Received 31 May 2023
Revised 22 August 2023
16 September 2023
8 March 2024
1 May 2024
5 September 2024
Accepted 28 September 2024

Indigenous communities and tourism-integrated climate change outcomes on subsistence within the hinterlands: a development management perspective

Azwindini Isaac Ramaano
Department of Geography and Environmental Sciences, Faculty of Science, Engineering and Agriculture, University of Venda, Thohoyandou, South Africa

Abstract

Purpose – The study focused on rural commodities, climate change and tourism activities for socioeconomic welfare and enhanced productivity within disadvantaged indigenous communities and remote areas. It relates primary and secondary data details on the Musina Municipality's rural biodiversity, tourism management and integrated pastoral livelihoods, alongside climate change issues locally and abroad.

Design/methodology/approach – The study employs focus group discussions and interviews to gather data. Descriptive statistics, cross-tabulation analysis and central tendencies, along with manual data sorting, provide non-inferential data analysis.

Findings – This study discloses a harmful connection between unsustainable integrated rural activities and tourism products and climate change-linked environmental consequences within such environs. Ultimately, the study has highlighted the need for proper biodiversity resource management and an agricultural approach to diminish climate change hazards and permit the indigenous communities of the municipality. Thus, there is a need for awareness and practices in responsible tourism, decent rural ecotourism and agro-tourism for enhanced productivity and sustainability achievements.

Originality/value – Many rural citizens in the world naturally live in low-income areas. Southern Africa and Africa, with specific reference to the Musina Municipality in Limpopo Province, South Africa, are no exception. Despite the abundance of assorted natural and cultural biodiversity and rural tourism qualities, such regions are nonetheless prone to climate change consequences and the deprivation of socioeconomic sustainability.

Keywords Sustainable tourism planning, Sustainability, Rural tourism, Climate change effects, Integrated rural developments, Ecotourism, Agro-tourism, Tourism entrepreneurship

Paper type Research paper

The author acknowledges the editors and anonymous reviewers for their direction and management of the manuscript. The initial credentials in ecotourism management, environmental change and environment and development from the University of Pretoria (UP)-specific tourism and environmental studies departments strengthened this examination and are recognized. To this end, tourism, rural development, settlement geographies, plan legislation, development management, social biology, ethnobiology and conservation biology are offered by pertinent geography, planning, and natural sciences departments at the University of Venda (Univen). They thus strongly support various environmental manifestations and biodiversity values for integrated development initiatives, environmental sustainability and socioeconomic system efficiencies. Original assistance on the backing study from SANSA Earth Observation is worth acknowledgement, as are all the participants in the study area.

Southeast Asia: A Multidisciplinary Journal
Vol. 25 No. 1, 2025
pp. 16-29
Emerald Publishing Limited
e-ISSN: 2948-0426
p-ISSN: 1819-5091
DOI 10.1108/SEAMJ-05-2023-0042

1. Introduction

Climate change issues have been the subject of much critical debate for decades (Becken, 2013; Chomsky & Pollin, 2020). According to Ullah (2013), climate change has a significant impact on biodiversity, ecosystems and resource bases, which in turn has direct and indirect consequences for humans. Climate change manifests itself through a variety of phenomena including drought, forest fires and global warming on a larger scale. In most rural areas, deforestation and environmental degradation by local communities who derive their livelihoods and basic needs from forest products can fuel climate change. Environmental degradation has an impact on environmental changes, and both climate change and global warming are likely to intensify if numerous benchmarks do not stimulate accurate information on climate change predictions (Ullah, 2012; Lee, Park, & Klassen, 2015). Therefore, the essence of its apparent unfortunate impacts has implications for economic activities and livelihoods that run counter to the ideals of sustainable development goals worldwide (Shiferaw, Prasanna, Hellin, & Bänziger, 2011; Ramaano, 2019, 2021a). Ullah (2017) reminds us that many variables such as geography, relative wealth and security agencies influence people's livelihood strategies and methods of adapting to the economic, political and environmental changes. This point was illustrated through a case study of South Asian development. Accordingly, a livelihood strategy is necessary for the latent implementation of resilient and integrated rural resource development and land management strategies with sustainable tourism as a catalyst (Fabricius, 2013; Lew, Ng, Ni, & Wu, 2016). If tourism and pastoral endeavours adhere to the principles of sustainability, sustainable and responsible tourism management can lead to socio-economic prosperity, increased productivity of rural tourism products and mixed rural livelihoods (Hall & Lew, 2009; Edgell, 2016; Pan *et al.*, 2018).

Wearing (2001) and Lewsey, Cid, and Kruse (2004) point out that climate change is as existent as it is; there is an obligation to protect the virtue of ecotourism along with other potentially unfortunate tourism-based actions. The above can be a thoughtful alternative for the management of places and properties that are important to the numerous indigenous communities of Musina Municipality that are interested in biodiversity and cultural heritage, and by extension, protected areas and natural resources such as Musina Nature Reserve, Big Tree Nature Reserve and Nwanedi Nature Reserve.

The problem lies in the notion that despite the surplus of studies dealing with integrated rural tourism to alleviate hardship and provide livelihoods, there seems to be a lack of adequate focus on the behavioural impacts of the environmental impacts of comprehensive tourism and rural development. This is the problem of climate change in remote areas that are rich in biodiversity. Therefore, it is crucial to consider possible educational deficits and awareness-raising platforms in the study region. Previous studies in the study region, e.g. Phokele and Sylvester (2015) and Musetha (2016), focused mainly on agricultural activities and on temperature rise and water crisis among smallholder farmers without emphasising the role of sustainable tourism and integrated livelihood strategies in climate change mitigation. This study aims to fill this gap by examining and emphasising the importance of alternative and responsible tourism and integrated livelihood strategies in combating climate change and achieving sustainability. It thus follows the path of responsible tourism and sustainable tourism management towards rural business activities and social behaviour in addressing environmental impacts and climate change issues (Farbotko, 2010). Thus, it is with a specific reference to the Southeast Asian perspective, the impact of disappearing islands and the effects of climate change on refugees and the nature of the Tuvalu Islands. In the spirit of Enns, Bersaglio, and Sneyd (2019), this paper provides a relevant and sufficient addition to the literature.

According to this account, supposedly integrated rural and tourism activities can contribute to climate change, but are not resistant to its consequences. To illustrate,

unsustainable rural and tourism activities such as dumping of pollutants, trampling of vegetation and others stimulate long-term climate change in pastoral-ecotourism regions in remote areas. However, fluctuations in climate change also have an unfavourable impact on rural activities and tourism developments by affecting profitable seasons and locations for livelihoods and travel opportunities (Cozzetto *et al.*, 2013). Thus, there is a dual relationship between integrated rural initiatives, tourism imports and climate change. The research question is: Can integrated rural exercises and tourism-induced climate change in indigenous communities in remote areas and tourism destination provinces be practically remedied? From now on, adhere to the ideals of alternative, responsible tourism and a holistic, sustainable rural way of life in order to combat the consequences of climate change in a sustainable way.

2. Literature review: climate change, sustainable tourism and sustainability concepts

2.1 Theory and concepts

Allitt (2014) posited that climate change is attracting significant attention in tourism and holistic strategy; regardless, it is only one segment of broader global changes that require a concerted effort to address environmental issues, property and place management in destinations. Similarly, Chikodzi, Nhamo, Dube, and Chapungu (2022) have identified climate change and variability as two of the greatest threats to World Heritage sites. Cultural heritage sites in remote areas are valuable resources for cultural tourism that need to be managed sustainably to ensure their benefit to society. Similarly, ecotourism is a development approach that plays a crucial role in securing the livelihoods of local communities in the hinterland and rural areas adjacent to protected areas. Both sustainable tourism and the sustainability concept share similar principles in terms of social, economic and environmental efficiency, which are crucial for coping with climate change shocks (Ramaano, 2008, 2023a).

2.2 Climate change, tourism imports and mixed rural livelihoods locally and abroad

There is a dearth of studies on tourism and climate change in Vhembe District, particularly in the study area and Musina Municipality. This study will be one of the first to take a closer look at tourism-centred integrated rural and community livelihoods due to climate change concerns in the area (Ramaano, 2023b, c). Chikodzi *et al.* (2022) noted that climate change and harsh weather are jeopardising heritage sites in South Africa's national parks, which in turn undermines the country's burgeoning tourism potential, improved quality of life and consistent environmental sustainability. Table Mountain and the Vhembe District in South Africa were used as examples, the latter being the subject of this study. Similarly, Chisale, Chirwa, and Babalola (2023), using the case study in Malawi, claim that indigenous local knowledge is key to dealing with climate change impacts and adaptation strategies. Hambira, Saarinen, Atlhopheng, and Manwa (2021) claim that tourism is a significant economic sector and a vehicle for community development in most developing countries, which they demonstrate using the example of Botswana. However, one of the biggest threats to this progress continues to be climate change.

3. Study area and methods

3.1 Location and characteristics

Musina Municipality comprises the settlement of Vhembe District Municipality. It is situated in the remote north-eastern area of Limpopo Province, which borders Zimbabwe to the north and Mozambique to the east, and is adjacent to the Kruger National Park. See a link: https://

municipalities.co.za/map/1133/musina-local-municipality for the map of the area (Musina Municipality, 2019; Ramaano, 2021a, b). On the north-western and south-eastern borders of Musina Municipality are areas for tomato and citrus farms (Ramaano, 2021c, d). A mix of agricultural production and tourism growth initiatives is a potentially viable method in the municipality of Musina. According to this information, there is a dual link between tourism and agricultural activities; accordingly, the concepts of ecotourism and agritourism, alongside cultural tourism, ethnic tourism, heritage tourism and geotourism, are natural structures through which tourism in rural and remote areas can be sustainable. Unsustainable agricultural practises in such regions that cause climate change, for example, have an impact on agri-tourism and agro-ecotourism orientated agribusiness products. Suffice it to say that agro-tourism supplements farmers' incomes by providing accommodation in cabins, among other things. Therefore, an arrangement between the two businesses (agricultural plans and tourism providers) is feasible in remote areas. For example, the locals supply business to the neighbouring hospitality and ecotourism platforms at organised prices.

3.1.1 Integrated rural activities and tourism initiatives. In the city region of Musina there are currently agrotourism, ecotourism and tourism hoteliers. Tshipise and Folovhodwe Nwanedi are community-based agribusinesses and irrigation farms. In addition, the Gumela River-based agricultural initiatives, Tshipise forever Resorts, Zwigodini [Madifha] Big Tree and others are obvious role models. The research revealed that Musina municipality has the advantage of having many tourism enterprises. There are countless tourist attractions within Musina municipality and close to the most rural places in the municipality. These include Nwanedi Nature Reserve, a resort, Big Tree Nature Reserve, Big Tree Accommodation Lodge, Domboni Caves, Makavhini Caves, Dambale Bushman Rock Art Baobab Chalets, Limpopo River Lodge and Mapungubwe National Park (MNP) (Ramaano, 2022a, b).

3.2 Data and methods

The approaches used in this research aimed to investigate the impact of rural climate change integrated with tourism on the socio-economic well-being of indigenous communities and in the marginalised hinterland of the Musina municipality in South Africa. The study used qualitative surveys with a combination of methods to collect data and used cross-tabulations, central tendencies and manual sorting to analyse the data (Ramaano, 2021a, b). While maintaining qualitative research practises, the qualitative data from the focus groups and interviews were converted into quantitative figures. All ethical review procedures and consents were allowed in the process. The study utilised purposive sampling; thus focus group discussions and interviews were the main research methods alongside field observation. The aim of the sampling procedure was to obtain a representative unit with rational thinking while reducing the time required (Patton, 2001).

3.2.1 Sample size calculation and rationale of the study. The sample size was calculated using Taro Yamane's formula (Yamane, 1973). $\mathbf{n} = \mathrm{N}/(1 + \mathrm{Ne}^2)$, where $\mathbf{n}$ is the sample size, $\mathbf{N}$ is the population size and $\mathbf{e}$ is the precision level. The study area comprises Folovhodwe, Gumela, Tshipise, and Zwigodini villages in Musina Municipality and holds 4,947 populations. Hence, the sample was attained at 5% ($e = 0.05$), and the sample size of the study area was almost 370 households-based, for one active representative. The impoverished rural livelihood, land degradation patches, and locations of the communities around the agricultural enterprise and tourism-based protected zones promoted the study area choice. Four neighbourhoods were defined and thoughtfully chosen (Ramaano, 2021a, b, c, d). They include Folovhodwe, Gumela, Tshipise and Zwigodini, adjoining various tourist commodities such as the Big Tree Nature Reserve, Nwanedi resort and Sagole spa. The

establishments interviewed with up to five participants per entity are Nwanedi Nature Reserve (Folovhodwe and Gumela), Big Tree Holiday Accommodation (Zwigodini), and Manalani Lodge (Tshipise [Sagole]). It includes Big Tree Nature Reserve (Zwigodini [Madifha]), Beria Madzonga Resort (Zwigodini), and Musina LED and Tourism Info (Musina municipal offices, [Musina town]). Data were collected utilizing primary and secondary techniques according to the basis of the study. Thus, data were gathered through (A) focus group discussions ($n = 20$) (focus group discussions within all the sampled villages in mornings and afternoons on March 17/18/19/20); (B) interviews ($n = 30$) (interviews within the specified entities in mornings and afternoons on March 17/18/19/20); and field observations generally fortified the essence of the study.

The rationale and nature of the data collection methods for the study were crucial. This study is based on the original sample of 370 survey respondents from the first study, from which four main villages were selected, and the survey data does not actively influence the current study, but passively. Therefore, such a sample influences the current study from the main study, and the respondents and the focus group discussion are treated separately from it. Thus, the data for the current research is based on 30 interviews with six tourism businesses, 5 interviews per business and 4 focus group discussions within the main villages, with up to 5 participants per session, and has been centralised. (A) Focus group discussions: Focus group discussions are one of the preferred primary data bases; in this study, their relevance lies in the nature of the study area and the core purpose of the analysis (Hennink, 2013). Therefore, in line with the research question, the focus group discussion was an appropriate method for data collection. Usually, focus group discussions concentrate on perceptions, facts, thoughts, ideas and details about a particular topic. Consequently, focus group discussions were appropriate for a holistic view of rural tourism, rural activities, and climate change and sustainability issues in the study area.

(B) Interviews: Interviews are commonly used in qualitative studies (Roulston, 2014). Here, the researcher is concerned with gathering evidence or gaining insights into ideas, attitudes, practises, manners, norms or prejudices (Rowley, 2012). Consequently, the primary sources were the constructive sources, such as eyewitness descriptions of the event (focus group discussions and interviews), but the secondary sources were somewhat disconnected from the primary sources and included data from individuals who were not witnesses (general literature review) (Esterberg, 2002; Ramaano, 2022c, d).

3.3 The demographics of the respondents

Demographics are vital elements tied to the development of any given community, in line with the descriptive analysis of the main study ($n = 370$). The study area maintains 45% females and 55% males (Ramaano, 2021a).

3.3.1 Gender and the respondents. In Musina municipality, there are 43.4% households headed by women and 56.6% households headed by men. This is roughly in line with the findings of Ramaano (2021a, b, c), which indicate an irregular but natural inequality between women and men, especially among the younger people in the area. Consequently, 13 (43%) of the respondents in the current study were men, while 17 (57%) were women ($n = 30$). In the focus group discussion, 12 (60%) were male and 8 (40%) of the participants were female. The results and discussions will be presented in the next part.

4. Results

4.1 The all-encompassing primary data set of the study

4.1.1 Any knowledge about the role of responsible tourism in combating environmental crises. Overall, the data collected through the focus group discussion shows that 12 participants

(60%) from the entire villages and indigenous communities have no knowledge about responsible tourism or environmental management. On the other hand, only eight respondents (40%) understood the role of responsible tourism in addressing ecosystem services and ecological crises such as deforestation, environmental degradation and climate change (n = 20). A focus group discussion was conducted in the four villages studied [Gumela, Folovhodwe, Zwigodini and Tshipise] with up to five participants per village. This brought together twelve participants, the majority of whom showed a neutralising familiarity with this attention. Considering that the Nwanedi Nature Reserve and Resort and the Nwanedi and Luphephe dams that support the Nwanedi River in the community are among the oldest tourism and conservation facilities in the region within the community, it is appropriate that the Folovhodwe community demonstrates an excellent awareness of environmental understanding and responsible tourism. Due to the current scenarios within the Big Tree Nature Reserve project, which seem to deviate from the indigenous communities' expectations of stable community tourism and community-based natural resource management, which currently seem to offer more problems than solutions, poor management and few benefits for the locals, it is not surprising that the village community of Zwigodini has expressed very negative views. There was evidence of environmental pollution and degradation by both tourists and local community residents, which seemed to be fuelling climate change scenarios in and around the reserve in the region. The uncontrolled and unsupervised behaviour of tourists harms the biodiversity around the reserve and makes both the reserve and the local environment vulnerable to land degradation and the effects of climate change. As evidenced by the damage caused by the "Big Tree", which attracts tourists to the reserve, and unsustainable rural-agricultural livelihoods such as over-cultivation and damage to the riparian vegetation of the Nwanedi River (which is also a tourist attraction), there are no sustainable and responsible tourism activities in the area. As a result, the prospects for ecotourism and agrotourism in the region are dwindling. There were major quotes:

> [. . .] I feel that the original spot of the Sagole hot spring is not protected enough and that it is a necessity to use its values in tourism development to fund biodiversity management programs around our area against climate change threats (focus group participant from Tshipise village).

> [. . .] The environmental degradation here is severe; I hope you have glimpsed the damaged big tree fence and the blemishes all over that "big tree." It cannot be a reasonable preservation effort and is against responsible tourism and decent property and place management efforts (participant from Zwigodini village, around Madifha).

> [. . .] To the best of my understanding, I discern the necessity for enhanced preservation issues and livelihoods around the Nwanedi nature reserve so that the communities will restrict poaching by obtaining regulated advantages from the wildlife governance and facilitate responsible tourism and environmental sustainability (participant from Gumela village).

(a) Explanations of any knowledge about the role of responsible tourism in combating environmental crises such as deforestation, environmental degradation, and climate change

Accordingly, some respondents acknowledge that responsible tourism is a progressive procedure for sustainable tourism and delivers sounder optional tourism aids and hospitality administration agencies and outlets. It is manifested by the cited 40% of reactions from the respondents. They additionally indicated that their siblings had disclosed such information to them. Subsequently, it is influential in tourism products and environmental leadership (Scott, Hall, & Stefan, 2012; Khan *et al.*, 2020) and guarantees environmental sustainability

(Newsome, Moore, & Dowling, 2013; Hall, 2019; Ramaano, 2023c, d). The municipality stands to earn from the utilization of this opportunity and promote subsistence through biodiversity management, integrated rural tourism, and agrarian by-products.

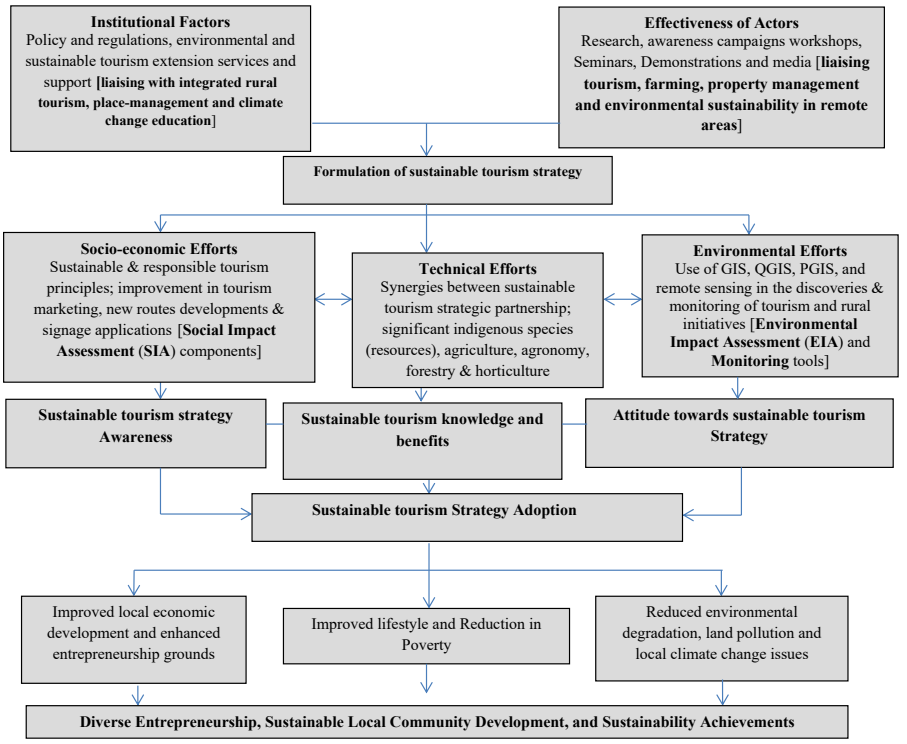
From the interviews with the local touristic entities, 46.6% of participants supported such exploration and knowledge in responsible tourism and fighting environmental consequences ($n = 30$, from the specified entities earlier described). Thus, responsible tourism is about creating adequate sites and more appropriate locations for individuals to visit and stay. Hence, it requires governments, hoteliers, operators, local communities and travellers to take responsibility and establish norms for tourism to be more bearable (Eagles, McCool, & Haynes, 2002; Musavengane, 2019). Thus, compared to the 14 respondents, the majority of the 16 (53.3 %) interview respondents responded negatively about their acquaintance with responsible tourism and their role in battling environmental crises such as deforestation, environmental degradation and climate change. Similarly, a responsible tourism approach and leadership in ecotourism can promote climate-smart efforts integrated with rural and agricultural activities in the study area and other marginalised hinterland areas. In this sense, enhanced rural land use management supports better socio-economic development, higher productivity and sustainability. There are platforms for improved ecotourism, agritourism and other agribusiness opportunities. However, it should be harmonious with South Africa's national development plan (NDP) 2030 and African Agenda, which call on people to actively participate in their own development, bolster democracy, and hold their government responsible. This is the main goal of the African Union's Agenda 2063, the Southern African Development Community's (SADC) regional indicative strategic development plan 2020-2030 (RISDP), and Vision 2050 (Southern African Development Community, 2003; Union, 2015; Musina Municipality, 2019; Ramaano, 2022e, f, 2023e).

Therefore, this study retains its *raison d'être* of exploring the impacts of environmental change and inclusive rural tourism development on the livelihoods of native societies in the study area in Vhembe district. Likewise, Agenda 2063 is Africa's blueprint and master plan for the continent's sustainable development and economic expansion, along with Vision 2050 on inclusive, industrialized regions. In the end, local and regional development projects must be in line with the broad United Nations (UN) sustainable development goals (SDGs), Agenda 2030, and the global long-term sustainability imperatives (Union, 2015; Ramaano, 2024a, b, c, d). Henceforth, it is essential to endorse alternative ecotourism activities for climate change-conscious livelihoods within the region.

5. Discussion and implications

5.1 Applicative, policy, theoretical, and economic implications

5.1.1 Applicative and policy implications. The comprehensive data and focus group revealed an apparent lack of awareness of environmental impacts, rural tourism governance and climate change related challenges. Therefore, Figure 1 presents a model based on the general recommendations of this analysis and the core concept of integrated sustainable tourism and related livelihoods. It shows that factors such as policies and rules that affect the value of stakeholders such as researchers and media can strengthen rural tourism development prospects, climate-smart strategies and livelihoods in rural and marginalised provinces. Lew (2017) notes that resilience planning has recently come to epitomise sustainable development to provide new philosophies for community development and socio-economic arguments. For this reason, focusing on participatory rural and tourism planning along with community-based tourism (CBT), community-based natural resource management (CBNRM) and participatory geographic information systems (PGIS) would enhance tourism development and community empowerment in such remote rural areas; for environmental management, tourism and climate change-conscious policies and sustainability endeavours. It is essential



Source(s): Author's own

Figure 1. The envisioned sustainable integrated rural tourism and climate change conscious livelihoods model for the municipality and indigenous communities

to support integrated tourism and rural development policies aimed at providing leadership on indigenous resources and conservation, land management, redressing past grievances and addressing environmental threats and climate change. It is equally important to maintain an equitable distribution of natural resources, promote environmental management, and give every member of indigenous communities permission to live in their place (Mehta & Heinen, 2001; Tipa & Welch, 2006).

5.1.2 Theoretical and economic implications. This study is in line with Hoogendoorn and Fitchett's (2018) essence of second home tourism in the component of tourism geography and the development of coastal, remote and rural tourism in South Africa against environmental and climate change shocks. Akin to this is Hamilton and Tol's (2007) and their significant and cautionary work on the economic impacts of climate change on tourism. Henceforth, Wang (2020) on the integrity of rural tourism products in developing countries and Slocum and Kline (2017) on linking urban and rural tourism in sustainability strategies are relevant. Similarly, Dupre (2019) claims that both tourism and urban products utilise place-making, although their theoretical basis may come from different experiences. Similarly, place-making does not necessarily have to be used to achieve the same goal. Saarinen (2020) points out that a commitment to the Sustainable Development Goals is an integral part of a sustainable tourism geography. In this sense, sensibly thought-out rural development and tourism governance policies could represent significant advances for host regions (Lasso & Dahles, 2023; Ramaano, 2023b, c). Many blueprints have been outlined in general documents and literature reviews in which more judicious management of rural tourism and ecotourism, as well as conservation systems, enables tourism and agricultural entrepreneurship against

the threats of climate change (Meer, 2010; Fabricius, 2013). This quote is supported by existing reports on rural ecotourism development and livelihoods in the Musina community, which show extensive tourism prospects with low livelihood impacts.

6. Conclusion, limitations and further examination

6.1 Conclusion on main findings

In this study, the example of the Musina community was used to demonstrate the role that integrated rural resources, tourism governance and responsible tourism can play in neutralising environmental problems and climate change in rural and remote areas. Accordingly, the main data findings that emerge from the mixed methods of this qualitative study include two main concerns: a lack of alternative tourism and sustainability awareness and education, and a lack of awareness of responsible tourism in addressing environmental crises such as deforestation, environmental degradation and climate change; and they reflect the two main questions of the interviews and focus group guide. Accordingly, the essence of indigenous resource conservation in the hinterland, rural tourism development and climate change is matched with comprehensive agricultural practises in the marginalised community. Rural and responsible tourism has been shown to provide the best norms for community indigenous resource management, and the potential mixed nature of pastoral activities can complement such enterprises for place management and sustainable rural development (SRD). It is therefore critical for subsistence, ecotourism, agro-tourism and sustainability in the region concerned. However, in Musina municipality, a collaborative approach is inevitable to enable comprehensive socio-economic development with awareness of the dangers of climate change. Government agencies at federal, provincial and regional levels have a responsibility to unite biodiversity management and livelihoods of the people by strengthening various economic sectors (Jacka, 2015; Akella & Cannon, 2017; Metternicht, 2018).

6.2 Limitations and further examination

The study is limited to a smaller sample and utilises interviews, focus groups and discussions, generally supplemented by literature review and field observation. Therefore, the non-inferential study was guided by descriptive statistics, cross-tabulation analysis, central trends and manual analysis. The concern for accuracy and generalisation over any validity and reliability analysis is therefore an issue for this study, as it is for many qualitative studies. Future research can conduct more in-depth quantitative surveys with improved statistics and a larger sample to provide a broader context for the study to improve validity and reliability. Nonetheless, a more functional approach to property and place management for considering mixed rural activities, tourism and climate change-based measures for responsible tourism and sustainability in hinterland areas should probably fall within the realm of alternative tourism advances (Jamal, Taillon, & Dredge, 2011). Such a quote is similar to King's (2002) wide-ranging assessment of the geographical allure of islands in comprehensive tourism development along with the nature of agricultural progress in overlooked and declining rural hinterland areas. In the future, it will be appropriate to incorporate operational geographic information systems (GIS), remote sensing (RS), geographic maps and information systems (IS) that could support every active and conceivable measure of comprehensive rural products and tourism endeavours within the respective integrated tourism and development policies, infrastructure, service quality and place marketing of destination regions (Lee & King, 2009). Indeed, there are a growing number of studies looking not only at tourists' travel incentives, but also at the socio-economic and political affinities that shape a destination and affect tourists' judgements (Ilbery, Saxena, & Kneafsey, 2007; Hall & Page, 2014).

References

Akella, A. S., & Cannon, J. B. (2017). Strengthening the weakest links: Strategies for improving the enforcement of environmental laws globally. In *Transnational environmental crime* (pp. 459–492). London: Routledge.

Allitt, P. (2014). *A climate of crisis: America in the age of environmentalism*. New York: Penguin.

Becken, S. (2013). A review of tourism and climate change as an evolving knowledge domain. *Tourism Management Perspectives*, *6*, 53–62. doi: 10.1016/j.tmp.2012.11.006.

Chikodzi, D., Nhamo, G., Dube, K., & Chapungu, L. (2022). Climate change risk assessment of heritage tourism sites within South African national parks. *International Journal of Geoheritage and Parks*, *10*(3), 417–434. doi: 10.1016/j.ijgeop.2022.08.007.

Chisale, H. L., Chirwa, P. W., & Babalola, F. D. (2023). Awareness, knowledge and perception of forest dependent communities on climate change in Malawi: A case of Mchinji and Phirilongwe forest reserves in Malawi. *Journal of Sustainable Forestry*, *42*(7), 728–745. doi: 10.1080/10549811.2022.2123353.

Chomsky, N., & Pollin, R. (2020). *Climate crisis and the global green new deal: The political economy of saving the planet*. London: Verso Books, Verso.

Cozzetto, K., Chief, K., Dittmer, K., Brubaker, M., Gough, R., Souza, K., … Chavan, P. (2013). Climate change impacts on the water resources of American Indians and Alaska Natives in the US. In *Climate change and Indigenous peoples in the United States* (pp. 61–76). Cham: Springer.

Dupre, K. (2019). Trends and gaps in place-making in the context of urban development and tourism: 25 years of literature review. *Journal of Place Management and Development*, *12*(1), 102–120. doi: 10.1108/JPMD-07-2017-0072.

Eagles, P. F., McCool, S. F., & Haynes, C. D. (2002). *Sustainable tourism in protected areas: Guidelines for planning and management* (8) Iucn.

Edgell, D. L. Sr (2016). *Managing sustainable tourism: A legacy for the future*. New York, NY: Routledge.

Enns, C., Bersaglio, B., & Sneyd, A. (2019). Fixing extraction through conservation: On crises, fixes and the production of shared value and threat. *Environment and Planning E: Nature and Space*, *2*(4), 967–988.

Esterberg, K. G. (2002). *Qualitative method in social research*. Boston, McGraw-Hill: McGraw-Hill.

Fabricius, C. (2013). The fundamentals of community-based natural resource management. In *In Rights Resources and Rural Development* (pp. 18–58). London: Routledge.

Farbotko, C. (2010). Wishful sinking: Disappearing islands, climate refugees and cosmopolitan experimentation. *Asia Pacific Viewpoint*, *51*(1), 47–60. doi: 10.1111/j.1467-8373.2010.001413.x.

Hall, C. M., & Lew, A. A. (2009). *Understanding and managing tourism impacts: An integrated approach*. London: Routledge.

Hall, C. M., & Page, S. J. (2014). *The geography of tourism and recreation: Environment, place and space*. London: Routledge.

Hall, M. R. (2019). The sustainability price: Expanding environmental life cycle costing to include the costs of poverty and climate change. *The International Journal of Life Cycle Assessment*, *24*, 223–236.

Hambira, W. L., Saarinen, J., Atlhopheng, J. R., & Manwa, H. (2021). Climate change, tourism, and community development: Perceptions of Maun residents, Botswana. *Tourism Review International*, *25*(2-3), 105–117. doi: 10.3727/154427220x16059054538773.

Hamilton, J. M., & Tol, R. S. (2007). The impact of climate change on tourism in Germany, the UK and Ireland: A simulation study. *Regional Environmental Change*, *7*(3), 161–172. doi: 10.1007/s10113-007-0036-2.

Hennink, M. M. (2013). *Focus group discussions*. Oxford: Oxford University Press.

Hoogendoorn, G., & Fitchett, J. M. (2018). Perspectives on second homes, climate change and tourism in South Africa. *African Journal of Hospitality, Tourism and Leisure*, *7*(2), 1–18.

Jamal, T., Taillon, J., & Dredge, D. (2011). Sustainable tourism pedagogy and academic-community collaboration: A progressive service-learning approach. *Tourism and Hospitality Research*, *11*(2), 133–147. doi: 10.1057/thr.2011.3.

Ilbery, B., Saxena, G., & Kneafsey, M. (2007). Exploring tourists and gatekeepers' attitudes towards integrated rural tourism in the England–Wales border region. *Tourism Geographies*, *9*(4), 441–468. doi: 10.1080/14616680701647667.

Jacka, J. K. (2015). Alchemy in the rain forest. In *Alchemy in the Rain Forest*. Durham, NC: Duke University Press.

Khan, A., Bibi, S., Ardito, L., Lyu, J., Hayat, H., & Arif, A. M. (2020). Revisiting the dynamics of tourism, economic growth, and environmental pollutants in the emerging economies—sustainable tourism policy implications. *Sustainability*, *12*(6), 2533. doi: 10.3390/su12062533.

King, R. (2002). The geographical fascination of islands. In *The development process in small island states* (pp. 29–53). London: Routledge.

Lasso, A. H., & Dahles, H. (2023). A community perspective on local ecotourism development: Lessons from Komodo National Park. *Tourism Geographies*, *25*(2-3), 634–654. doi: 10.1080/14616688.2021.1953123.

Lee, C. F., & King, B. (2009). A determination of destination competitiveness for Taiwan's hot springs tourism sector using the Delphi technique. *Journal of Vacation Marketing*, *15*(3), 243–257. doi: 10.1177/1356766709104270.

Lee, S. Y., Park, Y. S., & Klassen, R. D. (2015). Market responses to firms' voluntary climate change information disclosure and carbon communication. *Corporate Social Responsibility and Environmental Management*, *22*(1), 1–12. doi: 10.1002/csr.1321.

Lew, A. A., Ng, P. T., Ni, C. C., & Wu, T. C. (2016). Community sustainability and resilience: Similarities, differences and indicators. *Tourism Geographies*, *18*(1), 18–27. doi: 10.1080/14616688.2015.1122664.

Lew, A. A. (2017). Tourism planning and place making: Place-making or placemaking?. *Tourism Geographies*, *19*(3), 448–466. doi: 10.1080/14616688.2017.1282007.

Lewsey, C., Cid, G., & Kruse, E. (2004). Assessing climate change impacts on coastal infrastructure in the Eastern Caribbean. *Marine Policy*, *28*(5), 393–409. doi: 10.1016/j.marpol.2003.10.016.

Meer, T. (2010). Finding the community in community-base natural resource management: The case of Ndumo game reserve, South Africa (doctoral dissertation).

Mehta, J. N., & Heinen, J. T. (2001). Does community-based conservation shape favorable attitudes among locals? An empirical study from Nepal. *Environmental Management*, *28*(2), 165–177. doi: 10.1007/s002670010215.

Metternicht, G. (2018). *Land use and spatial planning: Enabling sustainable management of land resources*. New York, NY: Springer.

Musavengane, R. (2019). Small hotels and responsible tourism practice: Hoteliers' perspectives. *Journal of Cleaner Production*, *220*, 786–799. doi: 10.1016/j.jclepro.2019.02.143.

Musetha, M. A., (2016). The impact of climate change on agricultural crop production in the Vhembe District Municipality, Limpopo Province South Africa (Doctoral dissertation).

Musina Municipality (2019). IDP. Limpopo province. South Africa.

Newsome, D., Moore, S. A., & Dowling, R. K. (2013). *Natural area tourism: Ecology, impacts and management*. Bristol: Channel View Publ.

Pan, S. Y., Gao, M., Kim, H., Shah, K. J., Pei, S. L., & Chiang, P. C. (2018). Advances and challenges in sustainable tourism toward a green economy. *Science of the total environment*, *635*, 452–469. doi: 10.1016/j.scitotenv.2018.04.134.

Patton, M. Q. (2001). *Qualitative research and evaluation methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Phokele, M., & Sylvester, M. (2015). Climate change status in the mutale local municipality: A case study of the smallholder farmers in Vhembe district, Limpopo province. *Journal of Human Ecology*, *52*(1-2), 1–8. doi: 10.1080/09709274.2015.11906924.

Ramaano, A. I. (2008). An assessment of the potential and actual contribution of ecotourism to poverty alleviation in Mutale Municipality. Doctoral dissertation. University of Venda.

Ramaano, A. I. (2019). *The prospects of using tourism industry to advance community livelihoods in Musina municipality*. Limpopo: University of Venda.

Ramaano, A. I. (2021a). Prospects of using tourism industry to advance community livelihoods in Musina municipality, Limpopo, South Africa. *Transactions of the Royal Society of South Africa*, *76*(2), 201–215. doi: 10.1080/0035919X.2021.1912847.

Ramaano, A. I. (2021b). Tourism policy and environmental impacts in Musina municipality: Lessons from a case study of failure. *Tourism Critiques*, *2*(1), 91–114. doi: 10.1108/trc-12-2020-0021.

Ramaano, A. I. (2021c). Potential of ecotourism as a mechanism to buoy community livelihoods: The case of Musina municipality, Limpopo, South Africa. *Journal of Business and Socio-economic Development*, *1*(1), 47–70. doi: 10.1108/jbsed-02-2021-0020.

Ramaano, A. I. (2021d). Potential for tourism to promote indigenous resources for community development in Musina municipality, Vhembe district, Limpopo province, South Africa. *Forestry Economics Review*, *3*(1), 53–78. doi: 10.1108/fer-02-2021-0006.

Ramaano, A. I. (2022a). The implied significance of integrative geographical information systems in sustainable tourism and comprehensive community development in Musina Municipality, South Africa. *Technological Sustainability*, *1*(1), 42–63. doi: 10.1108/techs-08-2021-0001.

Ramaano, A. I. (2022b). Tourism implications and challenges in Musina municipality: A case of the big tree nature reserve and adjacent tourism ventures; Limpopo. *Rajagiri Management Journal*, *16*(3), 239–259. doi: 10.1108/ramj-02-2021-0015.

Ramaano, A. I. (2022c). Views of utilizing sustainable tourism to improve community sustenances: A case study of the impoverished rural communities of Musina municipality. *International Hospitality Review*, *36*(2), 220–243. doi: 10.1108/ihr-03-2021-0019.

Ramaano, A. I. (2022d). Musina municipality tourism management and strategies: A sustainable-eco-tourism inclusive business insights for the town, abbuting peri-urban and countryside existences. *Management of Environmental Quality*, *33*(3), 718–738. doi: 10.1108/meq-11-2021-0257.

Ramaano, A. I. (2022e). The potential role of cultural heritage resources in tourism and community development at Musina municipality, Limpopo province, South Africa. *Journal of Cultural Heritage Management and Sustainable Development*, *14*(4), 689–709. doi: 10.1108/JCHMSD-02-2021-0019.

Ramaano, A. I. (2022f). The economic-administrative role of geographic information systems in rural tourism and exhaustive local community development in African marginalized communities. *Arab Gulf Journal of Scientific Research*, *40*(2), 180–195. doi: 10.1108/AGJSR-04-2022-0020.

Ramaano, A. I. (2023a). Tourism development dilemmas in Musina municipality: Evidence from the big tree nature reserve and neighboring entities, Vhembe district, South Africa. *Journal of Economic and Administrative Sciences*, *39*(2), 504–522. doi: 10.1108/jeas-02-2021-0034.

Ramaano, A. I. (2023b). Geographical information systems in sustainable rural tourism and local community empowerment: A natural resources management appraisal for Musina municipality' society. *Local Development and Society*, *4*(1), 74–105. doi: 10.1080/26883597.2021.2011610.

Ramaano, A. I. (2023c). Nature and impacts of tourism development facilities and activities on the livelihoods of communities in Musina municipality. *Tourism Planning and Development*, *20*(4), 1–25. doi: 10.1080/21568316.2022.2115124.

Ramaano, A. I. (2023d). The prospects of using the tourism industry to advance community livelihoods in Musina Municipality, Limpopo Province. Doctoral dissertation.

Ramaano, A. I. (2023e). Alternative ecotourism perspectives within the protected conservation sites and farming communities amid environmental degradation and climate change-bound rural exercises. *Forestry Economics Review*, *5*(1), 77–104. doi: 10.1108/FER-11-2022-0011.

Ramaano, A. I. (2024a). Environmental change impacts and inclusive rural tourism development on the livelihoods of native societies: Evidence from Musina Municipality, South Africa. *International Journal of Ethics and Systems*, *40*(3), 495–525. doi: 10.1108/IJOES-04-2023-0089.

Ramaano, A. I. (2024b). Sustainable tourism development activities and planning systems in Vhembe district, Limpopo province, South Africa: A comprehensive eco-touristic and sustainability perspective. *Arab Gulf Journal of Scientific Research*, (ahead-of-print). doi: 10.1108/AGJSR-04-2023-0140.

Ramaano, A. I. (2024c). Environmental consequences and climate change linked ecotourism activities in remote and protected areas of South Africa. *Rural Society*, 1–19. doi: 10.1080/10371656.2024.2368301.

Ramaano, A. I. (2024d). The potential significance of geographic information systems (GISs) and remote sensing (RS) in sustainable tourism and decent community involvement in African-rural neighborhoods. *Journal of Electronic Business and Digital Economics*, *3*(3), 341–362. doi: 10.1108/JEBDE-03-2024-0006.

Roulston, K. (2014). Analysing interviews. In *The SAGE handbook of qualitative data analysis* (pp. 297–312). London.

Rowley, J. (2012). Conducting research interviews. *Management Research Review*, *35*(3/4), 260–271. DOI: 10.1108/01409171211210154.

Saarinen, J. (2020). Tourism and sustainable development goals: Research on sustainable tourism geographies. In *Tourism and sustainable development goals* (pp. 1–10). London: Routledge.

Scott, D., Hall, C. M., & Stefan, G. (2012). *Tourism and climate change: Impacts, adaptation and mitigation*. London: Routledge.

Shiferaw, B., Prasanna, B. M., Hellin, J., & Bänziger, M. (2011). Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security. *Food Security*, *3*(3), 307–327. doi: 10.1007/s12571-011-0140-5.

Slocum, S. L., & Kline, C. (Eds) (2017). *Linking urban and rural tourism: Strategies in sustainability*. CAB International.

Southern African Development Community (2003). Regional indicative strategic development plan. Southern African Development Community.

Tipa, G., & Welch, R. (2006). Comanagement of natural resources: Issues of definition from an indigenous community perspective. *The Journal of Applied Behavioral Science*, *42*(3), 373–391. doi: 10.1177/0021886306287738.

Ullah, A. K. M. A. (2012). Climate change and climate refugee in Egypt: An overview from policy perspectives. *TMC Academic Journal*, *7*, 56–70.

Ullah, A. A. (2013). The interplay between climate change, economy and displacement: Experience from Asia. In *Governance approaches to mitigation of and adaptation to climate change in Asia* (pp. 38–55). London: Palgrave Macmillan.

Ullah, A. A. (2017). Do remittances supplement South Asian development?. *Remittances Review*, *2*(1), 31–45. doi: 10.33182/rr.v2i1.436.

Union A. (2015). Agenda 2063 report of the commission on the African Union Agenda 2063 The Africa we want in 2063.

Wang, Y. (2020). Institutional interaction and decision making in China's rural development. *Journal of Rural Studies*, *76*, 111–119.

Wearing, S. (2001). *Volunteer tourism: Experiences that make a difference*. Wallingford: CAB International.

Yamane, T. (1973). *Statistics: An introductory analysis*. New York, NY: Harper and Row.

Further reading

Ashworth, G. J. (2000). Heritage, tourism and places: A review. *Tourism Recreation Research*, *25*(1), 19–29. doi: 10.1080/02508281.2000.11014897.

Fang, W. T. (2020). Rural tourism. In *Tourism in emerging economies* (pp. 103–129). Singapore: Springer.

Kayamandi development services (2007). LED Strategy Chapter 4. Musina local municipality. Limpopo province, SA.

Ofoegbu, C., Chirwa, P. W., Francis, J., & Babalola, F. D. (2016). Conceptualising climate change in forest-based rural areas of South Africa: Community perceptions and attitudes. *International Forestry Review*, *18*(3), 319–333. doi: 10.1505/146554816819501709.

Powell, R. A., & Single, H. M. (1996). Focus groups. *International Journal for Quality in Health Care*, *8*(5), 499–504. doi: 10.1093/intqhc/8.5.499.

Slocum, S. L., & Kline, C. (Eds) (2017). *Linking urban and rural tourism: strategies in sustainability*. CAB International.

Spenceley, A. (2012). Implications of responsible tourism for conservation and development in southern Africa. In *Responsible Tourism* (pp. 389–404). London: Routledge.

About the author

Azwindini Isaac Ramaano graduated with a Ph.D. in Geography (centered on tourism geography and rural development geography, settlement geography and industrial development geographies) from the University of Venda (Univen), following a Honors degree in Conservation Biology and a Master's in Environmental Sciences. He also did his postgraduate course in Environment and Society at the University of Pretoria (UP), among others, entailing environmental paradigm modules like Environment & Land Reform, Environmental Law, Physical-Bio Resources & Development, Ecotourism Management and Water Conservation & Demand Management. He attended and presented at local conferences and symposiums, such as the South African National Space Agency (SANSA) Space Science student workshops in October 2019 in Western Cape Hermanus and in September 2021 at the Musina-Makhado Special Economic Zone (MMSEZ)-Univen Smart City Model Symposium. His research interests remain in ecotourism development and rural tourism management and conservation, ethnobotany, agroforestry and integrated livelihoods, climate change and sustainability, and contributions in these areas are manifested within outlets, such as in Local Development & Society and Tourism Planning and Development in Taylor and Francis. He also contributed his scholarly outputs, among others, to *Business and Socio-economic Development, Economic and Administrative Sciences, Cultural Heritage Management* and *Sustainable Development* journals within Emerald Publishing and further served reviews for this platform for outlets such as the *International Journal of Ethics and Systems, the Tourism Review, the Competitive Review, Consumer Behavior in Tourism and Hospitality and Kybernetes*, amongst others. Azwindini Isaac Ramaano can be contacted at: azwira@webmail.co.za