxes.	72.1
Broaden partnerships and collaborations.	Promoting Public-Private-Partnerships (PPP) engagement, collaboration with local communities, creating new partnerships and collaborations on research and innovation,	52.7
Support to local communities	Improved livelihoods of locals by creating sustainable revenue sources (to reduce reliance on the conservancies and foster conservation attitudes).	54.2

As depicted in Table 3 above, many entities proposed multiple responses to enhance the sustainability and resilience of operations and programmes post-COVID-19 pandemic ranging from education and awareness, staff redundancies, health and safety, income diversification, technology use, capacity building, broadening partnerships and collaborations, and enhanced support to local communities. These measures are necessary and aim to strengthen the resilience of community-based conservation and tourism livelihoods. Emergency funds to support conservancies and communities have been mobilised from both national and international partners, including the Government Economic Stimulus Programme, the World Wide Fund for Nature (WWF), the German Corporation for International Cooperation (GIZ), African Development Bank (ADB), among others. These funds are particularly directed towards ongoing conservation activities such as the payment of wages for community game scouts and rangers, human-wildlife conflict interventions and some governance aspects.

CONCLUSION

This study highlights how the impacts of the COVID-19 pandemic threatened the gains made to reverse biodiversity loss, and the significant trade-offs made between biodiversity conservation and development. For instance, the pandemic led to the weakening of biodiversity conservation policy implementation programmes, and other important initiatives such as monitoring

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

of illegal wildlife trade, conducting ant-poaching operations and carrying out regular patrols-heightening poaching and illegal harvesting of other resources (Lendelvo *et al.*, 2020; Waithaka, 2020). Other impacts included impairing security operations, weakening conservation collaborations with key partners and taking away the revenue that supports many biodiversity conservation programmes. The perpetual threats from human-wildlife conflicts were heightened, with consequences to biodiversity conservation and the livelihoods of the local people.

The COVID-19 pandemic and its related socioeconomic impacts in the Amboseli ecosystem immensely impacted the operations and programmes, and provided a clear lesson that to enhance sustainable development and livelihoods we need healthy ecosystems. Consequently, the future of biodiversity conservation funding in Kenya needs careful consideration since it relies to a large extent on biodiversity conservation and tourism-related revenues and some donor-dependent governance initiatives (Buckely, 2010). Additionally, even more importantly, climate change will increasingly have a serious impact on the sustainable biodiversity conservation of the Amboseli ecosystem and its governance (Makindi *et al*., 2019). This is evident from the intermediate persistent drought where different land uses compete for the scarce available water.

This study established that the majority of the surveyed entities in the Amboseli ecosystem were unprepared before the COVID-19 outbreak and thus had limited capacity to respond to the many challenges arising from the consequences of the pandemic. The COVID-19 pandemic created an opportunity to argue for higher levels of funding for nature conservation and to mainstream efforts to reduce environmental degradation while creating employment to sustain local communities (AUC, 2020; Cheng & Zhang, 2020). As governments approve stimulus packages to support job creation, reduce poverty and promote development and economic growth, the protection of nature must be seen as a critical pillar on which the success of all these other efforts and investments anchor (Lewis, 2019; Makindi & Mugatsia, 2024). Incidentally, the effective conservation of ecosystems has been directly linked to decreases in the number of disease outbreaks (Kate *et al.*, 2018, Madhay *et al.*, 2020).

Recommendations

Given that the recovery time after such disease outbreaks like COVID-19 has in the past taken long, it was envisaged that these impacts on conservation and tourism operations and programmes will continue for some time, and are not expected to return to pre-pandemic levels until 2023 or even 2024 (Aruho, 2021, Lendelvo *et al.*, 2020). The disruptions of the COVID-19 pandemic to the "new normal" should be taken as an opportunity to refine existing models, and improve conservation and tourism practices. The COVID-19 pandemic was perhaps the greatest test to date of the resilience of community conservation models (Lendelvo *et al.*, 2020). Possibilities here include engaging more deeply with the unsustainable inequities that also thread through the community-based conservation models as currently designed, as well as with the broader environmental and social implications of a model that relies on expanding external tourism rather than domestic tourism.

In view of the above, this study therefore makes the following recommendations:

- Efforts are needed to support and strengthen the ability of communities and conservation enterprises to deal with future pandemics. The survey results strongly suggest that the livelihoods and autonomy of communal-area conservancy residents need to be invested in, as local people will need to be better supported and economically empowered for the roles they play in conserving nature for the benefit of humanity. In so doing, the communities should be equipped with diversified alternative livelihood structures that are independent of biodiversity conservation and tourism.
- The governance systems of the conservation and tourism entities need to rethink the way

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

that conservation and tourism-related enterprises are planned. There is a need to boost competitiveness and build resilience through economic diversification, promotion of domestic and regional tourism and facilitation of a conducive business environment for small and medium-sized enterprises (SMEs), towards aching the sustainable development goals (SDGs).

- There is a need for the introduction of strategies on how to prevent and manage future pandemics. Adequate and timely information about potential diseases and appropriate technology should be put in place for preparedness, mitigation and recovery from similar future outbreaks, including the promotion of innovation and investment in digital skills among workers.
- To fully address some of the fundamental challenges inherent in the ecosystem as well as the emerging issues, such as future pandemics, there is a need to harness the digital revolution to transform tourism and conservation efforts, such as teleworking, artificial intelligence (AI) and drones for surveys and monitoring.
- To find ways to address these issues that represent the core of the conservation development debate, it is important to adapt to the 'new normal' created by the COVID-19 pandemic and secure a sustainable future for conservation and tourism practice in Kenya. This calls for adaptive management, for instance, change of policies and legislations that prevent operations and activities deemed non-essential, fostering sustainability and green investments, such as renewable energy, smart buildings and the circular economy, among other opportunities.

REFERENCES

AET. (2014). *Amboseli Ecosystem Trust Strategic Plan 2014-1019*. Amboseli Ecosystem Trust, Loitoktok.

Aruho, R. (2021). The COVID conservation crisis. https://theecologist.org/2021/aug/12/covid-conservation-crisis (Accessed: 27 December, 2024).

AUC. (2020). *Impact of the Coronavirus (COVID 19) on the African Economy*. African Union, Addis Ababa.

Anyango-Van Zwieten, N., Van der Duim, R., & Visseren-Hamakers, I. J. (2015). Compensating for livestock killed by lions: payment for environmental services as a policy arrangement. *Environmental Conserv ation*, 1-10.

Brouder, P. (2020). Reset redux: possible evolutionary pathways towards the transformation of tourism in a COVID-19 world. *Tourism Geographies*, 1-7.

Buckley, R. C. (2010). *Conservation Tourism*. Wallingford, UK: CABI.

Cheng, L., & Zhang, J. (2020). Is tourism development a catalyst of economic recovery following natural disaster? An analysis of economic resilience and spatial variability. *Current Issues in Tourism*, 1-22.

Hockings, M., Dudley, N., Elliot, W., Ferreira, M. N., Mackinnon, K., Pasha, M. K. S., Phillips, A., Stolton, S.…, & Yang, A. (2020). Editorial essay: COVID-19 and protected and conserved areas. *Parks, 26* (1).

Hoque, A., Shikha, F. A., Hasanat, M. W., Arif, I., & Hamid, A. B. A. (2020). The Effect of Coronavirus (COVID-19) in the Tourism Industry in China. *Asian Journal of Multidisciplinary Studies, 3*(1): 1-7.

Kate, E. J., Nikkita, G. P., Marc, A. L., Adam, S., Deborah, B., John, L. G., & Peter, D. (2008). Global trends in emerging infectious diseases. *Nature* 451, 990-993.

Kioko, J., & Okello, M. M. (2011). Land use cover and environmental changes in a semi-arid rangeland, Southern Kenya. *Journal of Geography and Regional Planning, 3* (11), 322-326.

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

KWS. (2020). *Amboseli Ecosystem Management Plan 2020-2030*. Kenya Wildlife Service, Nairobi.

Lamers, M., Nthiga, R., Van der Duim, R., & Van Wijk, J. (2013). Tourism conservation enterprises as a land-use strategy in Kenya. *Tourism Geographies, 16*(3), 474-489.

Lendelvo, S., Pinto, M., & Sullivan, S. (2020). A perfect storm? The impact of COVID-19 on community-based conservation in Namibia. *Namibian Journal of the Environment, 4*, 1-15.

Lewis, F. (2019). Assessment of conservation-based enterprises to support biodiversity conservation and resilience building in the Olifants River Basin, South Africa. Association for Water and Rural Development/ USAID, Southern Africa.

Lindsey, P., Allan, J., Brehony, P., Dickman, A., Robson, A., Begg, C., Bhammar, H., Tyrell, P. (2020). Conserving Africa's Wildlife and Wildlands through the COVID-19 Crisis and beyond. *Nature Ecology & Evolution, 4*(10), 1300–1310.

Lock, S. (2020). Coronavirus: Impact on the tourism industry worldwide - Statistics and Facts. https://www.statista.com/topics/6224/covid-19-impact-on-the-tourism-industry/ (Accessed: 25 May, 2024).

Madhay, N., Oppenheim, B., Gallivan, M., Mulembakani, P., Rubin, E., & Wolfe, N. (2018) Pandemics: risks, impacts and mitigation. In: A perfect storm? The impact of COVID-19 on community-based conservation in Namibia. *Namibian Journal of Environment 2020*(4): 1-15.

Makindi, S. M. (2016). Local communities, biodiversity conservation and ecotourism: A Case study of Kimana Wildlife Sanctuary, Kenya. *African Journal of Hospitality, Tourism and Leisure, 5*(3), Article 24.

Makindi, S. M. (2010). Communities' perceptions and assessment of biodiversity conservation strategies: the case of protected areas in Kenya. Doctoral Thesis, Durban, South Africa: University of KwaZulu Natal.

Makindi, S. M., & Mugatsia, S. W. (2024). Policy Framework for Conservation and Management of Riparian Lands in Kenya. *Machakos University Journal of Science and Technology*, 4*(1)*, 449-469.

Makindi, S. M., Mokua, M., & Bob, U. (2019). Integrating Gender and Conservation of Biodiversity as a Climate Change Adaptation Strategy. *Environment and Forestry, 132*, 53377-53382.

Makindi, S. M., Mutinda, M. N., Olekaikai, N. K. W., Olelebo, W. L., & Aboud, A. A. (2014). Human-Wildlife Conflicts: Causes and Mitigation Measures in Tsavo Conservation Area, Kenya. *International Journal of Science and Research, 3*(6), 1025-1031.

Monette, D. R., Sullivan, T. J., & De Jong, C. R. (2018). *Applied Social Research: A Tool for the Human Services*, 8th Edition. Brookes/Cole, Belmont, C.A.

Ndlovu, J., Cele, N., Phoofolo, T., Gumede, M., & Marshall, S. (2017). Community-based tourism projects as a vehicle for creating entrepreneurial opportunities in KwaZulu-Natal, South Africa. *African Journal for Physical Activity and Health Sciences*, Supplement, 14-31.

Nhamo, G., Dube, K., & Chikodzi, D. (2020). Global Tourism Value Chains, Sustainable Development Goals and COVID-19. In *Counting the Cost of COVID-19 on the Global Tourism Industry*, 27-51. Springer, Cham.

Okello, M. M. (2005). Land Use Changes and Human–Wildlife Conflicts in the Amboseli Area, Kenya. [Human Dimensions of Wildlife]. *Human Dimensions of Wildlife, 10*(1), 19-28.

UN. (2020). Policy Brief: COVID-19 and Transforming Tourism. United Nations

Article DOI: https://doi.org/10.37284/ajthm.4.1.2685

UNWTO (2020). COVID-19: Putting people first-Tourism and COVID- 19, https://www.unwto.org/tourism-covid-19 (Accessed: 12 December, 2024).

Waithaka, J. (2020). *The Impacts of COVID-19 Pandemic on Africa's Protected Areas Operations and Programmes*. IUCN World Commission on Protected Areas (IUCN-WCPA).

WEF, 2020. This is how coronavirus could affect the travel and tourism industry, https://www.weforum.org/agenda/2020/03/world-travel-coronavirus-covid19-jobs-pandemic-tourism-aviation/ (Accessed: 22 December, 2024).

Western, D. (2007). A half a century of habitat change in Amboseli National Park, Kenya. *African Journal of Ecology*, 45(3), 302–310.

Western, D., Groom, R., & Worden, J. (2009). The impact of subdivision and sedentarization of pastoral lands on wildlife in an African savanna ecosystem. *Biological Conservation*, *142*(11), 2538-2546.

