

RESEARCH ARTICLE

Assessing the Contribution of Ecotourism to Economic Growth and Rural Development Offered by Wildlife Resources to People Living in Communities around Matusadonha National Park

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ABSTRACT

Ecotourism is one of the major drivers of economic growth and rural development in many countries involved in wildlife resource management. The objective was to assess the contribution of ecotourism to economic growth and rural development offered to people living in communities around Matusadonha National Park. A total of 140 participants were interviewed and questionnaires were administered to the same number of people. Data were analysed using both qualitative and quantitative methods. Results show that the majority of participants (57%) were females. Safari operations were the major (54.7%) ecotourism activity in Matusadonha National Park. Above half (58.8%) of participants indicated that ecotourism contributed toward economic growth in communities around Matusadonha National Park. Most people (343) were employed on a part-time basis from 2000 to 2022. Participants indicated that the standard of living in most communities increased by more than 50%. Above 50% of participants were satisfied with the contribution of ecotourism towards rural development. It can be concluded that ecotourism has the potential to improve economic growth and rural development if close monitoring and accountability of funds are monitored closely. Local people should be included in the accountability of funds and management of wildlife resources to improve economic benefits to local people.

Keywords: Ecotourism; Wildlife resources; Matusadonha National Park; Economic growth; Rural development

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1. Introduction

Ecotourism is the intersection of rural development, environmental conservation and economic growth in local communities around protected areas^[1,2]. Ecotourism is regarded as the fastest-growing industry which increases annually by 10-15% globally^[3]. Ecotourism is centered on consumer-driven and provides management to degrading environments as this industry has economic and human benefits. Ecotourism promotes sustainable rural development and income generation and brings organisations together and brings happiness to several communities^[3,4]. The promotion of ecotourism brings in biodiversity conservation and captive breeding of endangered species such as elephants in several countries especially Zimbabwe and Tanzania. However, ecotourism needs to be handled with care as poor handling will lead to the destruction of environment due to over extraction of resources causing extinction. Ecotourism relies on human interaction with nature which can easily alter the environment, causing degradation. Ecotourism is a key economic factor especially for third world countries as this boosts economic development and conservation when managed wisely^[3,5].

Ecotourism and wildlife resource conservation are pillars of economic growth and development in many African countries^[6,7]. Ecotourism and wildlife resource conservation are linked to social, economic and environmental pillars that play an important role in achieving sustainable development in communities around national parks and specifically protected areas^[7,8]. Conservation of wildlife resources contributes immensely towards human livelihoods and the development of communities where these resources are conserved. In the colonial era, strict laws were enforced which govern the conservation of wildlife resources and ecotourism excluding local communities^[8,9]. These laws contributed to unsustainable economic development as more cases of poaching were reported causing huge losses of wildlife resources. Human-wildlife conflicts also increased when wildlife animals damage the crops and livestock of people living adjacent to protected areas^[3,10].

A shift from these fences and fines was introduced in the early 1980s and adopted community-based conservation initiatives which include local communities in the management of wildlife resources, promoting ecotourism and rural development^[11]. Laws were drafted to enforce communities to benefit from wildlife resources and ecotourism^[12]. These laws empower local people from being spectators to becoming management agents and taking part in wildlife resource conservation. The initiative brought integrated approaches such as Integrated Conservation Development Projects (ICDPs), Community-Based Natural Resource Management (CBNRM), Community-Based Wildlife Management (CBWM) and CAMPFIRE where local communities and government through Rural District Councils work hand in hand to promote resources management and channeling proceeds towards economic development^[10,12]. Ecotourism has the capacity to unlock local communities from the poverty trap and create new avenues which improve human livelihoods and rural development^[2]. If there is good governance, local communities can be supplied with a lot of resources to boost livelihoods and rural development.

Ecotourism maintains biodiversity and promotes the sustainable management of wildlife resources benefiting communities adjacent to protected areas such as Matusadonha National Park in Zimbabwe. In the case of Matusadonha National Park in Zimbabwe, local communities are benefiting from livelihoods and other resources since these communities are involved in resource management. Local District councils have transferred power to local communities through Village Development Committees (VIDCOs) and Ward Development Committees (WADCOS) to improve resource management and utilisation^[3,10]. National governments in many countries created Local Economic Development (LED) initiatives which are mainly based on managing resources from protected areas for economic benefit of local communities^[3,7]. There the objective of the study was to assess the contribution of ecotourism to economic growth and rural development offered by wildlife resources to local communities adjacent to

Matusadonha National Park. Therefore, the objective of the study was to assess the contribution of ecotourism offered by wildlife resources to economic growth and rural development of communities adjacent to Matusadonha National Park.

2. Materials and methods

2.1 Study area

The study focused on communities adjacent to Matusadonha National Park which is located in the northeastern part of Zimbabwe at latitude 16°19'60" S and 29°0'0" E, 600 m above sea level. Matusadonha National Park is characterised by semi-arid climatic conditions which rise from Lake Kariba. It is characterised by three distinct seasons, a cool dry winter, a hot dry period which leads up to summer rains. The area receives mean annual rainfall which varies from 400-800 mm. Most of the rains are received from November to March with low or no rainfall received in April. Matusadonha National Park comprises mixed woodlands and scrublands covering the slopes and ridges of the escarpment, plateaus and plains. Forests of trees are semi-submerged by the lake stretches along the length of the shoreline. Matusadonha National Park has more than 240 species of birds, important woodlands and wildlife animals which include elephants, lions and buffalos.

2.2 Data collection

A trained team of four enumerators which comprised of two females who hold Bachelor's Degree in Agricultural Management, one male with Bachelor's Degree in Accounting and one male who hold Bsc Honours in Wildlife Management collected data from 10 May 2021 to 17 July 2021. Data were also recollected in May 2022 to boost results on economic growth after the completion of certain projects which were underway. Traditional leaders in surrounding communities were consulted as key informants together with EMMA and Agritex Officers. The study adopted a case study approach that investigates

the contribution of ecotourism in real life context^[13]. The study used a series of data collection instruments where both primary and secondary data were collected from both communities and national park authorities. Primary data were collected using interviews where 100 people were interviewed among them 40 key informants who include traditional leaders, community leaders involved in conservation programmes, business people and professionals in the conservation of wildlife in Matusadonha National Park. Snowball sampling methods were adopted and used during interviews. Purposive sampling was also used for collecting data using structured questionnaires between May and November 2021.

The study used semi-structured interviews which had both structured and open-ended questions. Face-to-face interviews were done to increase accuracy. A telephone interview was done when a participant was absent and this was strengthened with the use of home visits later. Data collected include demographic information of participants, indicators of economic growth, the contribution of ecotourism towards economic and rural development and perception of participants to the contribution of ecotourism. Household heads were interviewed. A household head was defined as the eldest person (≥ 21 years) at homestead during interview time. The interviews were done until the point of data saturation. Thus, data saturation was used to determine the sample sizes which are Negande (20), Musampakaruma (25), Gache-gache (25) and Mola-Kasvisva (30). The study specifically addressed the following issues: (1) household characteristics, (2) economic benefits realised from ecotourism, (3) employment issues, (4) perceptions of participants on the contribution of ecotourism to economic growth and (5) the contribution of ecotourism towards rural development. Data were collected from four communities surrounding Matusadonha National Park.

2.3 Data analysis

Collected data were processed using a 5-point Likert scale (agree, strongly agree, neutral, disagree and strongly disagree) to assess the perceptions of

participants on the contribution of ecotourism to economic growth. Another 5-point Likert scale (satisfied, strongly satisfied, neutral, dissatisfied and strongly dissatisfied) was used to categorise perceptions of ecotourism on rural development. Collected data were converted into percentages and presented in tables and bar graphs using Microsoft Excel. Collected data on economic growth indicators were subjected to Analysis of Variance (ANOVA) using IBM SPSS version 25.

3. Results

3.1 Demographic information of participants

The majority (57%) of the participants interviewed were women, with approximately 50% in the age range of 21-40 years. Out of 140, almost 90 (64%) were married with the majority attained secondary education. Participants who attained secondary education show dominance in answering questions. The majority of married interviewed participants were females who are mainly involved in ecotourism business. Less than 30% of participants were involved in formal business and relied on trading wildlife resources harvested from Matusadonha National Park. More than 50% of the participants were in this study area for more than 20 years (**Table 1**). The participants were from different ethnic groups who at times take time to respond to the interviews. The majority of participants were in economically active groups who are able to support themselves and a small population (24.9%) represented those above 50 years of age.

3.2 Ecotourism activities in Matusadonha National Park

Ecotourism activities in Matusadonha National Park include trophy hunting, safari operations, game viewing and rural tourism (**Figure 1**). Safari operation is the main ecotourism in Matusadonha National Park followed by game viewing, trophy hunting and rural tourism. Safari operation is common at Changachireri Camp where local hunting and fishing

Table 1. Demographic attributes of participants.

Socio-economic attribute	Frequency	Percentage (%)
Gender		
Male	60	43
Female	80	57
Age (years)		
16-20	5	3.6
21-30	43	30.7
31-40	32	22.9
41-50	25	17.9
51-60	20	14.3
> 60	15	10.6
Marital status		
Married	90	64.2
Single	23	16.4
Divorced	17	12.1
Widow	10	7.1
Educational level		
Primary	35	25
Secondary	88	62.9
Tertiary	17	12.1
Income generating sources		
Formal	40	28.6
Informal business	100	71.4
Period of stay		
0-10	16	11.4
10-20	46	32.8
> 20	78	55.7

take place. Boat cruising is also common at Tashinga and Sanyati Camps. People who come for rural tourism and safari operations seek authority from Parks and Wildlife Management Authority of Zimbabwe. People who were involved in the operation of these activities indicated that several people across the globe visit Matusadonha National Park for different purposes as some who were involved in rural tourism also took pictures and interview community members for educational purposes. They reported that their customer came for different purposes as some were doing educational research and visiting the site to spend a weekend getting to know the beauty of nature. Besides bringing different people together, ecotourism activities created employment and business opportunities for local people who fre-

quently visit different sites. A report by one of the operators shows that local people depend on tourists to improve their standard of living.

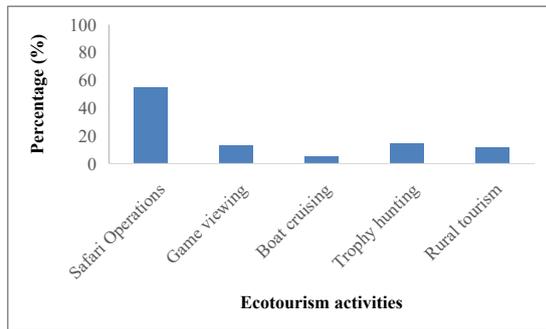


Figure 1. Ecotourism activities in Matusadonha National Park.

These are activities that Matusadonha National Park offers to people as ecotourism activities.

3.3 Contribution of ecotourism to economic growth

Ecotourism contributed to economic growth in various ways some of which have direct or indirect effects. Results show that 58.8% of participants on average indicated that ecotourism contributed toward economic growth in communities around Matusadonha National Park and beyond. Participants in the surrounding communities strongly agree that resources obtained from Matusadonha National Park contribute immensely towards economic development. Results also show that participants from Gache-gache had a perception which was significantly ($p < 0.05$) different from other communities (Figure 2). Overall, communities around Matusadonha National Park believe that economic development happening in their communities is significantly linked to utilisation of wildlife resources.

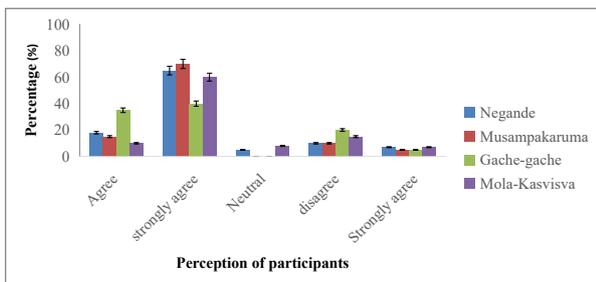


Figure 2. Perception of participants on the contribution of ecotourism to economic growth.

These are the views of people who were interviewed on the contribution of ecotourism to economic growth. Agree and strongly agree were views of people in support of ecotourism’s contribution to economic growth.

3.4 Economic growth indicators in the study area

Participants indicated several economic growth indicators in the study area. Most of the participants (80%) indicated that the creation of employment especially where local people are being employed is an indicator of economic growth in comparison with previous years. Increase in the number of business operators in communities surrounding Matusadonha National Park, for example, number of shops at trading centres increased with new operators coming in. This was reported by 75% of the participants. There were no significant differences ($p > 0.05$) between what community members and key informants say about indicators of economic growth except on new business and food security which show significant differences ($p < 0.05$) between community members and key informants (Figure 3).

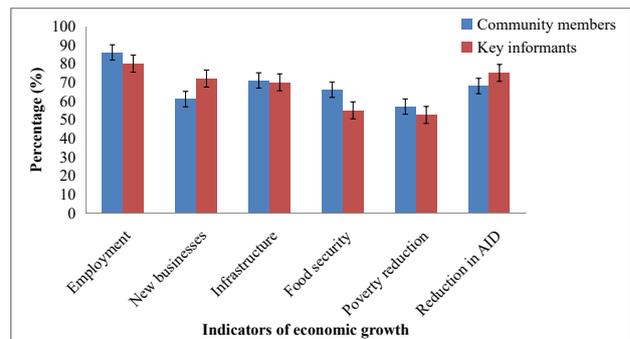


Figure 3. Indicator of economic growth as a result of ecotourism.

Figure 3 shows various measures which interviewed participants indicated as signs of economic growth in their communities caused by ecotourism from Matusadonha National Park.

3.5 Household perception of employment

Employment of local people by different operators in communities surrounding Matusadonha

Nation Park and CAMPFIRE related has increased across the communities (**Table 2**). Business operators such as those involved in game viewing, safari operation and rural tourism employ more local people on a part-time basis than full-time. CAMPFIRE has created employment of approximately 3 people per year from Musampakaruma and 2 people from Gache-gache. Negande had the highest number of 90 people employed on a part-time basis from 2000-2022 (**Table 2**). Most people were employed on a part-time basis by local business people to sell their products to tourists. Some were employed by Safari Operators, with others self-employ themselves where they sell craftwork products and traditional products to tourists. Locals were employed as security guards, guides and maintaining fences on a part-time basis as means of improving wildlife resource conservation. Those employed on a full-time basis were working as ZIMPARKS officers and others as drivers.

3.6 Contribution of ecotourism towards rural development

The utilisation of wildlife resources offered a lot towards rural development with most communities showing positive development. Participants indicated that standard of living in most communities increased by more than 50% with most families having the capacity to pay school fees for their children as compared to previous years. In every household, a standard house was built and this indicates rural

development. Of all the participants, 119 (85%) indicated improvements in types of toilets used, with the majority owning Blair toilets, tiled houses and access to borehole water. More than half of the participants, own solar panels bought after selling timber, non-timber and other wildlife related resources. Almost all participants 126 (90%) highlighted the use of solar powered engines to pump water and operate household appliances such as television, radio and refrigerators as an indication of rural development caused by wildlife resources. Participants also indicated that Rural District Council (RDC) was provided with money from proceeds of wildlife resource utilisation which they used to grade rural roads, construct bridges in rural areas and improve the status of rural roads to improve networking. When asked if their people were using revenue from ecotourism, participants were adamant about disclosing more information except expressing their perceptions (**Figure 4**). On average 36.5% (51 participants) were satisfied by the contribution of ecotourism to rural development and 32.5% (46 participants) were strongly satisfied (**Figure 4**). A total of 19% of all participants were dissatisfied with the contribution of ecotourism to rural development although they indicated that some level of development was noticed.

From observations made during data collection, a lot of positive benefits were noted as community members having modern houses, the presence of local clubs which benefit from ecotourism and some programmes which support children through fee

Table 2. Employment perception by participants.

Number employed (%) per community					
Employment type	Period	Negande	Mola-Kasvisva	Gache-gache	Musampakaruma
Full time	2000-2005	2	1	4	2
	2006-2010	5	3	-	6
	2011-2015	11	-	10	9
	2016-2022	12	10	18	8
Total		30	14	32	25
Part-time	2000-2005	10	7	2	6
	2006-2010	28	15	12	19
	2011-2015	34	26	29	25
	2016-2022	38	31	42	39
Total		90	79	85	89

payment. A well-graded and maintained road was evidence of rural development through ecotourism proceeds. Another observation made was the presence of a village shop which was developed using profits from ecotourism. The communities formed their ecotourism committee which is responsible for managing the resources as means of achieving sustainable community resource management to increase access to benefits.

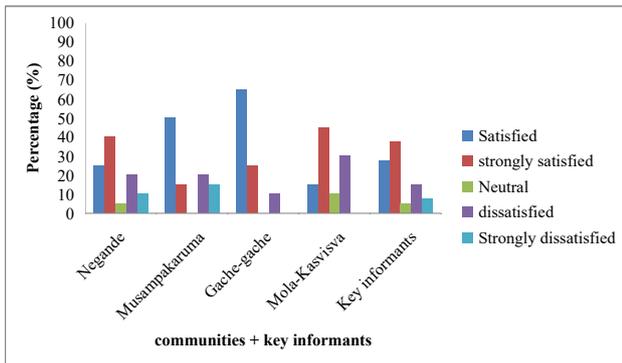


Figure 4. Perceptions of key informants and participants in different communities about contribution of ecotourism in rural development.

Figure 4 shows the responses of participants from different communities around Matusadonha with satisfied and strongly satisfied support that ecotourism contributes towards rural development. Participants who neither support nor deny are represented by neutral.

4. Discussion

4.1 Demographic information of participants

The majority of participants were female. This was not the case in many wildlife-related researches where males dominate for example in Cameroon males were more involved than females^[1]. This may be linked to different ecotourism activities in different countries. In Zimbabwe, gender equality is promoted and females are encouraged to take part in all activities.

4.2 Ecotourism activities in Matusadonha National Park

Ecotourism activities in Matusadonha Nation

Park were similar to those offered in various wildlife conservation areas. These results were collaborated with results by Zingi et al.^[2] who reported the same activities in Tsholotsho District. These activities were also similar to activities in Kariba, Kyle and Lack Chivero where most people visit as tourist centres. These activities are largely important in many National Parks and protected areas as means of generating income.

4.3 Effects of Ecotourism on both economic growth and rural development

Ecotourism is one of the major contributors to economic growth and rural development across the globe with its effects creating better economic zones for both urban and rural communities. Ecotourism provides several benefits towards human livelihoods and plays a pivotal role in poverty reduction^[14,15]. This has brought local people together for better resource utilisation and achieves sustainable management with the objective of resource conservation^[16,17]. Several communities around Matusadonha National Park realised the need and importance of collaborating with government for sustainable ecotourism management and for success. This concurs with findings by Keyim^[18] and Kiya^[19] who reported that to enjoy benefits from ecotourism activities and products, there is a need for local communities to positively collaborate with government through Rural District Councils (RDCs). Campbell^[20] and Donohoe and Needham^[21] also reported that ecotourism can be a successful business when governments involve local communities in the management and accounting system. Several constraints in ecotourism were also noticed such as COVID-19 which caused bans on international and local travelling, causing a windfall in ecotourism business as it mainly depends on the number of tourists. A Number of tourists started to increase after the lifting of COVID-19 travel bans^[22]. Conflicts among community members are another major constraint that commonly affects ecotourism across the globe^[23].

4.4 Contribution of ecotourism to economic growth

Ecotourism is one of the major drivers of economic growth in many African countries and even across the world. Ecotourism provides a variety of economic benefits to several communities around protected areas and National parks. These economic benefits include employment, improved infrastructure such as roads, clinics and business centres. This was a scenario in the study area where there was an increase in businesses for local shops, resurfacing of roads and maintenance of bridges. An increase in tourism stimulates economic growth directly in the form of hotels, restaurants, cruise ships and dive shops [2,8,24]. This is the situation in the study area where restaurants, bars and shops were built hence creating economic growth. This reduces travelling costs for local people and allows them to also market their products to tourists. Ecotourism directly contributes to the environment with non-consumptive revenue sources and fundraising for conservation [25,26]. Ecotourism provides revenue that helps economic development in local communities for example CAMPFIRE provides resources that benefits communities economically. This concurs with Tchakatumba et al. [12] and Harrison [27] who reported economic benefit in Chipinge and Chiredzi where people indicated growth in clinic renovations, grading and resurfacing of roads, drilling of boreholes and installation of grinding mills which help local communities. Although these economic benefits decrease as donors move away there are high economic development changes witnessed in the area [28]. Although people realise economic benefits and growth in their communities, human-wildlife conflicts such as predation of livestock and loss of human lives can be seen as negative impacts on economic development [1,29]. Wildlife resources contribute immensely towards economic growth and human livelihoods. This was similar to those reported by Frost and Bond [30] who reported benefits from wildlife resources to economic growth and rural livelihoods. These resources have great potential of increasing human capital development, creating income generating projects

which improve economic growth [31,32]. Ecotourism benefits can be allocated to rural district councils and used for infrastructure developments that boost economic growth, for example, the use of wildlife resources improves economic growth in countries such as Tanzania, Zimbabwe, Kenya and Uganda [31,33]. Ecotourism is a fast-growing industry with high hopes of better economic growth in several countries but population growth in some countries reduces environment through land clearing for agriculture, causing degradation due to pollution, industrialization and urbanization [3]. These countries however failed to realise the benefits of ecotourism until they manage wildlife resources in protected areas such as national parks and safari areas. Ecotourism is a way for people to explore remote regions without leaving a carbon footprint and this can only be enjoyed in several countries through sustainable management and proper crafting of policies [3]. Besides benefiting the whole community, ecotourism fuels capitalism because it has become an industry privately owned for profit in several countries like Cameroon, Tanzania, South Africa, India and Zimbabwe [1,3]. Ecotourism benefits are not mainly enjoyed by local people because this industry is privately owned and its proceeds are not included in the Gross Domestic Product (GDP) of several countries. This coincides with findings by Ife [3] who reported that ecotourism in Galapagos is privately owned for profit making which is enjoyed by individuals not by local people.

On the other hand, ecotourism has been regarded as an economic driver in rural development; improving community empowerment and socio-economic development in rural communities [34-38]. However, local people have little knowledge of the use of ecotourism products and their management to enjoy the benefits. This may create confusion and conflicts among villagers hence negatively affecting economic growth in their communities.

4.5 Economic growth indicators as a result of ecotourism

Indicators of economic growth have been witnessed in various protected areas where wildlife

resources are kept. Economic indicators reported in the study area include poverty reduction, increase in food security, employment creation, infrastructure development and new businesses. These indicators are a sign of contribution caused by ecotourism towards economic development and growth. A good example is the establishment of Curios shops, restaurants and hotels which brings in revenue to the community. The presence of hotels, restaurants and curios shops allows local communities to display and trade their products. Hotels employ local people on both full and part-time basis, this allows local people to adapt to better living standards ^[23,26,39]. Providing local people with employment opportunities, the opportunity to reduce pressure exerted on natural resources, and poaching and improve wildlife resources conservation ^[1,40]. Ecotourism activities have the potential to increase when local people are involved ^[1]. Infrastructure development was reported as a result of revenue obtained from marketing of wildlife resources. Development of new businesses, construction of bridges and roads improved with the use of revenues obtained from ecotourism. CAMPFIRE release fund to RDCs that help in rural development and most of these funds were channeled towards infrastructure development. This concurs with findings by Tchakatumba et al. ^[12] who reported infrastructure development which include bore drilling, renovation of clinics and road improvements.

4.6 Household perception of employment status

Households have indicated employment benefits from ecotourism but were complaining about low numbers being employed. Low remunerations were a major challenge indicated by participants. Selection criteria done by Safari operators, Lodge owners and private businesses were described as unfair due to the low numbers of community members employed. This created problems such as competition between business owners on marketing of traditional products where local people charge at low prices when selling to tourists. Ecotourism activities such as trophy hunting do not employ more people and hence have a low

significant impact on employment as witnessed by a large number of people in communities around Matusadonha National Park who never get employment either on a part-time or full-time basis ^[38]. This coincides with those reported by Tchakatumba et al. ^[12] who reported a few numbers of local people in Chipinge and Chiredzi who were employed at Malilangwe Conservancy. Results from this study also support findings by Koko and Hattingh ^[41] and Damm ^[42] who indicated that employment from trophy hunting and other ecotourism activities does not account for 0.01% of the population across Africa. However, other researchers such as Harilal and Tichaawa ^[1] and Lambi et al. ^[43] reported a positive impact of wildlife-related jobs on the employment of local people. This concurs with related research by Harilal and Tichaawa ^[1] who reported an increase in ecotourism-related employment opportunities in Cameroon. However, other community members were also indicating that younger generation is abandoning family jobs doing part-time ecotourism-related jobs.

5. Conclusions and recommendations

Ecotourism has the potential of improving economic growth and rural development in several countries. Ecotourism benefits communities through direct economic benefits such as incentives (monetary), provision of bush meat, timber and non-timber products and employment opportunities which improve standards of living in rural communities. Ecotourism also provides non-consumptive and indirect benefits such as infrastructure development and rural electrification. Local people were highly appreciative of infrastructure development as this improved their networking and link between their communities and urban areas. Although direct benefits such as employment were enjoyed, participants indicated a high level of lack of transparency, and poor feedback to communities by traditional leaders and other people involved in employment selection. The standard of living improved for several community members as indicated by the availability of standard houses, electricity/solar panels and personal boreholes all

due to revenues they acquire from selling wildlife-related products. Above 90% of the community members were affording to take three decent meals daily due to income generated from wildlife resources such as selling edible worms, medicines and other non-timber forest products. Rural development has been indicated with improvements in the availability of improved toilets, access to clean water and electricity. An increase in the number of new businesses also shows positive trends in rural development. Community members and wildlife resource management authorities in Matusadonha National Park are recommended to work hand in hand to improve community development, human livelihoods and economic growth. Transparency on the disbursement of revenues and employment selection criteria can be improved by involving local community leaders in the processes.

Author Contributions

Zvikonyaukwa Jesse designed the study, collected data, analysed it and wrote the paper. Musengi Kudakwashe and Mudzengi Clarice P review the manuscript. All authors contributed to the manuscript.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability Statement

All data are available in this manuscript.

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