CONTRIBUTION OF WILDLIFE TO HUMAN LIVELIHOODS AND ECONOMIC DEVELOPMENT IN COMMUNITIES LIVING ADJACENT TO MATUSADONA NATIONAL PARK, ZIMBABWE

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Abstract

In many African nations, wildlife has the potential to support livelihoods and economic development. Wildlife resources are crucial for enhancing human livelihood, reducing poverty, and increasing opportunities for rural and economic development. Contribution of wildlife resources towards economic development has been hindered by poor management caused mainly by humanwildlife conflicts. The study's objectives were to: (i) evaluate the influence of ecotourism to economic development of communities surrounding Matusadona National Park; (ii) assess the difficulties associated with managing wildlife resources in the Matusadona National park, (iii) explore economic developments offered by the use of wildlife resources in Matusadona National Park, and (iv) determine sustainable management practices which can be adopted to improve economic developments offered by the use of wildlife resources in Omay community. The study used questionnaires, interviews, focus group discussions, and secondary data sources to collect relevant information for the study. A sample of 140 participants was used with 100 (40%) randomly selected from a list of 250 households.According to the findings, 57% of participants were women. In Matusadona National Park, safari operations made up the majority (54.7%) of the ecotourism industry.The study results showed that most participants (80%) identified illegal killing of animal as a major challenge to the park authorities. The results also showed several benefits which were derived from the game park at household level but only one was supported officially. The benefit to community development from the game reserve were road works, with the majority of the participants from Negande (95%), Mahombekombe (64%) and Siakobvu (80%) acknowledging that activities in the game park contributed to road maintenance in their areas. Improvement of roads (51.4 %) was the only economic development which was supported equally from both methods of data collection. Majority of participants (59.3 %) indicated that construction of bridges was difficult and not supported by revenue from utilisation of wildlife resources. There is need to form community based natural resource management (CBNRM), involvement of local people and rural district council (RDC) in the decision making to improve economic development activities. It can be concluded that when sustainable management practices are adopted and put into practice, the use of wildlife resources can contribute more to economic development. It can be recommended that Matusadona National Park authorities must reconsider law enforcement strategies, engagement with local communities and increasing animal populations to boost tourism, resource utilisation and adopt sustainable management options for wildlife.

Keywords: Wildlife resources; ecotourism; rural development; CBNRM; trophy hunting; human wildlife conflicts

Declaration

I do hereby declare that this dissertation is my own work that does not contain any material previously published by another person, or material which has been accepted for awarding of any other Degree at any University except where due acknowledgements have been made in the text.

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Chapter 1: Introduction

1.1 Introduction and background of the study

Wildlife is a form of natural resource that occurs in different forms, such as wild animals and plants. Wildlife resources are among the major sources of human livelihoods and economic development in many African countries, including Zimbabwe. Wildlife has been regarded as a ready food sourcefor humans and a boost to economic development across the globe if resources are well managed (Wunder et al., 2014a). Wildlife resources play a pivotal role in poverty alleviation, especially forest resources (Shackleton et al., 2007; Wunder et al., 2014b; Rasmussen et al., 2016). Thus, wildlife has a significant role for people and countries at large (Dhangi and Gribb, 2018; Martin and Shackleton, 2022).It is therefore important to enhance our understanding of the role of wildlife in human livelihoods and economic development.

Forests have been sidelined as wildlife resources, but they can reduce poverty, change the economies of many developing countries, and even improve industrial growth (Wunder et al., 2014; Rasmussen et al., 2017). Forest resources contribute both in terms of cash and non-cash ways, of which the latter is regarded as three to five times greater than cash contributions (Agrawal et al., 2014). Forests and wild animals provide both commercial and non-commercial resources, some of which have consumptive uses and recreation, thus contributing to tourism as a major product (Wunder et al., 2014b; FAO, 2016; Rasmussen et al., 2017). There is a need to quantify forest contributions both in monetary and non-monetary terms to come up with a true value in terms of their contribution. This information is limited, and thus wildlife resources such as forests are not well considered in the gross domestic product (GDP) of many countries in Africa.

Wildlife has the potential to boost economic growth, and industrialization and transform communities from where they are into modern-day communities (Okello, 2015). These can support the economies of many developing countries, and their contributions, for example, resources from forests, canprovide benefits cheaply than contributions from minerals such as gold (Agrawal et al., 2014), but there is a need for proper management so that these resources are beneficial to developing countries like Zimbabwe. These contributions can be regarded as both direct and indirect, depending on how people benefit from wildlife resources. Direct benefits include bush meat, medicines, resins, fruits, and leather, while indirect benefits include the construction of schools, clinics, and roads. Most countries with wildlife have shown significant economic growth and rural community development, for example, Tanzania, Kenya, and Uganda (Wolmer et al., 2004; Okello, 2015). Although these countries have been enjoying these resources daily, they fail to account for them in their countries' Gross Domestic Product(GDP)due to a lack of valuation of wildlife resources. Only tourism and other direct benefits have been considered and evaluated (Scott, 2012).

Wildlife resources are important not only to people but even to nature itself, as they beautify the landscape and cause microclimatic changes. African countries with wildlife resources have been under the spotlight from European countries regarding the use of wildlife and management of these resources (Gutzwiller, 1991; Muchapondwa and Sterner, 2012; Muchapondwa et al., 2014).European countries desire to benefit from resources such as ivory which provide raw materials for jewellery industries. However, this has been affected by banning of trade of elephants and their products. A good example of the immense contribution of wildlife to economic development is tourism which leads to the construction of resort centres, hotels, hospitals, schools and even colleges (Makombe, 1994; Muchapondwa and Sterner, 2012). If well managed, tourism can maximize foreign exchange

earnings, increase employment opportunities, and rehabilitate social and economic developments, the standard of living, as well as conservation of the environment (DFID, 1997; Muchapondwa and Stage, 2013). Countries like Tanzania, Zimbabwe and South Africa have been using local peopleand Community Based Natural Resources Management (CBNRM) to transform communities, and improve the standard of living for people (Scott, 2012; Marunda et al., 2014; Das and Chatterjee, 2015a; 2015b). Wildlife in African countries has attracted most European and Asian people to come and see these animals, hence creating a tourism business which is viable and profitable (Dogra and Gupta, 2012; Das and Chatterjee, 2015a).

Despite the benefits highlighted above, several challenges are faced in the management of wildlife resources. They include climate change, lack of financial support from the government, changes in land use and ownership of wildlife-protected areas (Scott, 2012; Nieman et al., 2015). These challenges can be addressed through various ways including the provision of individual licenses to manage wildlife, moving wildlife animals to areas where there is vast land, and culling of all aged animals like elephants and rhinoceroses. Human-wildlife conflicts have been a major challenge in the management of wildlife resources (Gandiwa et al., 2013). This has created bad relationships between local communities and wildlife resources management authorities. Management of wildlife resources could have been better if the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) and CBNRM programme were maintained since these allow local communities to be involved in the management of resources (Mutandwa and Gadzirayi, 2007).

An increase in wildlife resources such as wild animals in comparison to land shortages creates a big challenge in the management of these resources (Wolmer et al., 2004; Gandiwa et al., 2013; Mhuriro-Mashapa et al., 2017). Banning the hunting of some wildlife animals and extraction of forest resources by the government also result in a big challenge to the management of wildlife resources. This may lead to friction between managers of protected areas and local communities along the borders of protected areas (Gandiwa et al., 2013). Therefore, there is a need to come up with strategies which can be employed to reduce the challenges of managing wildlife resources. For instance, reviving CAMPFIRE, and formation of CBWM and CBNRM so that local communities are not only involved in managing wildlife resources but also benefit from these resources are some of the strategies with potential (Mutwanda and Gadzirayi, 2007). Such strategies also empower local people, generate benefits and promote the conservation of wildlife resources (Child, 2000; Murphree, 2009; Gandiwa et al., 2013; Zingi et al., 2022). To achieve better contributions of wildlife resources towards human livelihoods, sustainable wildlife resources management practices such as educating people about the importance of wildlife resources, prioritising local communities and giving them opportunities to manage the resources need to be introduced (Gandiwa et al., 2013; Mhuriro-Mashapa et al., 2018). These practices will allow sustainable utilization of resources, and communities will be incorporated into the management of wildlife.

1.2 Research Rationale

Poor management and lack of accounting for wildlife resources have been major barrierstoevaluating contributions of wildlife resources to human livelihoods and the economy of the country. For instance, placing wildlife under agriculture has created a great negative impact in noticing contributions of wildlife resources such as forest resources, and products of wild animals such as elephants and rhinoceros (Rasmussen et al., 2017). Including wildlife under agriculture reduces the exposure of wildlife resources and overshadows its contribution in the national revenue. In Zimbabwe, this has been so because

there is no Ministry which oversees wildlife resources alone as in other countries. Valuation of wildlife resources and separating them from agriculture or hospitality may create a clear picture about their contribution. Therefore, there is need for proper management of wildlife resources since some of the areas which were meant for wildlife have been reallocated to people for crop and livestock production.

1.3 Problem Statement

Increased cases of land degradation and death of wild animals, invasion of forests and outbreak of veld fires have significantly caused concerns regarding the contribution of wildlife resources to human livelihoodand economies in several countries across the world. The degradation of wildlife resources and death of wild animals is mainly caused by poor management, increased population which leads to food shortages, and illegal harvesting by people. The Land Resettlement Programme in Zimbabwe led to habitat loss and fragmentation as a result of clearing land for agricultureas found by Wolmer et al. (20004) when conducting research in Gonarezhou . A good example is the Case of Save Valley Conservancy (SVC) and Gonarezhou National Park where people invaded the area for agriculture and this created human-wildlife conflicts such as wild animals preying on livestock and destroying crops as identify by Mhuriro-Mashapa et al. (2017; 2018).Humans also encroach into wildlife protected areas, clearing land for agriculture and harvesting wildlife resources, thus creating serious conflicts between humans and wild animalsas identified by Zvikonyaukwa et al.(2022) in Hurungwe. Increased animal populations, especially of large herbivores such as cattle(*Bos indicus*)alongside settlement development, has not only caused human-wildlife conflicts but changes to vegetation cover and land use pattern of SVC, thereby affecting management of wildlife resources. Ecotourism has been a major economic booster for many years in Zimbabwe but nowadays a lot needs to be doneas

determined by Zingi et al. (2022) when carrying out study in Tsholotsho. Some notable community development occurs in other regions of the country such as Kariba and Victoria Falls. The flow of ecotourism was great in the early 90s creating employment for most local people in areas such as Kariba, Chiredzi, Masvingo, and Mana Pools. For people who were living near Mushandike Game Park,this led to the development of Mushandike irrigation scheme which helped a lot of people who had been moved when Mushandike Game Park was created. The contributions of wildlife tourism are not well explored since wildlife tourism is now treated as hospitality and all income channelled towards Ministry of tourism. This has also caused the unaccounting of wildlife tourism and its contribution to human livelihoods and economy. Increased cases of poaching, human wildlife conflicts and calls by non-governmental organisations (NGOs) on the poor management of wildlife resources has raised concern about researchon the contribution of wildlife resources to human livelihoods. There have been attempts to solve problems affecting Matusadona National Park by forming Matusadona Conservation Trust and partnering with African Parks as means of improving management strategies, reintroduction of indigenous animals like Zebras and engaging with communities to improve resource utilisation. However, there still is a gap in knowledge of the contribution of the wildlife resources to the people and their livelihoods.

1.4 Justification of the study

Wildlife resources have the potential to improve human livelihoods and the economy in many ways. There are a lot of resources from wildlife. For instance, wildlife tourism is one of the major contributors to the economies of many African countries which have wildlife resources. Secondly, forests have the capacity to contribute to human livelihoods (Wunder et al., 2014; FAO, 2016) in the form of timber forest and non-timber forest products (NTFPs) that can reduce poverty (Shackleton et al., 2007; Shackleton et al., 2015; Rasmussen et al.,

2017) and improve the economies of many countries three to five times more than agriculture (Shackleton et al., 2011; Rasmussen et al., 2017). Most of these resources contribute to food security, income generation, agricultural improvement, creation of recreation (tourism) and maintenance of the country's natural heritage. The valuation of NTFPs can also help countries to see the value of forests and other wildlife resources and how they contribute towards human livelihood and economy of countries, especially developing countries (Sunderlin, 2006). Forest resources have the capacity to alleviate poverty in most African countries (Sunderlin, 2006; Shackleton et al., 2007; Shackleton et al., 2011; Wunder et al., 2014a; Rasmussen et al., 2017), increase food security (FAO, 2016), increase income generation for many communities (Agrawal et al. 2014) and improve rural development (Newsome et al., 2005; Okello, 2015).Therefore, wildlife resources have the potential of reducing poverty and improving food availability.

Wildlife tourism is regarded as one of the major sources of human livelihoods and economic development in Zimbabwe especially for communities and towns near wildlife protected areas like Binga (Munodawafa, 2012; Muchapondwa et al., 2008) and Gonarezhou National Park (Gandiwa et al., 2013). This study will help policy makers to come up with viable policies as a means of rehabilitating and restoring wildlife tourism so that communities and the country benefit. The study will also provide information towards the restoration of ecotourism and give policy makers an insight in policy formulation which will lead to reduction of extractive activities and assess inclusion of local communities in wildlife management. The study will also help to come up with possible alternatives to non-extractive income generating projects reducing current activities slowly degrading the area.Generally, the study will help policy makers and law enforcement to develop sustainable management

strategies, thereby improving contribution to livelihoods and conservation of Matusadona National Park.

1.5 Research Objectives

The study's main objective was toexamine the influence of wildlife resources to livelihoods and economic development in communities living at the periphery of Matusadonha National Park, Zimbabwe. The study also assessed the challenges faced in management of wildlife resources in Zimbabwe. This was achieved by the following specific objectives, which were to;

1. Determine the influence of ecotourism on rural and economic development of Matusadonha National Park neighbouring communities.
2. Explore the economic developments offered by utilization of wildlife resources in Matusadonha National Park.
3. Determine the wildlife management challenges in Matusadonha National Park.
4. Develop sustainable management practices for improvement of wildlife tourism in Matusadona National Park.

This was guided by the following research questions:

1. What are the contributions of wildlife resources on human livelihood to Matusadona National Park communities?
2. How does utilization of wildlife contribute to economic Matusadona National Park?
3. What arethe challenges in managing wildlife resources in Matusadona National Park in Zimbabwe?

4. Which sustainable management practices can be used to improve wildlife tourism in Matusadona National Park?

1.6 Conceptual Framework

Poor management and human wildlife conflicts are key constraints to contribution of wildlife resources towards human livelihoods and economic development in many countries. However, the development of Community Based Natural Resources Management (CBNRM) and CAMPFIRE created many avenues which reduce human wildlife conflicts, thereby increasing access to wildlife resources and its benefits. The use of these organisations and non-governmental organisations (NGOs) helped a lot on access to wildlife resources by local communities and improve wildlife management (Fig 1.1). Some of the benefits include infrastructure development, improved rural health, development of wildlife tourism and creation of employment for local communities.Elsewhere, trade and utilisation of wildlife resources resulted in gaining billions of United States Dollars, leading to improved standards of living of local people and their access to these resources.

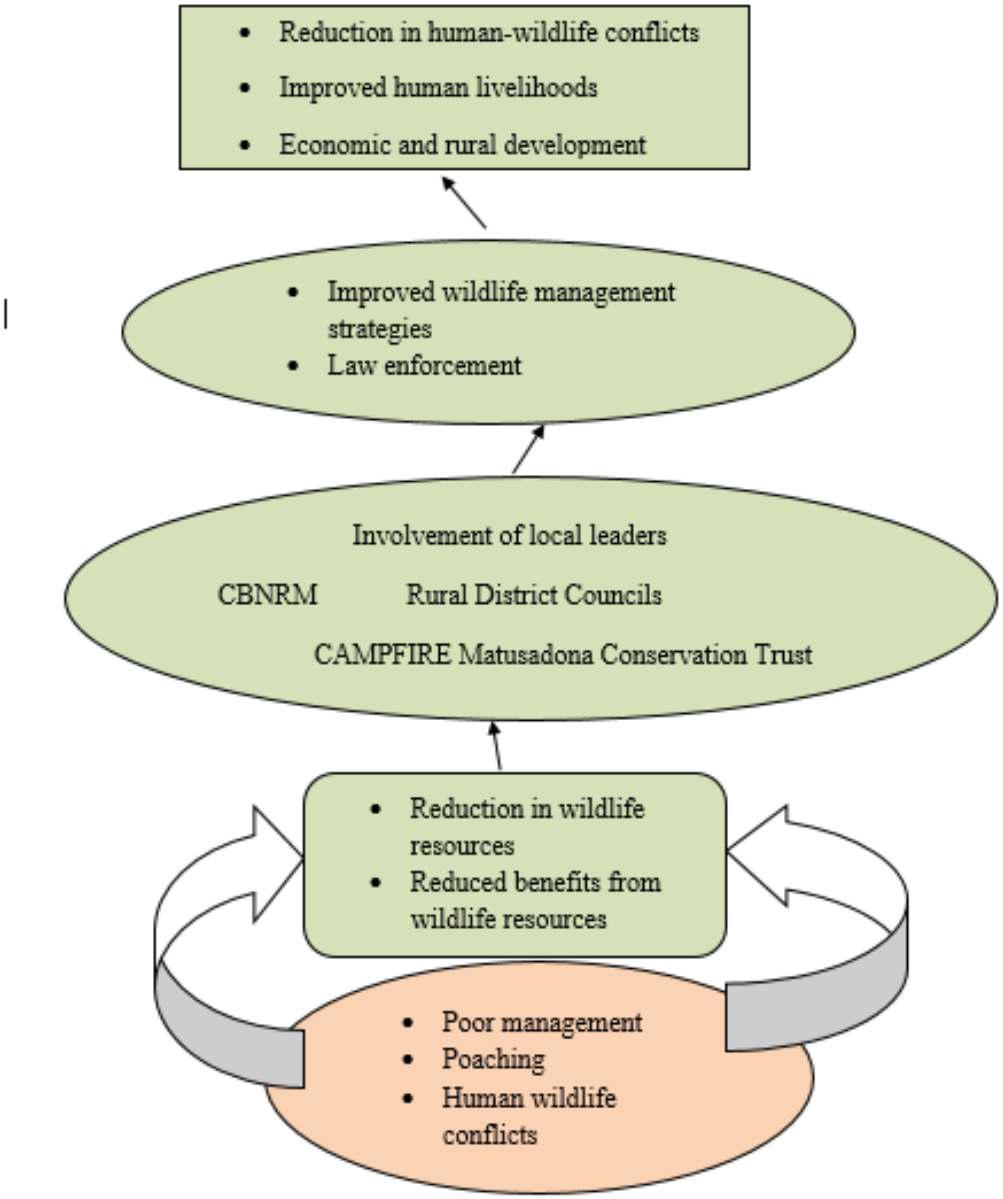

Fig 1.1: Conceptual Framework

1.7 Limitations of the study

The study was limited by COVID-19 pandemic which reduced accessibility of other areas due to traveling bans and curfew. This lengthened the study period. Geographical location also limited the study as it took a lot of time to familiarise with the area, Additionally, some participants failed to welcome enumerators citing political issues which were later cleared by

traditional leaders in the area. Lack of funding was one of the major limitations as some set targets were delayed due to travelling challenges.

1.8 Thesis outline

This thesis consists of 6 chapters.

Chapter 1 consists of the general introduction, objectives, hypothesis, and thesis structure.

Chapter 2 comprises literature review coveringwildlife contribution to people's livelihoods and economic development in Africa.

Chapter 3 presents themethodologies used to address all objectives.

Chapter 4 covers the results of the study.

Chapter 5 presents the discussion of results, comparing and contrasting with what other researchers obtained.

Chapter 6 consists of the conclusions and recommendations of the study.

Chapter 2: Literature Review

2.1 Introduction

Wildlife resources are among the major sources of human livelihoods and economic development in many African countries including Zimbabwe. The importance of wildlife in human livelihoods and country economies can be seen in Kenya, Zimbabwe, Botswana, South Africa, Namibia and Uganda (Barnett, 2000; Barnett and Robinson, 2000; Wunder et al., 2014a; Mashapa et al., 2014; Duguma et al., 2018; Mashapa, 2018). Resources obtained from wildlife have been greatly used to promote economic development in many rural communities (Chamber 2012; Scoones, 2015; Barker et al., 2018; Mashapa, 2018). Rural communities surrounding national parks and game reserves have been benefiting from wildlife resources over the past decades but these benefits lack valuation. Specifically, in Omay, a communal area adjacent to Matusadona National Park, there have been few studies focused on contribution of wildlife resources to human livelihoods

Increased population growth has led to food insecurity due to shortage of land for agriculture. This has increased dependence on wildlife resources as source of food (Agrawal et al., 2014). However, utilization of wildlife as a source of food has also created a huge risk on wildlife animal populations. This has led to challenges in the management of biodiversity in most African countries such as Zimbabwe, South Africa, Tanzania, Uganda, Zambia, Botswana, Tunisia and Ivory Coast. Bush meat utilization has increased in most rural communities and contributes immensely to human livelihood, food security and rural economies (Martin, 1983; Anadu et al., 1988; Anstey, 1991; Shackleton, 2005). Bush meat is a vital source of protein and an important source of income for rural population (Caspary, 1999). Bush meat utilization has been seen as primarily subsistence and commercial contributing more towards human livelihoods, income generation for large number of households in both rural and urban

population (Nasi et al., 2011; Golden et al., 2011). To maintain benefits and products from ecotourism there is need to educate local communities about sustainable resource management and utilization (Dhangi and Gribb, 2018). This may also help to empower local communities, facilitate rural development and help local people to know how ecotourism resources and products benefit them first.

2.2 Contribution of wildlife resources to human livelihoods and economic development

2.2.1 Contribution of wildlife to human livelihoods

Wildlife tourism involves consumptive and non-consumptive tourism such as game viewing and boat cruising which benefit human livelihoods directly and/or indirectly (Ashley and Barnes, 1996). Non-consumptive tourism activities such as viewing animals are guided by local people who are paid at the end of the day, and get income to buy food, pay bills. Non-consumptive use of wildlife has created employment opportunities for local communities who act as guides because they know the behaviour of wildlife animals and their movement (Taylor, 2006). Consumptive benefits include hunting and fishing where local people pay a certain fee and are given permission to hunt and do fishing, for example in Kariba, Lake Tanganyika, Tugwi-Mukosi, Kyle Dam and other national parks in South Africa (Golden et al., 2011). Fees paid by tourists can be used to improve rural development.

Wildlife contributes to human livelihoods in various dimensions, and this has the capacity to reduce poverty, and improve human health and nutrition. Wildlife also generates income for several people across Africa and creates employment opportunities for both educated and non-educated people. Wildlife resources provide tourism in various ways to people and this

benefits both local communities and the country at large. Proceeds from selling of wildlife resources also contribute towards infrastructure development in many areas where wildlife resources are found (Gandiwa et al., 2013; Martins and Shackleton, 2022). These proceeds can be used for the management of wildlife resources to ensure continuity of benefits.

2.2.2 Food

People obtain bush meat from wild animals and this is a good source of protein. Wild animals also provide leather used as raw material in shoe and clothing industries. Meat is used for feeding people as well as generating income after selling. Consumption of bush meat reduces risks of kwashiorkor to children less than five years, improve protein content and boost human immune system. Wild food contributes to food security in many direct ways (Hickey et al. 2016; Rasmussen et al. 2017). People living near wildlife habitats such as forests, rivers, game parks and national parks have access to a wide range of resources such as fish, wild fruits, bush-meat, snails, honey and resins (Powel et al. 2015; Pingali et al. 2015; Rasmussen et al. 2016, 2017). Bush meat and fish are among the most extracted resources from wildlife by approximately 90% of the population living near rivers, forests and game parks (Golden et al., 2011). Shackleton et al. (2002) also reported that 91 % of populations living near forests extracts wild herbs and wild fruits as sources of livelihoods in South Africa. This is also similar to reports from Congo Basin where rural communities consume more wild meat on daily basis as their major protein source compared to meat from domesticated animals and consumption of bush meat by urban households (Pangau-Adam et al. 2012; Ingram et al. 2012; Van-Vliet et al. 2015). However, bushush meat harvesting may contribute to reduction of wildlife resources if not done in a sustainable way.

Wildlife contributes more on nutrition for example nutrient sources such as zinc, iron, proteins, vitamin C and E (Powell et al. 2013a, Powell et al., 2013b; FAO 2014; Fungo et al. 2015; Rasmussen et al. 2017). In the Congo Basin five to six million tons of bush meat were harvested and contributed to approximately 80 % of proteins and fats (Nasi et al. 2011). This was also observed in Madagascar where consumption of bush mean reduces chances of anemia and a decrease in its consumption increases outbreak of anemia by 29 % (Golden et al. 2011) (Table 2.1).

People also collect edible fruits such as *Sclerocarya birrea*, *Tamarindus indica*, *Ziziphus mauritiana* and *Invirgina gabonensis* which are used to extract juices, fruit cakes and butter (Leakey et al., 2005; Chidumayo and Gumbo, 2010; Leakey, 2017; Kupurai et al., 2021). These fruit trees are regarded as underutilised trees but can contribute significantly towards human livelihoods (Maroyi, 2013; Kugedera, 2016). Most of woody vegetation have a contributory effect towards livelihoods as people benefit in terms of fruits, medicine to cure several ailments, source of edible juice, source of edible worms and resins, tannins and honey (Chidumayo and Gumbo, 2010; Agrawal et al., 2013, Rasmussen et al., 2017; Mashapa, 2018; Kupurai et al., 2021). People can also sell these resources to generate income.

Table 2.1: Contribution of wildlife towards food resources

Wildlife resource	Country	Reference
Bush meat	Congo Basin, Madagascar, Zimbabwe, Tanzania, Kenya, Zambia, Namibia and Botswana	Nasi et al. 2011; Golden et al. 2011 Rasmussen et al. 2016; Mhuriro-Mashapa et al. 2018; Matseketsa et al. 2018; Tchakatumba et al. 2019; Kupurai et al. 2021
Fish	Zimbabwe, Congo basin	Nasi et al. 2011; Golden et al., 2011
Edible fruits	Zimbabwe, Kenya, Botswana, Namibia, Mozambique	Akinnifesi et al. 2008; Chidumayo and Gumbo 2010; Mashapa et al. 2014; Khatri et al. 2017; Mashapa et al. 2019; Omotayo and Aremu 2020; Kupurai et al. 2021; Martins and Shackleton 2022
Honey, medicines,	Namibia, Congo Basin, Madagascar, Zimbabwe	Nasi et al., 2011; Golden et al. 2011; Vinceti et al. 2013; Mashapa et al. 2014; Mhuriro-Mashapa et al. 2017; Mashapa et al. 2019
Juice, alcoholic beverages	Zimbabwe, Zambia, South Africa, Kenya, Namibia, Angola	Shackleton et al. 2011; Chidumayo and Gumbo 2010; Golden et al. 2011; Kugedera 2019; Martins and Shackleton 2022
Edible worms	Zimbabwe, Botswana, Zambia, South Africa	Shackleton et al. 2011; Mutanga et al. 2015; Kupurai et al. 2021
Vegetable	Zimbabwe, Uganda, Tanzania, South Africa, Namibia, Ghana	Manu and Kuuder, 2017; Chidumayo and Gumbo 2010; Kupurai et al. 2021

2.2.3 Income generation from wildlife resources

Local people also sell their traditional products such as dried indigenous vegetables, African chewing gum (*Azanza gackeana*), baobab (*Adansonia digitata*) and sorghum (*Sorghum bicolor*) juice to tourists in order to generate income. Income generated is used to meet household demands, improve their food availability and other basic needs. This has also been reported in Namibia where local people generate income after selling traditional products

such as food, carvings and other products to tourists (Ashley and Barnes, 1996). This improves food security and human livelihoods. Musikavanhu people near Save Conservancy sell their products to tourists and generate income (Taylor, 2009; Mashapa et al., 2018). Similar cases were reported in countries like Kenya, Uganda, Botswana, Senegal and Rwanda where local communities benefited tremendously from selling their products to tourists (Golden et al., 2011; Harrison, 2015). Fishing is one of the major income generating activitiesthatbenefit livelihoods of many people living near dams and lakes in Zimbabwe, Kenya, Zambia and Tanzania. In Zimbabwe the Kapenta fishing in Kariba improved livelihoods of many people. It generates income used to improve food security and meeting daily food requirements.

2.2.4 Infrastructure development

Wildlife contributes a good portion to economic development of many African countries including Zimbabwe, Namibia, Kenya, Botswana and Congo Basin (Nasi et al. 2011; Powell et al., 2011; Mashapa et al. 2019). Much of the economic benefits are derived from wildlife harvesting, hunting, trade of game meat and wildlife tourism (van Schalkwyk et al. 2010). This has led to infrastructure development such as the construction of Mushandike College of Wildlife in Zimbabwe. Revenue from wildlife has been used for construction of schools, clinics, roads, shopping centres and renovations of schools in Zimbabwe (Matseketsa et al. 2018; Mashapa et al. 2019). Revenue collected from wildlife boosts the economy in many countries and is used to develop local areas where wildlife is being managed, for example, the development of Kariba Hotel, Victoria Falls International Airport and many infrastructure in several countries like Congo Basin, Namibia, Kenya, Botswana and Tanzania (van Schalkwyk et al. 2010; Agrawal et al. 2014; Pingali et al. 2015). In Uganda, wildlife resources contribute to infrastructure development and revenue through tax collections (Table

2.2). This is also similar to Kariba town in Zimbabwe which benefited from wildlife tourism through infrastructure development (Zvikonyaukwa et al., 2022). In Kenya most hotels are found in Wildlife Tourism centres (Okello and Kioko, 2010; Zvikonyaukwa et al., 2022).Thus, wildlife tourism has a potential of improving national economies and create employment for local communities.

Areas where wildlife resources are mainly found are located in rural areas which are poorer than urban areas. Thiscreates an opportunity for rural economic development through infrastructure development. Most rural areas in many countries where wildlife resources are kept have been now developed to meet international standards for tourists (FAO 2010). This has led to construction of clinics, hotels, good business centres and well tarred roads for example Binga in Zimbabwe is a remote area but is well developed due to wildlife (Table 2.2). Many organisations such as CAMPFIRE come in and develop the area (Matseketsa et al. 2018; Tchakatumba et al. 2019). In Zimbabwe CAMPFIRE helped remote areas such as Chipinge, Chiredzi and Beitbridge where clinics, schools, roads and boreholes were renovated. A lot of new clinics and boreholes were also established in the lowveld of Zimbabwe near Gonarezhou National Park (Fakarayi et al., 2015; Reid 2016; Machena et al. 2017; Tchakatumba et al. 2019; Mashapa et al., 2019).). Local people were also employed in national parks. This improvestheir standard of living and reduces poverty. Other new developments witnessed in these areas included construction of state-of-the-arthouses, and drilling boreholes and set up irrigations in their fields.

Table 2.2: Contribution of wildlife to economic development in Africa

Economic development	Countries	Reference
Schools	Zimbabwe, Uganda, Namibia, Tanzania, Kenya	Muchapondwa et al. 2008; van Schalkwyk et al. 2010; Okello 2015; Matseketsa et al. 2018; OECD 2018; Tchakatumba et al. 2019
Clinics, Hospital	Zimbabwe, Kenya, Uganda	FAO 2010; Okello 2015; Mashapa et al. 2019
Bridges, roads	Zimbabwe, Uganda, Congo Basin, Madagascar	Nasi et al. 2011; Golden et al. 2011; Tchakatumba et al. 2019
Hotels	Zimbabwe, Kenya, Uganda	FAO 2010; Okello 2015; Jesse et al. 2019
Revenue	Namibia, Uganda, Tanzania	Nelson 2004; FAO 2010; van Schalkwyk et al. 2010

2.2.5 Trade and revenue generation

Trade and use of wildlife resources such as non-timber forest products (NTFPs) havebecome pivotal in income generation for rural poor communities across the world (Fedele et al., 2021; Kupurai et al., 2021; Martins and Shackleton, 2022; Shackleton and de Vos, 2022). Reports by Fedele et al. (2021) and Shackleton and de Vos (2022) indicated that about 5.6 billion people trade or use non-timber forest products (NTFPs) globally, and 1.2 billion people depend highly on these products for income generation. The level of income generated from NTFPs varies from country to country and region to region (Martins and Shackleton, 2022) and income from these resources contributes more on household income in Africa, Asia and Latin America. Contribution of NTFPs on income generation is mainly influenced by household characteristics and access to markets (Fedele et al., 2021). A case of palm trading in Mozambique (Martins and Shackleton, 2022), marula juice trading in South Africa and Zimbabwe (Shackleton and Shackleton, 2005; Kugedera, 2016) and other wild edible fruits across Africa (Chidumayo and Gumbo, 2010) contributed towards income generation for rural poor people in several regions across Africa, Asia and Latin America.

Income generation from NTFPs has been similar in countries like Uganda where viewing of gorillas increased revenue from US$113 million to US$400 million in 2007 (FAO 2010). This boosted economic development in Uganda where the money was channelled for community projects which like construction of clinics, schools, community centres, bridges, roads, maize mills and water projects for local people to start irrigation (FAO 2010). Utilization of resources has also contributed to wildlife conservation and improved livelihoods of many people in Uganda. Similarly in Zimbabwe, local communities benefited from income generated from trading of wildlife resources by CAMPFIRE projects (Gandiwa et al., 2014). Reports from South Africa and Namibia show that utilization of wildlife resource such as trophy hunting generatedUS$16 746 157, live game sales (US$757 816), wildlife viewing (US$14 308 426) and plant products (US$1 144 674). Most of the money generated waschannelled to the development of rural areas where wildlife resources are kept to improve the standards and lure many tourists (van Schalkwyk et al. 2010). Same scenario was also reported from Uganda where approximately US$4 billion was channelled towards poverty reduction in rural communities (Okello, 2015).

2.2.6 Tourism and employment

Trophy hunting is when tourists pay to hunt with the objective of selecting animals with desirable traits such as large horns, body size and skull length for their preferred use (Muposhi et al., 2016b). Tourists are accompanied by professional hunting guides who help them with information about animals and the area. Trophy hunting contributes immensely towards human livelihoods, economies of many countries and rural development if well managed. This is becausethe tourists pay huge sums of money in foreign currency (Jenks et al., 2002; Leader-Williams et al., 2005; Damm, 2015; Muposhi et al., 2016a, 2016b; Nordbø

et al., 2018). Benefits enjoyed through integrated conservation of wildlife are important as they help coming up with development projects such as construction of schools, clinics, road networks and incentivizing rural communities (Frost and Bond, 2008; Gandiwa, 2013a, 2013b; Muposhi et al., 2016b). Trophy hunting has the capacity to improve wildlife conservation and protection by many African countries as this brings in a lot of money, rural development through infrastructure construction (Muposhi et al., 2016b; Neleman and de Castro, 2016), and creation of community-basedwildlife management (CBWM) groups which improves management of wildlife and human livelihoods. Trophy hunting in Zimbabwe offers incentives for the conservation of wildlife, protection of habitats and rural development through organisations such as CAMPFIRE (Williams, 2011; Gandiwa et al., 2011; Gandiwa, 2013b; Zisadza-Gandiwa et al., 2014; Muposhi et al., 2016b). Trophy hunting in marginalized areas of Zimbabwe has been reported to contribute approximately 89.5% of total revenue generated, making it the most viable land use (Lindsey et al., 2006; Muposhi et al., 2014; Muposhi et al., 2016b) in areas such as Chiredzi, Malilangwe, Chizarira, Mana Pools and Matusadonha National Park.

Despite several authors reporting declines in wild animals in many African countries (Child, 2004; Wolmer et al., 2004; Lindsey et al., 2006; Frost and Bond, 2008; Craigie et al., 2010; Bouchè et al., 2011; Gandiwa, 2013a, 2013b; Gandiwa et al., 2014; Muboko et al., 2014; Muboko et al., 2016; Muposhi et al., 2016b), trophy hunting in Zimbabwe improved conservation of wild animals such as the African Elephant (*Loxodonta Africana*). The major cause of decline in populations of these species is mainly drought, climate change, illegal hunting, bush meat trading and overharvesting. Enforcement of law may promote trophy hunting which has a positive effect towards economic growth and rural development in African countries. Private areas such as Save Conservancy benefit a lot from trophy hunting

through rates and other hidden revenues. These sites also create employment, thus helping local communities and improving human livelihoods, government revenue through tax and income generation through establishment of bush meat business centres along main roads in Zimbabwe. However, the land reform programme in Zimbabwe caused habitat loss and land fragmentation affecting benefits from activities like trophy hunting in Zimbabwe. Trophy hunting faced threats of ban in Africa as a result of wildlife animal population decline due to poaching, overharvesting, illegal trade and drought (Gandiwa, 2013; Muposhi et al., 2016b). For countries to continue enjoying these benefits there is need to come up with laws and regulation in the management of wildlife resources in African countries.

2.3 Ecotourism and its contribution to rural development

Ecotourism has a contributory effect towards human livelihoods and economic growth (Sharpley, 2006). It has been viewed a significant driver of livelihoods,rural development and economic progress in many countries with tourism zones. However, it issometimes viewed as socio-economic development dilemma (Donohoe and Needham, 2006; Mutiono, 2020; Cahyadi and Newsome, 2021; Jaya et al., 2022). Ecotourism is one of key drivers of sustainable community development in several countries (Nugroho et al., 2021; Nguyen et al., 2022), supporting rural communities and their livelihoods. Ecotourism can support the growth of rural development industries where people can generate income and improve their livelihoods without depending much on national budget (Mondino and Beery, 2018; Jaya et al., 2022). A good example is in Tsholotsho District in Zimbabwe where ecotourism has been as major driver of economic growth in the district which transform to better rural development programmes where local communities benefited (Zingi et al., 2022). Local people benefited through project development which non-governmental organisations supported, empowering local people to generate income and improve their livelihoods.

In Indonesia, ecotourism helped in rural conflict resolution with intervention of local government through rural district council where people were trained in proper management and utilization of resources (Jaya et al., 2022). Besides improving livelihoods of people, ecotourism also helps to lure investments from other countries that end up creating employment opportunities, and improving infrastructure such as rehabilitation of roads, clinics and schools (Campell, 1999). In the southeastern part of Zimbabwe where Gonarezhou National Park is located, ecotourism contributes to the development of rural growth points with several people managing to build well planned houses, state of the art training institution (e.g. Rupangwana Training Centre) which attracts several organisations and companies to hold their trainings and meetings bringing in income to the department. This has also facilitated easy networking between Zimbabwe and Mozambique due to tarred roads which bring in volumes of transport. Local people are benefiting largely through selling of their traditional products to people who converge at the training centre.

2.4 Other contributions of wildlife to local communities

Local people have the capacity to benefit from programmes such as CAMPFIRE which support local community projects in many African countries where wildlife is managed. People benefit through road network developments which link the villages and trade centres (Haule et al., 2002; FAO, 2011; Lindsey et al., 2011). Local people benefit from development projects in their villages and wild meat quotas set for their communities. This improves human livelihoods as local people will be employed in development projects such as road construction, business establishment and construction of health care centres. These resources will be left in the community benefiting local people even if wildlife population decline to a level of not attracting tourists. Activities such as game viewing and safari hunting may benefit local communities with revenues provided by tourists as tourist fees, employment and

market of local products which seem to be delicious to tourists (Mayaka et al., 2005; Lindsey et al., 2013; Mukanjari et al., 2013). Although in countries like Cameroon, local communities are given little share (e.g. 3% of revenue from safari hunting) (Makaya et al., 2005), people enjoy this as it improves their livelihoods than getting nothing. However, giving local communities little revenue may promote local people to engage in poaching or support poaching as they will get cheap meat, get rid of problem animals which destroy their crops and cause loss of lives. There is need for government to support community-basedwildlife management (CBWM) where communities control and manage the resources, getting more revenue and conserve wildlife (Mukanjari et al., 2013; Redpath et al., 2013). This may create a win-win situation where both government and local communities benefit from wildlife resources.

2.5 Way forward

Adoption of community based ecotourism management can be a better option for organisations and companies involved in ecotourism activities (Clifton and Benson, 2006). This will allow local communities to take part in the management of resources, its utilization and accountability of resources to safeguard ecotourism (Rhama and Kusumasari, 2022). Local authorities must also be included in the operation of ecotourism activities and draft rules and regulations which allow local communities to get first preferences in employment, revenue disbursement and other activities such as infrastructure development (Kia, 2021). Traditional leaders, political and other respected people in communities need to be included in the management or in boards which manage ecotourism activities.

2.6 Conclusion

The contribution of wildlife to human livelihoods and economic development has been explored in this chapter. Wildlife contributes towards human livelihoods directly and indirectly depending on the products extracted from wildlife. Bush meat is regarded as the major contributor towards human livelihoods in many countries such as Congo Basin, Madagascar, Namibia, Botswana, Tanzania, Uganda and Zimbabwe among others. However, bush meat trading need to be managed sustainably to reduce extinction of wildlife animals. Many people are involved in hunting of wildlife be it fish, wild animals and birds to gather bush meat for human consumption, income generation and as source of proteins. Apart from the consumptive benefits, people also benefit non consumptive such as game viewing, employment and ecotourism which creates opportunities for local communities to sell their commodities to tourists generating income for their livelihood use.

Apart from consumptive and non-consumptive benefits, wildlife has the capacity to improve economic growth of many countries in Africa through infrastructure development such as schools, clinics, roads, hotels and tourism business. There are countries like Congo Basin which benefited a lot from wildlife in their economy through setting up of town as a result of wildlife. This is similar in Zimbabwe where areas like Kariba, Hwange and Hurungwe benefited immensely in their growth as a result of wildlife tourism, trophy hunting and game viewing. Apart from all these benefits, in some countries like Zimbabwe, wildlife benefits declined from 2000 due to land redistribution programme which facilitated habitat loss, land fragmentation and poor management of wildlife resources. In east, west and central African countries, contribution of wildlife declined due to drought, climate change, illegal hunting and illegal trade of wildlife products which caused ban of trade. For countries to continue

enjoy contributions from wildlife, there is need to enforce laws which lead to conservation and protection of wildlife and their habitats.

Chapter 3: Materials and methods

3.1 Study Area

The study was conducted in Omay Communal Area, adjacent to Matusadona National Park in north-eastern Zimbabwe's (16°19'60" S and 29°0'0" E). It has a semi-arid climate and rises from Lake Kariba at an altitude of between 485 and 600 metres above sea level. Matusadona National Park experiences three distinctive seasons, including a cool, dry winter and a hot, dry period that precedes summer rains. According to Mugandani et al. (2012), the region experiences mean annual rainfall that ranges from 400 to 800 mm. The rainiest months are November through March, with little to no rain falling in April.Fig 3.1 shows the location of study area.

A 1470 km^2 ecologically diverse landscape in the Zambezian biome, Matusadona National Park has the potential to be used for both wildlife management and tourism. The park is bordered by the Ume River on the west and the Sanyati River on the east. Its northern boundary is marked by high hills that rise to a height of about 700 metres along the shores of Lake Kariba. Mixed woodlands and scrublands cover the plateaus, plains, and escarpment's ridges, slopes, and ridgelines in Matusadona National Park. Along the length of the shoreline, forests are partially submerged by the lake. More than 240 different bird species, significant woodlands, and wildlife including elephants, lions, and buffalos can be found in Matusadona National Park.Localities like Changachireri, Tashinga, Sanyati Camp and some urban areas were also included to get their views since most of the people are from communities

surrounding the national park. Communal areas were the main base for this study.Tashinga Camp, located on the lakeshore east of the Ume River, makes up the park. The areas were chosen based on (i) the presence of communities that are aware of the CAMPFIRE and CBNRM programmes, (ii) the presence of a protected wildlife resources management area with a variety of wildlife resources, including big wild animals, (iii) the area's involvement in a land reform programme, which has had an impact on the area, and (iv) the presence of numerous big wild animals, such as elephants.

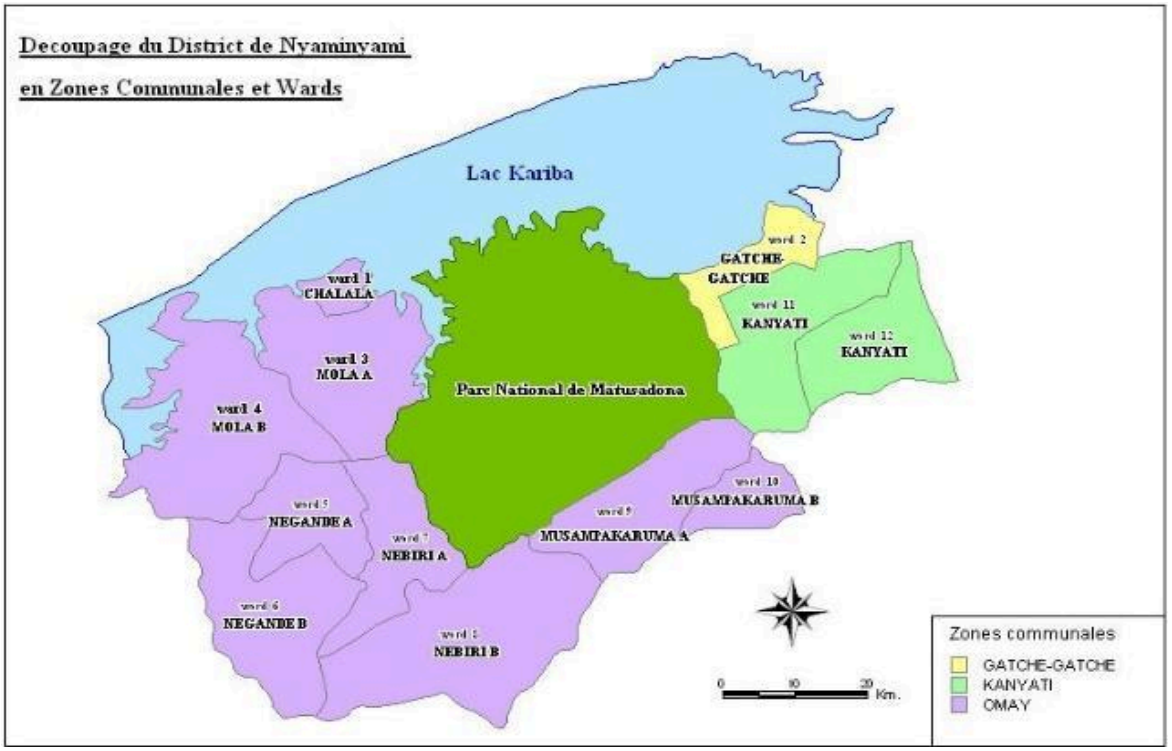

Fig 3.1: Location of Omay Communal Areas

3.2 Strategy of inquiry

Application for the ethical clearance permit was madeto Great Zimbabwe University. Permission was sought from Zimbabwe Parks and Wildlife Management Authority (ZPWMA) since Matusadona National park is under their jurisdiction. Permission was also granted from local district councils and local community leaders to carry out research in their

areas. Traditional leaders and political leaders (ward councillors) were also consulted for sampling boundaries and data collection. After being granted the permission sampling and data collection was done.

3.3 Sampling procedure, sample size and data collection

The study used both quantitative and qualitative research design to collect data as indicated by Zingi et al. (2022) and Martin and Shackleton (2022). Ground truthing was done by moving around study areas to verify on indicated benefits. Questionnaires and interviews were used to generate an in-depth insight into contribution of wildlife resources to human livelihoods and economic development, and assessing challenges faced in managing wildlife in Zimbabwe. Focus group discussions were also used to collect data from participants. Structured questionnaires were used to collect data for objective 1. Data for objective 2 was collected using interviews, focus group discussions, primary and secondary datasources. Data on objective 3 was collected using focus group discussions and interviews. The case study methodology was adopted to examine the role played by ecotourism in a practical setting (Wu and Chen, 2018).

3.3.1 Data collection methods and instruments

Semi-structured interviews with both structured and open-ended questions were used in the study. To improve accuracy, face-to-face interviews were conducted. When participants were not present, mobile cell phone interviews were conducted, and later, home visits were used to reinforce this. Data was gathered by a team of four skilled enumerators between 10 May and 17 July 2021. Additionally, information was gathered in May 2022 to improve estimates of economic growth following the conclusion of some ongoing projects. Along with

Environmental Management Agency (EMA) and Agritex Officers, seven male traditional leaders from theneighbourhoodserved as key informants.

Primary and secondary data were gathered for the study using a variety of tools from local governments and national park authorities. Forty key informants, comprising community-based conservation leaders, businesspeople, and experts in wildlife conservation were among the 100 people randomly chosen and interviewed for the primary data collection. The sample of 100 represents 40 % of 250 households obtained from ward councillor. During interviews, the snowballing approach to sampling was employed. Between May and November 2021, key informants were the subjects of structured questionnaires that were administered using a purposeful sampling technique.

The demographic information of participants, economic growth indicators, the influence of ecotourism to all forms of development, and participant perceptions of ecotourism's contributions were all collected. The heads of households were questioned. During interview time, a household head was defined as the oldest person (age 21) at the homestead. Up until a certain point of data saturation, interviews were conducted. Four communities near Matusadona National Park provided information. Thus, the sample sizes for Negande (n=20), Musampakaruma (n=25), Gache-Gache (n=25), and Mola-Kasvisva (n=30) were determined using data saturation.

3.3.2 Economic developments offered by utilization of wildlife resources

Through the Kariba Rural District Council members (Councillors of the wards surrounding Matusadonha National Park), the purposes of the study were presented to community leaders. Permission was granted to meet community leaders and the people at large. Seven focus group discussions with 20 participants each were also used to collect data on contribution of wildlife resource utilization on economic development. Cluster sampling was done to put

members into their clusters according to villages and wads. Stratified sampling was used to group community members by age where five age categories (16-25; 26-35; 36-45; 46-55; ≥56) was used. Random sampling was done to pick 20 participants in each age range to make sure all age groups are equally represented. A list of participants was collected from local councillor and were grouped according to their ages, random numbers were generated from a calculator to pick participant with the number produced randomly until 20 participants were reached.

Primary evidence was used to identify the developments brought by the utilization of wildlife resources over a period of 20 years and period before land reform and after land reform programme which causes a change in land use. Key informant interviews were used to gather information about economic developments brought in the communities and Zimbabwe at large through utilization of wildlife resources.

3.3.3 Challenges faced in the management of wildlife resources

To collect information about the challenges faced in the management of wildlife resources, key informants were interviewed using personal interviews, focus group discussion and direct observation where there is a need. Management of Matusadonha National Park were interviewed individually. Secondary data was used also to collect data on challenges faced in the management of wildlife resources in these two sites. Data collection was also done to find out sustainable management practices which can be adopted to curb the challenges. Key informants were the main target although local people were also interviewed. Focus group discussions were done using participatory method to come up with sustainable management methods. More information is detailed on respective chapters.

The study dominantly used a qualitative research design, which is informed by the interpretative paradigm of research (Creswell, 2014). The qualitative methodology allowed understanding of multiple realities experienced by the National Parks and Wildlife authorities and those of the communities. Furthermore, the study required in-depth understanding of the phenomena hence qualitative methodology was selected.

This objective used multiple case selected for their experience to understand wildlife management benefits and costs (conflicts) experienced by both rural and urban communities located adjacent to Matusadonha Game Park. The case studies were drawn from the geographical and social spaces (Creswell, 2014) of Nyamhunga, Mahombekombe, Siakobvu and Mola-Kasvisva. These areas were purposively sampled considering that they form part of the hinterland to the game park. The case study represents the district populations since two are rural and the other two urban settlements. Transects cutting across the residential units in each case study were drawn on maps and located on the ground. Study participants were drawn from the vicinity of the transect line drawn on the map. The study utilized a cross-sectional survey, using semi-structured interviews.

The semi-structured interviews comprised open ended and structured questions. This process gathered data on the following variables; challenges associated with the management of wildlife, benefits derived at a household and community levels, and causes of human-wildlife conflicts. Household heads were the participants to the survey. In the household surveys, the household head was defined as male or female parent responsible for the upkeep of the family either through productive or reproductive functions. The interviews continued until there was a data saturation point. There are 350 households total in the area. The data saturation strategy was adopted todefine the sample size, which were Nyamhunga (n=20), Mahombekombe (n=25), Siakobvu (n=25), and Mola-Kasvisva (n=30). The purposive sampling approach was used to select respondents. The following inclusion criteria was used,

one had to have stayed in the study site for more than 15 years; household head, and not employed by parks or tourism company. Key informant interviews were conducted with park rangers at different levels (n=5), the Environmental Management Agency (EMA) (n=1) and local leadership (n=4).

3.4 Data analysis

Collected data on contribution of ecotourism on economic growth and rural development was processed using 5- point Likert scale (agree, strongly agree, neutral, disagree and strongly disagree) to assess the perceptions of participants on contribution of ecotourism on 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 was converted into percentages and presented in tables and bar graphs using Microsoft Excel. Collected data on economic growth indicators was subject to Analysis of Variance (ANOVA) using IBM SPSS version 25.

Thematic analysis was used to analyse the data on challenges for sustainable management of wildlife resources. The responses were cleaned and coded using numerical values to represent a group of similar responses (themes). The data was broken down to allow coding. The data was then synthesized creating categories and patterns were established. Categorisation assisted the researchers to make comparisons and contrasts between patterns for the four case studies. Coded data was presented in charts and tables, while string data was presented using paraphrased statements and direct citations. For the coded data, descriptive statistics using a computer package, Microsoft-excel was done. A Likert scale was used to determine the level of community benefits derived from the game reserves. The scale was out of three and the data was presented in a tabular form.

Collected data on economic developments offered by utilization of wildlife resources was converted into percentages and graphs were produced using Microsoft Excel. Data was also processed using 5- point Likert scale (agree, strongly agree, neutral, disagree and strongly disagree) to assess the perceptions of participants on contribution of wildlife resources on economic development. These perceptions were also tested using IBM SPSS 25 to determine significance differences between study sites.

Chapter 4: RESULTS

4.1 The economic contribution of ecotourism and wildlife resources

4.1.1 Respondents' Demographic data

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 majority attained secondary education. Participants who attained secondary education show dominance in answering question. 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 4.1). The participants were from different ethnic groups who at times take time to respond from the interviews. The majority of participants were in economically active group who are able to support themselves and small population (24.9 %) represented those above 50 years of age.

Table 4.1: Demographic information 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

4.1.2 Activities associated with ecotourism

Trophy hunting, game viewing, safari operations, and rural tourism were some of the ecotourism pursuits available in Matusadonha National Park (Fig. 4.1). In Matusadona National Park, safari operations account for the majority of ecotourism (54.7%), followed by game viewing, trophy hunting, and rural tourism. At Changachireri Camp, where local fishing and hunting are practiced, safari operations are frequent. At Tashinga and Sanyati Camp, boat cruising is also typical. The Parks and Wildlife Management Authority of Zimbabwe grants permission to those who come for safari operations and rural tourism.

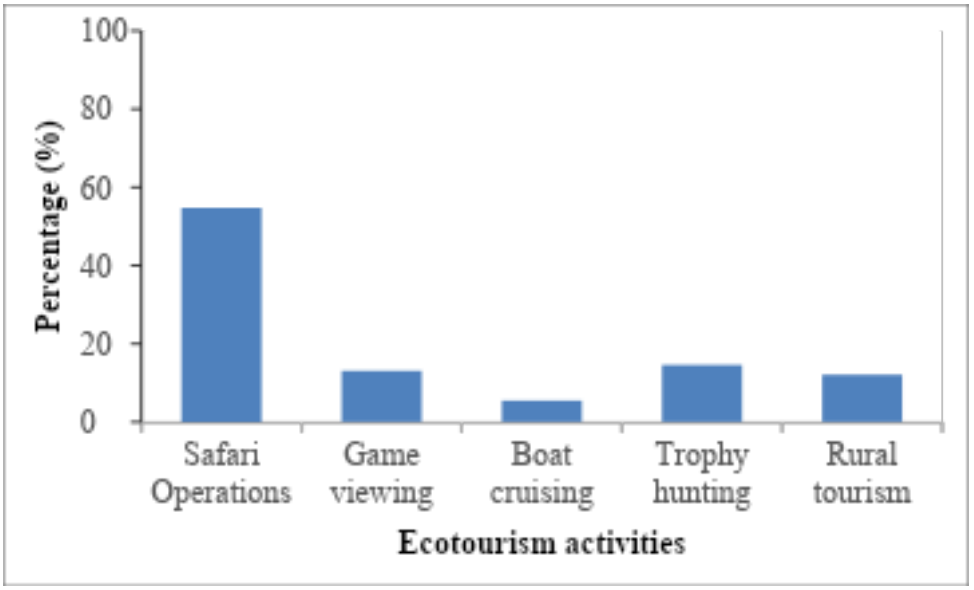

Fig 4.1: Ecotourism events in Matusadona National Parkindicated by key informants

4.1.3 The influence of ecotourism to economic growth

There are many ways that ecotourism has influenced economic growth, including both direct and indirect.This study found that, on average, 58.8% of participants thought ecotourism had helped local communities near Matusadonha National Park and elsewhere grow economically. Participants from the surrounding communities (n=56) overwhelmingly concur that Matusadonha National Park's resources make significant contributions to economic

development. The findings also indicate that Gache-gache participants' perceptions were significantly ($p < 0.05$) different from those of participants from other communities (Fig. 4.2). Communities near Matusadonha National Park generally hold the view that the use of wildlife resources has a significant impact on the economic development taking place in those communities.

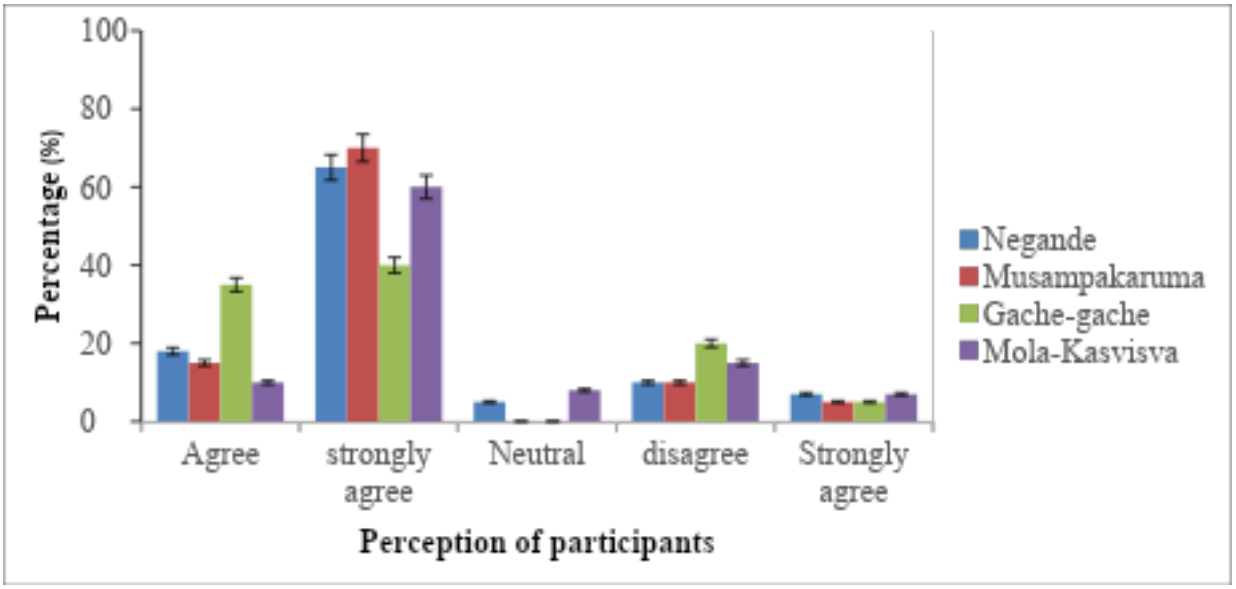

Fig 4.2: Influence of ecotourism on economic growth as perceived by participants.Vertical error bars indicate standard error.

4.1.4 Economic growth indicators

Indicators of economic growth in the study area were mentioned by participants. According to the majority of the participants (80%), the creation of jobs, particularly those that employ locals, is a sign of economic expansion when compared to previous years. For example, communities near Matusadonha National Park have more business owners, which has led to an increase in the number of shops at trading centres.About 75% of the participants indicated having experienced the same. With the exception of new businesses and food security, where

there were significant differences ($p>0.05$) between community members and key informants, there was no difference in opinion regarding the indicators of economic growth ($p>0.05$).

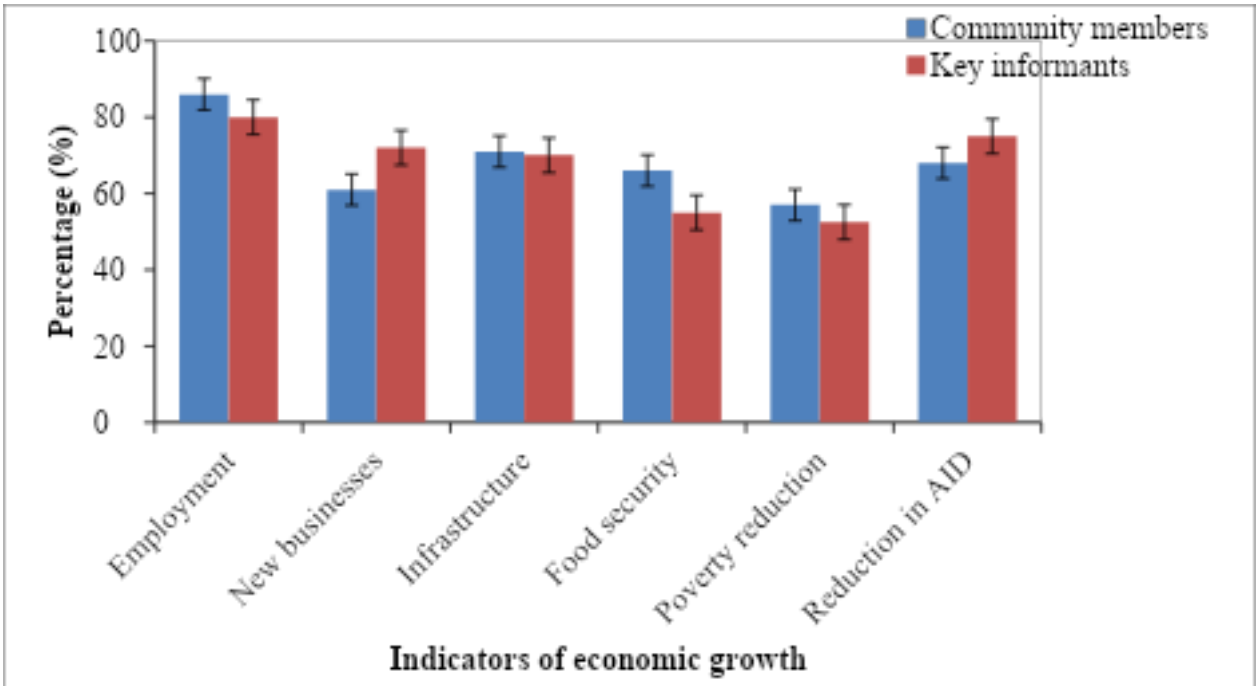

Fig 4.3: Ecotourism induced economic indicators. Vertical error bars indicaterepresent standard error.

4.1.5 Perceptions on employment

Results indicate that communities near Matusadonha Nation Park and CAMPFIRE have seen an increase in the number of locals employed by various operators (Table 4.2). Businesses engaged in rural tourism, safari operations, and game viewing typically employ more locals part-time than full-time. About 3 people from Musampakaruma and 2 people from Gache-Gache are employed by CAMPFIRE each year. From 2000 to 2022, Negande had the most part-time employees with 90 (Table 4.2). The majority of people were employed part-time by local business owners to market their goods to tourists. Some worked for safari operators, while others ran their own businesses selling handcrafted goods and local goods to

tourists. To increase the conservation of wildlife resources, local people were hired as security guards, tour guides, and part-time fence maintainers. Those who were employed full-time worked as ZIMPARKS officers and drivers, respectively.

Table 4.2: 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**

4.1.6 Contribution of ecotourism towards rural development

Utilising wildlife resources contributed 30% to rural development, with the majority of communities experiencing growth. Participants reported that, compared to previous years, there was a 505 improvement in the standard of living, with most families now able to afford to send their children to school. A standard house was constructed in every household, which

is a sign of rural development. 119 (85%) of the participants reported using better toilets, with the majority having a Blair toilet, tiled homes, and access to borehole water. The majority of participants (n=96) have solar panels that they purchased after reselling their wood, non-timber, and other wildlife-related resources.

Approximately90% of the respondents cited solar-powered water pumps and home electronics like televisions, radios, and refrigerators as examples of rural development brought on by wildlife resources. Participants also mentioned that the Rural District Council (RDC) received funds from the sale of wildlife resources, which they used to build bridges, grade rural roads, and otherwise improve the connectivity of rural roads. Participants were adamant about sharing more details when asked how ecotourism revenue was being used, with the exception of their opinions (Fig. 4.4). In general, 36.5% of respondents (n=51) and 32.5% of respondents (n=46) were satisfied with the contribution of ecotourism to rural development (Fig. 4.4). Despite indicating that some level of development had been noticed, 19% of all participants were dissatisfied with the contribution of ecotourism to rural development.

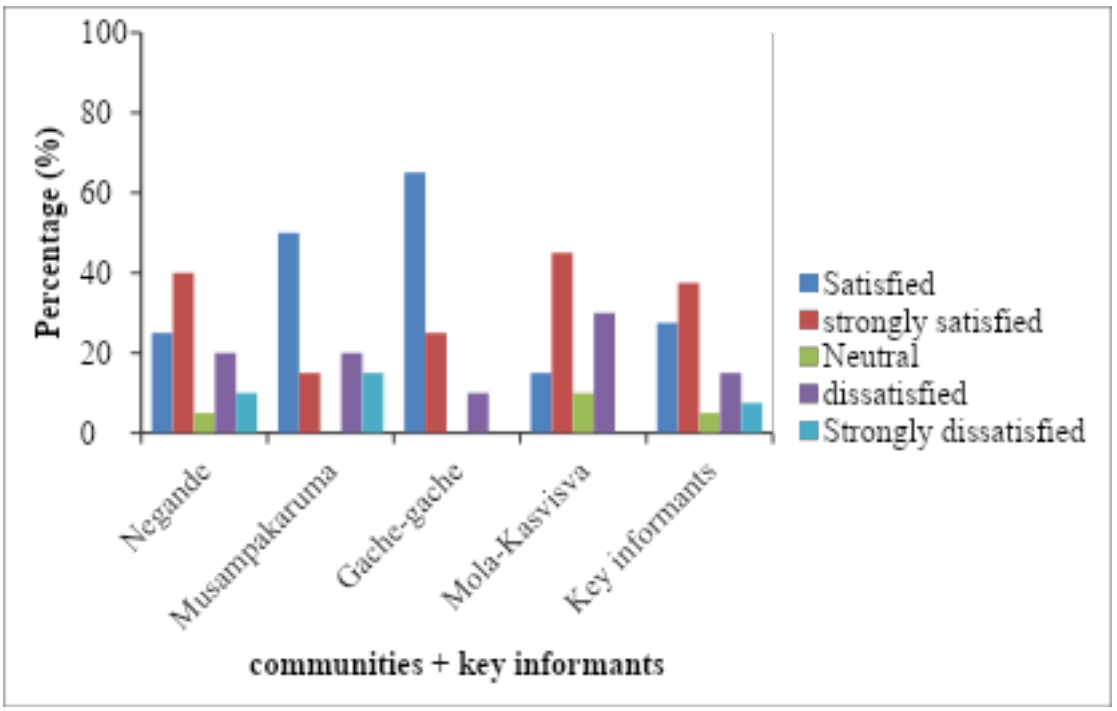

Fig 4.4: Satisfaction levels **on contribution of ecotourism to rural development** as perceived by local communities using Likert scale.

4.2 Economic developmentfrom wildlife resources and sustainable management practices

4.2.1 Economic development activities

Results show that the use of wildlife resources significantly aided in the economic growth of the areas surrounding Matusadonha National Park. The main economic development activities involved schools, which received funding for both the construction of new classroom buildings and the renovation of existing ones. In order to ensure universal education, textbooks and other essential resources were also given to schools. All participants (n=140) agreed that the improvement in economic development, particularly in the education sector, was very beneficial to schools (Table 4.3). None of the participants from Siakobvu indicate that money was reinvested after it was received from the use of wildlife resources

(Table 4.3). Participants also mentioned how favoritism was used to allocate plough-back funds, which led to conflicts between community members. Only 20 respondents (14.2%) indicated that wildlife resource use had a positive impact on rural electrification, and the majority (85.8%) said they had not benefited from funding for rural electrification.

The park primarily relies on locals for employment. Supporting access to proper health care, clinics and the creation of jobs were among the economic developments that more participants mentioned (Table 4.3). One of the communities that benefited the most from the use of wildlife resources and better economic developments, such as the drilling of boreholes to provide everyone with access to clean water, is Mola-Kasvisva (Table 4.3). The use of wildlife resources from Matusadonha National Park has, on average, contributed more than 50% to the economic growth of rural areas where most people now walk short distances to get water, go to the doctor, and send their kids to school.

Table 4.3: Economic development activities brought by utilization of wildlife resources in Omay communities

Economic development activities	Nyamhunga (n=20)	Mahombekombe (n=25)	Siakobvu (n=25)	Mola-Kasvisva (n=30)
Schools	20	25	25	30
Roads	17	14	22	10
Clinics	6	12	19	23
Bridges	6	0	14	11
Community programmes	19	4	13	17
Provide schools with resources	16	7	19	15
Building hotels and business centres	12	8	16	13
Plough back revenue to communities	1	7	0	4
Drilling boreholes	10	5	14	18
Employing local people	14	17	11	19
Rural electrification	5	9	4	2
Electrification of schools and clinics	10	7	19	1

4.2.2 Perceptions of local people on the effects of utilization of wildlife resources on economic development

Members of the community who were involved in focus group discussion show that their perceptions vary from results obtained through the use of interviews (Table 4.4). Out of 140 members, 42 (30%) had positive perceptions, indicating that utilization of wildlife resources contributed towards economic development especially improving nature of schools. More than half (51.4%) show that improvement of roads in communities surrounding Matusadonha National Park was the major economic development contributed from utilization of wildlife resources. However, some members were saying they developed roads to make easy communication with tourists and other important visitors who visit the National Park. Community members involved in focus group discussion show that contributions from utilization of wildlife resources towards developments of clinics was insignificant as indicated by 23 members who were supporting, 40 (28%) did not show up their ideas and 77 (55%) indicated that proceeds from Matusadonha National Park did not contribute in any means to development of clinics (Table 4.4).

Table 4.4: Perceptions of local people on the effects of utilization of wildlife resources on economic development from focus group discussions.

Economic Activities	Agree (%)	Strongly agree (%)	Neutral agreement (%)	Disagree (%)	Strongly disagree (%)
School construction and renovations	21 (15)	21 (15)	40(28.6)	38 (27.1)	20 (14.3)
Improvement of roads	36 (25.7)	36 (25.7)	35 (25)	22 (15.7)	11 (7.9)
Construction of clinics and support activities at clinics	19 (13.6)	4 (2.9)	40(28.6)	46 (32.9)	31 (22.1)
Construction and renovation of bridges	9 (6.4)	8 (5.7)	40 (28.6)	71 (50.7)	12 (8.6)

4.2.3 Sustainable management practices to ensure local people enjoy economic development benefits from utilization of wildlife resources

This study observed that community members were not happy with the pace at which their communities develop economically as a result of utilization of wildlife resources. Community members suggested several management practices which can be sustainable to ensure they enjoy the benefits (Table 4.5). Results from focus group discussion show that community members want setting up of community-based natural resources management (CBNRM) with 60 % of its leaders from the community to rationalize allocation of proceeds from utilization of wildlife resources. Community members were also wishing if the accounting systems of all activities made transparent to them and involve Rural District Council (RDC) in the accounting system because it is the one mandated to community development. Local employment was another sustainable management practice which community members were

raising since they have most of their children acquired degrees in Forestry and wildlife resources management, Bsc in Natural Resource Management and other having degrees in the commercial fields. This will allow transparency and benefit communities. Community members were also raising concerns on the issue of health improvement where they indicated that proceeds from utilization of wildlife resources must bechannelledtowards construction of hospital which will benefit most people.

Table 4.5: Sustainable management practices to improve economic development in Omay community using focus group discussion and individual interviews from mixed participants.

Sustainable management practice	Focus group discussion (%)	Interview (%)
Formation of CBNRM	110 (78.6)	62 (44.3)
Employing local people	92 (65.7)	130 (92.9)
Involving RDC	89 (63.6)	68 (48.6)
Making financial statement public to community members	120 (85.7)	0 (0%)
Auditing by external auditors	0 (0%)	88 (62.9)
Awarding community 20 % from every income for economic development	0(0%)	100 (71.4)

4.3 Exploring challenges for the sustainable management of wildlife resources in Matusadonha National Park and its hinterlands.

4.3.1 Institutional Dynamics of the Matusadona Game Park Management

The results show that land management systems were fragmented and this create problems in proper management of wildlife resources. It was reported that although these state departments had jurisdiction, they are usually not involved in day-to-daymanagement of the wildlife. DNPWM conducts regular patrols within and in the hinterlands to protect the parks

wildlife from poachers. On the other hands the lands under the rural areas are legally entrusted to the Nyaminyami Rural District Council (NRDC). It was reported by a local leader in an interview that DNPWM assists in training the scouts that are under NRDC. In an interview with another local leader, he reported that the community wildlife management systems were stronger when CAMPFIRE was effectively running as opposed to now due to lack of resources. Thus, ZPWMAmake rare patrols in the communal areas. A key informant from ZPWMA indicated that usually they attend to reports in the adjacent rural areas of poaching activities and problem animal control.

All the 100 participants identified two major challenges faced by wildlife management authorities, which are poaching and human-wildlife conflicts (Table 4.6). Results show no significant differences ($p>0.05$) among study sites on management of poaching and human-wildlife conflicts, with all other results showing significant differences ($p<0.05$) between study sites (Table 4.6). These two challenges had 100% responses in all the four study sites. In interviews with parks officials, the species targeted by commercial poachers are elephants, lions, leopards and buffaloes. It was also indicated that Rhinoceros were in danger but had been placed in protected areas where endangered species are kept. Other animal species of relatively lower value were mainly poached by communities for meat or traditional rituals.

There were a number of issues identified to be responsible for human-wildlife conflicts. Human-wildlife conflicts were identified as a cost by both officials from the department of National Parks and Wildlife Management and the community respondents. The rangers interviewed highlighted the high costs associated with maintaining the park boundary and the loss of wildlife biodiversity as major issue to the costs of human-wildlife conflicts. The community lamented the costs associated with crops, livestock killed and other property. For

example, at the time of the study a cow was estimated to be between US$350 and US$600, and communities usually responded by harming or killing the problem animals.

Table 4.6: Wildlife management challenges identified in structured interviews

Management Challenges Identified	Study Area			
	Nyamhunga	Mahombekombe	Siakobvu	Mola-Kasvisva
Poaching	20(100)[a]	25(100)[a]	25(100)[a]	30(100)[a]
Death of Wild Animals	20(100)[a]	18(72)[c]	22(88)[b]	19(63)[c]
Increasing Wildlife Population	17(85)[b]	12(48)[d]	19(76)[c]	16(53)[d]
Forage Shortages	10(50)[c]	22(88)[b]	17(68)[c]	26(87)[b]
Human-wildlife Conflicts	20(100)[a]	25(100)[a]	25(100)[a]	30(100)[a]

Superscripts similar in the same column show no significant differences at $p \leq 0.05$.

Table 4.7shows results of the suggestions made by the study participants from the four study areas on how to resolve wildlife management challenges experienced in the park and its hinterlands. The majority of the study participants, 79% suggested that it was important to educate communities on the importance of the game reserve. Although the majority of the respondents 73% suggested that the game scouts should be increased, rural communities had lower proportions of participants supporting the idea (60%) as compared to urban participants (90%). The majority of the study participants (83% out of the 100 people) were of the opinion that maintenance and erecting the game boundary fence would resolve human-wildlife conflicts in the four areas. About 83% (n=100) of the study participants thought community engagement and participation in the game reserve operations and management would be effective in dealing with human-wildlife conflicts. The frequency of

responses had a standard deviation of 1.6 across the four study sites. Majority of the participants from Nyamhunga (85%), Siakobvu (76%) and Mola-Kasvisva (76%) were of the opinion that creating employment for locals to carry out manual work would reduce the wildlife management challenges. While 60% (n=25) of the participants from Mahombekombe were of the opinion that providing general hand employment to local community does not help resolve human-wildlife.

Table 4.7: Suggested solutions to the challenges faced in the management of the Matusadonha game reserve

Responses	Nyamhunga	Mahombekombe	Siakobvu	Mola-Kasvisva
Education of local People	18 (90%)	12 (48%)	22 (88%)	27 (90%)
Increasing the number of parks	20 (100%)	20 (80%)	14 (56%)	19 (63%)
Scouts	-	-	-	-
Use of remote sensing in monitoring animal movement and ecological Changes	6 (30%)	3 (12%)	12 (48%)	7 (23%)
Maintaining fence on monthly Basis	14 (70%)	20 (80%)	22 (88%)	27 (90%)
Community Participation	20 (100%)	20 (80%)	19 (76%)	24 (80%)
Employ local people to maintain fence and as wildlife officers	17 (85%)	11 (44%)	19 (76%)	24 (80%)
Relocate people to safer areas	6 (30%)	12 (48%)	8 (32%)	17 (57%)

The interviewed park officials recommended the use of remote sensing technologies. It was reported that collars have been put on several endangered animal species in the park. The use of remote sensing technologies was lowly supported, 28% as a strategy to resolving the

challenges being faced in the game reserve. Relocation of people to safer areas out of the game reserve was lowly supported by participants in Nyamhunga (30%), Mahombekombe (48%) and Siakobvu (32%). While majority of the study participants (57%) from Mola-Kasvisva supported the idea that relocating people would be desirable as a strategy to resolve human-wildlife conflicts. A total of 11 benefits were identified by the 100 study participants from the four case studies. All the participants indicated having benefited from game meat in the past years.Results show that there were significant differences ($p<0.05$) between benefits enjoyed by people in Omay community (Table 4.8).

Table 4.8: Benefits accrued by study participants

Benefits from wildlife resources	Nyamhunga (%)	Mahombekombe (%)	Siakobvu (%)	Mola-Kasvisva (%)
Bush meat	100^{a}	100^{a}	100^{a}	100^{a}
Fish	85^{b}	88^{b}	76^{c}	46.7^{d}
Edible fruits	50^{d}	60^{cd}	48^{e}	86.7^{b}
Edible worms	35^{e}	76^{c}	68^{c}	43.3^{d}
Honey	100^{a}	84^{b}	72^{c}	76.7^{bc}
Medicines	75^{c}	44^{e}	60^{cd}	26.7
Employment	100^{a}	88^{b}	72^{c}	90^{a}
Cash	25^{ef}	76^{c}	52^{de}	33.3^{e}
Improve nutrition and health	70^{c}	80^{b}	72^{c}	50^{d}
Improve food security	55^{d}	100^{a}	68^{c}	73.3^{c}
Tourism	100^{a}	68^{c}	88^{b}	90^{a}
Leather for making ropes for selling	20^{f}	60^{cd}	36^{f}	50^{d}

LSD (0.05) =10

Superscripts similar in the same column show no significant differences ($p\leq0.05$) between benefits.

The sources of the game meat were varied. Residence of Nyamhunga and Mahombekombe reported buying bushmeat from game scouts, people working for hunters and crocodile meat from the crocodile farms. Some (15% of 20) participants from Nyamhunga reported buying game meat from poachers. In Siakobvu and Mola-Kasvisva the sources of game meat

included illegal hunters (poachers), CAMPFIRE, people who work for hunters. Participants lamented how hunters and Nyaminyami Rural District Council was taking away meat after a hunt or shooting of a problem animal. About 85% (n=45) of participants from urban areas reported benefiting from commercial fishing as compared to 62% (n=55) from the rural areas. Participants from Mahombekombe had the highest (88%) proportion of people benefiting from fishing in the game reserve, followed by Nyamhunga with 85% of the 20 respondents benefiting from fishing. The rural communities of Siakobvu and Mola-Kasvisva had lower proportions of 76% (n=25) and 47% (n=30) respectively.

About 68% of the rural study participants benefited from wild fruits compared to 55% from the urban areas. Participants from Mola-Kasvisva had the highest proportion (87% out of 30) benefiting from wild edible fruits(Table 4.8). Interview responses show that rural communities had access to a wider range of wild fruits unlike in urban settings where the fruits were limited to baobab tree (*Adansonia digitata*) fruit, buffalo thorn (*Ziziphus mauritiana*) fruit and marula (*Sclerocarya birrea*) fruits. About 56% (n=45) of the urban households benefitted from edible insects and worms compared to 56% (n=55) in the rural areas. Mahombekombe had the highest (76% of 25) number of households that benefited from edible insects or worms. About 68% (n=25) households benefitted from edible worms or insects from Siakobvu. Participants from Nyamhunga reported the least number (7 out of 20) of households benefiting from edible worms or insects.

All the 20 participants from Nyamhunga reported that all their households benefitted from honey harvested from the forests that are part of the Zambezi valley game reserves, Figure 4.6 About 84% of the 25 participants from Mahombekombe benefitted from honey harvested from the game reserve. In the rural areas, Mola-Kasvisva had 77% of households benefiting from honey harvested from the game reserve. While Siakobvu had 72% of the study participants' households benefiting from honey harvested from the game reserve. About 27%

of the 30 participants from Mola-Kasvisva benefitted from medicine harvested from the game park while Mahombekombe had 44% out of the 25 participating households. Nyamhunga had the highest proportion (75%) of households that utilized herbal medicines harvested from the game reserve, followed by Siakobvu with 60% (n=25).

All the 20 participants from Nyamhunga had a household member employed in the game reserve followed by Mahombekombe with 88%. Siakobvu had 72% (n=25) employed in the game reserve while Mola-Kasvisva had 9% (n=30). Higher proportions (76%) of households in the rural areas realize improved food security from the game reserve compared to 71% from urban areas. Most (87%) of the participants indicated positive benefits were obtained from tourism. Interviews showed that households benefitted from tourism activities in the game reserve. Some study participants were engaged in petty trading and enterprising ventures. More households from rural areas (43%) made artifacts from resources harvested from the game reserve than 34% in urban areas. The artifacts were made from wood, skins and stones that were obtained from the game reserve. Interviews indicated that these resources were obtained illegally (without a permit). One respondent indicated that the people harvest trunks of tree species such as pod mahogany (*Afzelia quqnzensis*) (for making stools, beds, carving different animals, wooden plates, kitchen utensils, tables and folding chairs), munhondo (*Juibernardia globiflora*) and silver cluster leaf (*Terminalia sericea*) (for making scotch charts and other farm implements) needed for use in the household and for sell to tourists and neighbours.

Chapter 5: Discussion

5.1.1The contribution of ecotourism to rural development and economic growth

5.1.2 Ecotourism in Matusadona National Park

Similar ecotourism activities were available in Matusadonha Nation Park as in other wildlife conservation areas. These findings concurred with those of Zingi et al. (2022), who also reported on the same activities in the Tsholotsho District. These activities were also comparable to those in Kariba, Kyle, and Lack Chivero, which are popular tourist destinations. Many National Parks and other protected areas rely heavily on these activities to make money.Results mainly indicate that safari operations become the major ecotourism activity at Matusadona National Park. The availability of more safari operations brings in more tourists and other people to camp at the sites and practice other activities such as trophy hunting which have been reported to be low. There is need to support other activities such as game viewing and boat cruising to bring in more players in the industry.

5.1.3 Ecotourism Effects onrural development

Ecotourism has significantly drivendevelopment around the world and has impacted on economic zones in rural and urban communities. According to Abdullah et al. (2020) and Jaya et al. (2022) both ecotourism and poverty reduction have numerous positive effects on human livelihoods. In order to achieve sustainable management with the goal of resource conservation, this has brought the local community together for better resource utilization (Dangi and Gribb, 2018; Clifton and Benson, 2006). Several localities near Matusadonha National Park realized the value of working with the government to manage ecotourism sustainably.

This is consistent with research by Keyim (2018) and Kiya (2021), who found that for local communities to profit from ecotourism activities and goods, they must work effectively with the government through Rural District Councils (RDCs). When governments involve local communities in the management and accounting system, ecotourism can be a successful industry, according to Campbell (1999) and Donohoe and Needham (2006). A number of restrictions on ecotourism were also noted, such as COVID-19, which resulted in travel bans for both domestic and international travel, which had a positive impact on the industry as it depends heavily on visitor numbers. Following the lifting of the COVID-19 travel restrictions, the number of tourists began to rise (Cahyadi and Newsome, 2021). Another significant obstacle that frequently hinders ecotourism around the world is conflict between community members (Bello et al., 2017).

One of the main forces behind economic growth in many African nations and even the rest of the world is ecotourism. Communities near protected areas and national parks benefit economically from ecotourism in a number of ways. These economic gains include increased employment and better roads, hospitals, and commercial spaces. This scenario took place in the study area and involved the expansion of local businesses, resurfacing of roads, and bridge maintenance. In the form of hotels, restaurants, cruise ships, and dive shops, increased tourism directly stimulates economic growth (Harilal et al., 2018; Tang, 2019; Zingi et al., 2022). This is the situation in the study area, where the construction of restaurants, bars, and shops has led to an increase in the local economy.

With non-consumptive revenue sources and fundraising for conservation, ecotourism directly benefits the environment (Musavengane and Matikiti, 2015; Mudasir et al., 2020). It generates income that supports regional economic growth. For instance, CAMPFIRE offers resources that are advantageous to local economies. This is consistent with the findings of Harrison (2015) and Tchakatumba et al. (2019), who reported economic benefits in Chipinge

and Chiredzi where people indicated growth in clinic renovations, grading and resurfacing of roads, drilling of boreholes, and installation of grinding mills that help local communities. Despite the fact that these economic benefits decline as donors depart, local economic development has changed (Bond et al., 2009). Human-wildlife conflicts, such as the predation of livestock and the loss of human lives, can be seen as having a negative impact on economic development, even though people do experience economic benefits and growth in their communities (Small et al., 2017; Harilal and Tichaawa, 2020).

Resources from wildlife play a significant role in sustaining human livelihoods and economic growth. This was consistent with research by Frost and Bond (2008), who found that wildlife resources contributed to both rural economic development and rural livelihoods. According to Schmidt and Biddulph (2018) and Martin and Shackleton 2022, these resources have a great potential to improve economic growth by generating projects that generate income. According to Venkatesh and Gouda (2016), rural district councils can receive ecotourism benefits and use them to build infrastructure that will spur economic growth. In nations like Tanzania, Zimbabwe, Kenya, and Uganda, the use of wildlife resources boosts economic growth (Okello, 2015).However, population growth in some countries affects the environment through land clearing for agriculture, degrading the environment due to pollution, industrialisation, and urbanisation (Ife, 2017). Ecotourism is a rapidly expanding industry with high hopes for better economic growth in several countries.

Until they managed the wildlife resources in protected areas like national parks and safari areas, these countries were unable to realize the advantages of ecotourism. Ecotourism is a way for people to travel to remote areas without leaving a carbon footprint, and it can only be practiced in a number of nations with effective policy development and sustainable management (Ife, 2017). Ecotourism not only benefits the entire community but also capitalism as it is now a privately owned industry for profit in a number of nations, including

Cameroon, Tanzania, South Africa, India, and Zimbabwe (Ife, 2017; Harilal and Tichaawa, 2020). The ecotourism industry is largely privately owned and its profits are excluded from several countries' Gross Domestic Products (GDP). The benefits are therefore not primarily enjoyed by locals. This is consistent with assertions by Ife (2017), who found that ecotourism in the Galapagos is privately owned for financial gain and utilised by tourists rather than locals.

While improving community empowerment and socioeconomic developments in rural communities, ecotourism has been viewed as a key economic driver for rural development (Dahles et al., 2020; Aseres and Sira, 2021; Nugroho et al., 2021; Bonye et al., 2022; Nguyen et al., 2022). Locals, however, are generally unaware of how to use ecotourism products and manage them to reap the rewards. This could lead to misunderstandings and disputes among the villagers, which would harm their communities' ability to grow economically.

5.1.4 Ecotourism induced economic growth indicators and rural development

In numerous protected areas where wildlife resources are kept, signs of economic growth have been seen. Economic indicators reported in the study area include a decrease in poverty, an increase in food security, the creation of jobs, the development of infrastructure, and new businesses. These metrics demonstrate how ecotourism contributes to economic growth and development. A good illustration is the emergence of Curios stores, eateries, and hotels, which generate income for the neighbourhood. Local communities are able to showcase and trade their goods thanks to the presence of hotels, restaurants, and specialty shops.

Locals can adapt to higher living standards by working in hotels on a full- or part-time basis (Nugroho and Negara, 2013; Musavengane et al., 2018; Kimengsi et al., 2019). Giving locals employment opportunities has the potential to lessen the strain placed on natural resources,

stop poaching, and improve the conservation of wildlife resources (Moswete and Thapa, 2015; Harilal and Tichaawa, 2020). When locals are involved, ecotourism activities have the potential to grow (Harilal and Tichaawa, 2020). Revenue from the sale of wildlife resources was used to fund infrastructure development. With the help of money made from ecotourism, new businesses were developed and bridges and roads were built. The majority of the money that CAMPFIRE released to RDCs to aid in rural development was used to develop infrastructure. This is consistent with research by Tchakatumba et al. (2019), who reported infrastructure development, including road improvements, clinic renovations, and bore drilling.

Families have claimed that ecotourism creates jobs, but they have also lamented the low employment rates. Low pay was listed as one of the biggest challenges by participants. Due to the low employment of community members, selection criteria used by safari operators, lodge owners, and private businesses were deemed unfair. This was whoever caused issues like business owner competition over the marketing of traditional goods, where locals charged low prices when selling to tourists. As evidenced by the large number of residents in the communities surrounding Matusadonha National Park who never find employment on either a part-time or full-time basis, ecotourism activities like trophy hunting (Nordb et al., 2018) do not significantly increase employment because they do not employ more people.

This is consistent with a report by Tchakatumba et al. (2019), which stated that there were not many locals from Chipinge and Chiredzi working at the Malilangwe Conservancy. The findings of this study corroborate those of Cruise (2015) and Damm (2015), who found that employment from ecotourism and other ecotourism-related activities does not represent 0.01% of the population in Africa. However, other researchers, including Mazambani and Dembetembe (2010) and Lambi et al. (2012), found that employment in the local community

was positively impacted by jobs related to wildlife. This is consistent with research by Harilal and Tichaawa (2020), who reported an increase in employment opportunities related to ecotourism in Cameroon. The younger generation is leaving family jobs to work part-time jobs related to ecotourism, according to other community members.

5.2 Economic developments and benefits contributed by wildlife resources

Females from the study areas were more involved in wildlife harvestingand processing as means of increasing food availability and income generation. This agreed with Tchakatumba et al. (2019) who also indicated more females in his wildlife researches. Participants with secondary education were common in this study because most people are now taking secondary education as the basic and some have no money to proceed to tertiary education due to economic hardships.

Several economic development activities were indicated by participants and schools, clinics, roads and community programmes were major activities. These however were what people have knowing and hearing without true picture of what has been transpiring in their communities. Most people were seeing developments done at schools and clinic, and believe these developments were facilitated using revenues from utilization of wildlife resources. These were proved to be lies when focus group discussions were done where 20 people were gathered and asked about their perceptions on utilization of wildlife resources. Primary sources of data also indicated that no little assistance was received and this does not even cover 10 % of total costs. Communities surrounding national parks were not benefiting revenue from these sites because there are serious negative relationships between community members and department of Parks due to human wildlife conflicts. Some community members were not aware that Matusadona National Park is run by government and joined

hands with African Parks. Authorities from Parks perceive that community members are the one commonly involved in poaching, housing poachers from other regions and destroy erecting fences around parks. Instead of providing community members with resources, they use these resources to replace fences, employ many parks officers to control poaching. These all call for bringing in sustainable management practices such as involving community members in the management of wildlife resources so that they benefit directly and reduce poaching rates. Formations of CBWRM where 60 % of leaders are community member because are the ones with history about how the resources were managed in the past and they also know who are mainly involved in illegal harvesting of wildlife resources. This may help to reduce crimes, improve management of wildlife resources and lower human wildlife conflicts.

Rural district councils (RDCs) were included in the management of wildlife resources because they are the ones directly linked to rural development and they have power to channel revenue from wildlife resources and use these for economic development to benefit community members. This was supporting what Gandiwa et al. (2013) reported where he indicated RDCs should be included in wildlife resources management. Wildlife revenue can be easily distributed and channeled appropriately.For example, Madzudzo (1997) indicated that 15 % of fees should be paid to council as levy, 35 % to council for projects and 50 % CAMPFIRE communities. This concurs with what community members were calling for as they indicated that 20 % of the fees must be channeled for community projects to improve economic development. Economic development is also hindered by lack of involving local people in decision making. This was also reported by Gandiwa et al. (2013) who reported that CAMPFIRE in Mahenye was having problems as leaders were failing to involve local people in the decision making process for sustainability. Lack of transparency between parks and community members also affected smooth relationship and economic development (Rihoy

and Mugaranyanga, 2007). This is different from the case of Matusadona National Park has been improved due to formation of Matusadona Conservation Trust which join hands with African Parks so that they revive Matusadona National Park through a foundation of good governance, effective law enforcement strategy, community engagement initiatives, tourism promotion, and restoration of wildlife populations through reintroductions of indigenous animals. Lack of benefits to local households also affected economic development as people were involved in poaching and other illegal activities which cause parks authorities to use revenues to overcome such problems instead of channeling it to communities (Rihoy and Mugaranyanga, 2007; Gandiwa et al., 2013). The economic collapse, land reform and inflation also contributed to reduction in revenue and economic development because purchasing of ammunition to control problem animals was high.

5.3 Challenges for the sustainable management of wildlife resources in Matusadonha National Park and its hinterlands.

TheZimbabwe Parks and Wildlife Management Authority (ZPWMA)is the authority that principally manages wildlife resources in the park and in the hinterland. The findings also show that since the demise of CAMPFIRE, communities are excluded from wildlife management and benefiting from the resources. The locus of wildlife management is invested in state departments. Several studies show this approach could lead to unsustainable wildlife conservation. The existence of numerous departments dealing with environmental issue could create problems of jurisdiction. However, there is no evidence of serious conflicts amongst the different government departments operating in Matusadonha in this study. This could be because of the limited scope of the study. Studies using a critical structure approach are recommended.

The Matusadona National Park and its hinterland in particular are vast tracks of land and fragmented in land use making their micro-space management difficult for the department of National Parks and Wildlife Management (Ngorima et al., 2022). The economic crisis in Zimbabwe has left government departments, ZPWMAincluded, underfunded without adequate resources for operations in the previous years but now that Matusadona National Park joined hands with African Parks for better management. Bringing local community on board could be opportune.

The study shows that the exclusion of local communities from directly benefiting resources creates problems such as poaching and removal of erection fences which negatively affect management of wildlife resources. The natures of benefits found by this study were not from official arrangements but individual households' initiatives. Although official channels to allow access to the reserves resources exist, they have limited relevancy to local communities. According to Chenje (2000), in the case of Zimbabwe, permits have to be obtained for access or any activity that brings benefit to any patron of the game reserves in the country. Thus, the charges gazetted by governmentwere a bit higher for localindividuals to benefit from resources in the game reserves such as fishing, harvesting of river sand, gathering firewood, harvesting honey, harvesting plant parts, hunting and other resources. People who benefit from the game reserve resources without a permit are heavily fined or imprisoned, hence the practice is called 'the fence and fine approach' in literature (Mutanga et al., 2015). The poor communities who cannot afford the permits find ways to evade or opportunities to take advantage of, so that they benefit from the parks.

These findings on informal access and benefits being derived from the Zambezi game reserves concur with other studies in Africa which indicatethat communities that live adjacent to game reserves will strive to access and benefit from the wildlife being it legally or illegally (Mbereko et al., 2017). This is usually done for the survival of their families. If legal usufruct

rights are restricted, subtle and usually ecologically destructive methods are used to benefit from the game reserves to meet household food security, grazing lands, household fuel needs, protection of livestock and crops from wild animals and income to cover other family requirements such as medical, accommodation and school fees (Mutanga et al., 2015). Due to the greediness embedded in human nature such illegal uncontrolled harvesting might end up in serious poaching activities for big game which has higher returns that meets higher extravagant human needs. Unfortunately, it is these serious poaching for big game such as rhinoceros, elephants, buffalo, leopards, lions and others, that is largely documented (Ngorima et al., 2022; Ndaimani et al., 2017), omitting the desire for a household to meet basic survival needs.

The second major challenge connected to lack of direct benefits in this study is the issue of human-wildlife conflicts. The study documented serious human-wildlife conflicts in the Matusadonha game reserve and its hinterland. In corroboration with other studies like Mhuriro-Mashapa et al. (2018), we found that communities do not want to bear the costs associated with wild animal destructions. Conflicts have been documented in the middle and lower Zambezi valley game parks for a longtime (Mhlanga, 2015), but their continued existence to date is worrisome. It might point to the game managers' resistance to change from the protectorate approach as in Kenya (Shibia, 2010). Human-wildlife conflicts are a grim challenge confronting wildlife managerand this creates great problems in wildlife resource conservation in the African continent (Mhuriro-Mashapa et al., 2018). However, we recommend that further studies should be done to investigate the continuity of human wildlife conflicts in the middle-Zambezi game reserves.

From the communities view point, this study found that the above mentioned wildlife management challenges can be resolved through a number of strategies. These strategies include having a functional boundary fence (even better electrify it), educate the community

on importance of the game reserve to their livelihood and animal conservation, educate communities on animal behaviour, increase number of game scouts to patrol the park and community participation in the game park benefits, maintenance and management. The major drive by the DNPWM, the donor community and ecologists has been on increasing technological monitoring and patrolling techniques such as GIS collars, Spatial Monitoring and Reporting Tool and unmanned aerial vehicles (Ngorima et al., 2022; Lynam et al., 2016). Unfortunately, there is a contradiction between the official strategy and the study participants' strategies.

Game reserves that exclude local communities' needs or participation in wildlife activities created negative relationships between game rangers, wildlife managers and local people, contributing to a great loss of biodiversity due to poaching, habitat fragmentation, conflicts between people and poverty (Romanach, Lindsey & Woodroffe, 2011; Graham, Beckerman & Thirgood, 2005; Choudhry, 2004; Nepal, 2002). Behaviour and attitudes of local people may affect success or failure in management of protects areas across the world (Snyman, 2014). Community benefits and participation from game reserves have been known to influence the development of positive attitudes and behaviour towards conservation (Hulme & Murphree, 2001). Although popular discourse in today's wildlife conservation is presented with a win-win paradigm that entails community benefits and participation and ecological conservation, the results of this study show that the communities are still not prioritized, the practice is skewed towards government centralise protectorate conservation. And this situation needs to be corrected especially given the increasing adoption of neo-liberal market systems that further disadvantage the poor in its development ideals.

Chapter 6: Conclusion and recommendations

6.1 Conclusions

Ecotourism has the potential of improving economic growth and rural development in several countries. Ecotourism empowers 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 on infrastructure development as this improved their networking and link between their communities and urban areas. Although direct benefits such as employment was enjoyed, participants indicated high level of lack of transparency, poor feedback to communities by traditional leaders and other people involved in employment selection. Standard of living improved on several community members as indicated by availability of standard houses, electricity/ solar panels and personal boreholes all due to revenues they acquire from selling wildlife related products.

The management approach of Matusadonha game reserves remains highly centralized on state. This is despite that the game park seats in a fragmented terrain characterised by game protectorate and communal areas in the hinterland. In the absence of good level of resources, the protectorate approach seems to be struggling judging from the number of illegal benefits being realized by communities. The benefits they enjoy are mainly through illegal channels such as poaching, encroachment and harvesting of woody and edible insects and vegetables. Furthermore, we infer that due to the different ethics and values in the communal areas political interests have potential to exacerbate behaviour that is destructive to wildlife resources.Economic developments in communities have influence on household standard of living. Several economic developments were indicated through interview and had high

support but focus group discussion where groups of people were asked question and show up their perceptions indicated that most people interviewed were failing to open up and give true situation in communities. People were mainly concerned with sustainable management of wildlife resources and involvement of local people in decision making to improve benefits to communities. There is also need to improve transparency on management, financial allocation from fees by involving RDCs to facilitate rural development. Therefore, by so doing communities members will benefit from all fees paid towards utilisation of wildlife resources and facilitate economic development.

6.2 Recommendations

The following are the recommendations from this study:

- Re-establishment of non-functional CBWRM to improve wildlife resource management
- Improve partnership withRDCs as means of improving sharing of revenue obtained through fees and other fines paid to national park
- Using a participatory approach which includes indigenous people in decision making process to reduce poaching, human wildlife conflicts and make transparency from all activities done at Matusadonha National Park

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Appendices

A1: QUESTIONNAIRE FOR KEY INFORMANTS AND PARTICIPANTS

Instruments used for data collection

GREAT ZIMBABWEUNIVERSITY

QUESTIONNAIRE FOR KEY INFORMANTS AND PARTICIPANTS

Preamble

I am Jesse Zvikonyaukwa, an MPhil student at Great Zimbabwe University at Gary Magadzire School of Agriculture. I am carrying out my research project on, "**CONTRIBUTION OF WILDLIFE TO HUMAN LIVELIHOODS AND ECONOMIC DEVELOPMENT IN COMMUNITIES LIVING ADJACENT TO MATUSADONA NATIONAL PARK, ZIMBABWE".** Your cooperation is well appreciated and will make this project as success.

SECTION A: DEMOGRAPHIC INFORMATION SECTION

Please tick one box in each of the following question:

1. What is your gender? Tick (√) in the appropriate box

Male	
Female	

2. What age group does belong to? (Age in years). Tick (√) in the appropriate box

16-20	
21-30	
31-40	

41-50	
51-60	
>60	

3. Marital status. Tick (√) in the appropriate box

Single	
Married	
Separated	
Divorced	
Widow	

4. What is the highest level of education you have completed? Tick (√) in the appropriate box

Primary School	
Secondary/High School	
Tertiary	

5. How long have you been staying in this area? Tick (√) in the appropriate box

0-10 years	
10-20 years	
≥21 years	

6. What is your income generating source?

Formal	
Informal	

SECTION B: Ecotourism activities in Matusadonha National Park

Section B1: What are the ecotourism activities available at Matusadonha National Park? **Tick the appropriate box.**

7.

Bird viewing	
Hunting	
Trophy hunting	
Safari Operations	
Boat cruising	
Game viewing	
Rural tourism	
Boat competitions	
Fishing competition/ Tiger fishing competitions	

Others, specify

8. Does ecotourism contribute to economic growth? Tick responses in correspondence with your community area.

		Tick the appropriate			
Community area	**Agree**	**Strongly agree**	**Neutral**	**Disagree**	**Strongly disagree**
Gache-gache					
Mola-Kasvisva					
Negande					
Musampakaruma					

9. Which are the indicators of economic growth in your community?

10. **Tick the appropriate (√)**

Infrastructure	
Employment	
Food security	
New businesses	
Poverty reduction	
Reduction in AID by NGOs	
School renovations	
Road maintenance	
Other specify	

10. **Employment perception by participants. Indicate on your community column**

		Number employed per community			
Employment type	**Period**	**Negande**	**Mola-Kasvisva**	**Gache-gache**	**Musampakaruma**
Full time	2000-2005				
	2006-2010				
	2011-2015				
	2016-2022				
Part-time	2000-2005				
	2006-2010				
	2011-2015				
	2016-2022				

Section B2: Contribution of ecotourism towards rural development. What is your perception on ecotourism towards rural development?

		Tick the appropriate			
Community area	**Satisfied**	**Strongly satisfied**	**Neutral**	**Dissatisfied**	**Strongly dissatisfied**
Gache-gache					
Mola-Kasvisva					
Negande					
Musampakaruma					

A2: Questionnaire for local people

GREAT ZIMBABWEUNIVERSITY

QUESTIONNAIRE FOR LOCAL PEOPLE

Preamble

I am Jesse Zvikonyaukwa, an MPhil student at Great Zimbabwe University at Gary Magadzire School of Agriculture. I am carrying out my research project on, "**CONTRIBUTION OF WILDLIFE TO HUMAN LIVELIHOODS AND ECONOMIC DEVELOPMENT IN COMMUNITIES LIVING ADJACENT TO MATUSADONA NATIONAL PARK, ZIMBABWE".** Your cooperation is well appreciated and will make this project as success.

SECTION A: DEMOGRAPHIC INFORMATION SECTION

Please tick one box in each of the following question:

1. What is your gender?

Male	
Female	

2. What age group does belong to? (in years)

Below 30	
30 to 39	
40 to 49	
50 and above	

3. Marital status.

Single	
Married	
Separated	
Divorced	
Widow	

4. What is the highest level of education you have completed?

Primary School	
Secondary/High School	
Tertiary	

5. How long have you been staying in this community?

0-5 years	
6-15 years	
16-25 years	
≥26 years	

6. What is the size of your farming land?

Less than one hectare	
1 to 5 hectares	
6 to 10 hectares	
11 to 15 hectares	
≥15 hectares	

SECTION B: Contribution of wildlife towards human livelihoods

Section B1: What are the contributions offered by wildlife resources to people living in communities around Matusadonha National Park? **Tick the appropriate box.**

7.

Bush meat	
Fish	
Edible fruits	
Edible worms	
Honey	
Medicines	
Employment	
Cash	
Improve nutrition and health	
Improve food security	
Tourism	
Leather for making ropes for selling	

Others, specify

8. Contribution of wildlife towards economic development.

Economic Activities	**Tick (√)**
Schools	
Roads	
Clinics	
Bridges	
Community programmes	
Provide schools with resources	
Building hotels and business centres	
Plough back revenue to communities	
Drilling boreholes	
Construction of dams	
Employing local people	
Rural electrification	
Electrification of schools and clinics	
Construction of colleges/ tertiary institutions	

9. Does utilization of wildlife resources in communities around Matusadonha National Park contribute to economic developments

	Tick the appropriate			
Economic Activities	**Agree**	**Strongly agree**	**Disagree**	**Strongly disagree**
School construction and renovations				
Improvement of roads				

Construction of clinics and support activities at clinics				
Construction and renovation of bridges				
Support community programmes				
Paying fees for orphans and vulnerable children				
Construction of Hotels and business centres				
Add others and tick the appropriate box				

Section B2: What arethe challenges for managing wildlife resources in the Matusadonha National Park in Zimbabwe?

10. Challenges faced in managing wildlife resources in the Matusadonha National Parks. **Tick the appropriate (√)**

Poaching	
Death of wild animals	
Increased population of animals	
Food shortages	

Human wildlife conflicts	
Other specify	

11. What causes human wildlife conflicts in the surrounding areas? **Tick the entire appropriate box.**

Hunting without licence	
People clearing land for agriculture near the National Park	
Destroying and consuming crops of local communities	
Killing people	
Attacking livestock of local people	
Removal of boundary wire by local people	
Damaged boundary wire	
Other, specify	

12. What measures can be done to reduce these challenges?

Education awareness to local people	
Employing several National Parks Officers	
Use of technologies such as Remote sensing and GIS in monitoring changes in the park.	
Maintaining boundary wire on monthly basis	
Taking advice from local communities	
Employ local people to maintain wire and as wildlife officers	
Relocating people to safer areas	
Other, specify	

_____
_____
_____
_____

A3: QUESTIONNAIRE FOR KEY INFORMANTS (Objective 3)

GREAT ZIMBABWEUNIVERSITY

QUESTIONNAIRE FOR KEY INFORMANTS

Preamble

I am Jesse Zvikonyaukwa, an MPhil student at Great Zimbabwe University at Gary Magadzire School of Agriculture. I am carrying out my research project on, "**CONTRIBUTION OF WILDLIFE TO HUMAN LIVELIHOODS AND ECONOMIC DEVELOPMENT IN COMMUNITIES LIVING ADJACENT TO MATUSADONA NATIONAL PARK, ZIMBABWE".** Your cooperation is well appreciated and will make this project as success.

SECTION A: DEMOGRAPHIC INFORMATION SECTION

Please tick one box in each of the following question:

11. What is your gender?

Male	
Female	

12. What age group does belong to? (in years)

Below 30	
30 to 39	
40 to 49	
50 and above	

13. Marital status.

Single	
Married	
Separated	
Divorced	
Widow	

14. What is the highest level of education you have completed?

Primary School	
Secondary/High School	
Tertiary	

15. How long have you been staying in this area?

0-5 years	
6-15 years	
16-25 years	
≥26 years	

16. Which Organisation does you belongs to?

_____
_____
_____
_____
_____

SECTION B: Contribution of wildlife towards human livelihoods

Section B1: What are the contributions offered by wildlife resources to people living in communities around Matusadonha National Park? **Tick the appropriate box.**

17.

Bush meat	
Fish	
Edible fruits	
Edible worms	
Honey	
Medicines	
Employment	
Cash	
Improve nutrition and health	
Improve food security	
Tourism	
Leather for making ropes for selling	

Others, specify

18. Contribution of wildlife towards economic development.

Economic Activities	**Tick (√)**
Schools	
Roads	
Clinics	
Bridges	
Community programmes	
Provide schools with resources	
Building hotels and business centres	
Plough back revenue to communities	
Drilling boreholes	
Construction of dams	
Employing local people	
Rural electrification	
Electrification of schools and clinics	
Construction of colleges/ tertiary institutions	

19. Does utilization of wildlife resources in communities around Matusadonha National Park contribute to economic developments

	Tick the appropriate			
Economic Activities	**Agree**	**Strongly agree**	**Disagree**	**Strongly disagree**
School construction and renovations				
Improvement of roads				

Construction of clinics and support activities at clinics				
Construction and renovation of bridges				
Support community programmes				
Paying fees for orphans and vulnerable children				
Construction of Hotels and business centres				
Add others and tick the appropriate box				

Section B2: What arethe challenges for managing wildlife resources in the Matusadonha National Park in Zimbabwe?

20. Challenges faced in managing wildlife resources in the Matusadonha National Parks. **Tick the appropriate (√)**

Poaching	
Death of wild animals	
Increased population of animals	
Food shortages	

Human wildlife conflicts	
Other specify	

21. What causes human wildlife conflicts in the surrounding areas? **Tick the entire appropriate box.**

Hunting without licence	
People clearing land for agriculture near the National Park	
Destroying and consuming crops of local communities	
Killing people	
Attacking livestock of local people	
Removal of boundary wire by local people	
Damaged boundary wire	
Other, specify	

22. What measures can be done to reduce these challenges?

Education awareness to local people	
Employing several National Parks Officers	
Use of technologies such as Remote sensing and GIS in monitoring changes in the park.	
Maintaining boundary wire on monthly basis	
Taking advice from local communities	
Employ local people to maintain wire and as wildlife officers	
Relocating people to safer areas	
Other, specify	

_____

_____

_____

_____

_____

A4: INTERVIEW GUIDE QUESTIONS (objective 3)

GREAT ZIMBABWEUNIVERSITY

INTERVIEW GUIDE QUESTIONS

Preamble

I am Jesse Zvikonyaukwa, an MPhil student at Great Zimbabwe University at Gary Magadzire School of Agriculture. I am carrying out my research project on, "**CONTRIBUTION OF WILDLIFE TO HUMAN LIVELIHOODS AND ECONOMIC DEVELOPMENT IN COMMUNITIES LIVING ADJACENT TO MATUSADONA NATIONAL PARK, ZIMBABWE".** Your cooperation is well appreciated and will make this project as success.

Challenges faced in the management of wildlife resources in Matusadonha National Park

1. What challenges do you face in the management of wildlife resources?
2. Are these challenges causing a serious problem for managers to handle or they are just minor issues?
3. Do you agree that challenges faced in the management of wildlife resources have a negative impact in the long run if not addressed?
4. Are these challenges faced institutional, political or economic?
5. What are the consequences faced in addressing these challenges?
6. What methods or ways are used to address various challenges faced?
7. Do you ever faced issues of human wildlife conflicts in this area?
8. If yes, what kind of these human wildlife conflicts?
9. How do local communities deal with problem animals from Matusadonha National Parks?
10. Do you involve local communities in dealing with challenges which may have been affecting them as a result of wild animals?
11. What solutions have you come up with together with local communities in solving these challenges?

A5: INTERVIEW GUIDE QUESTIONS (objective 4)

GREAT ZIMBABWEUNIVERSITY

INTERVIEW GUIDE QUESTIONS

Preamble

I am Jesse Zvikonyaukwa, an MPhil student at Great Zimbabwe University at Gary Magadzire School of Agriculture. I am carrying out my research project on, "**CONTRIBUTION OF WILDLIFE TO HUMAN LIVELIHOODS AND ECONOMIC DEVELOPMENT IN COMMUNITIES LIVING ADJACENT TO MATUSADONA NATIONAL PARK, ZIMBABWE".** Your cooperation is well appreciated and will make this project as success.

Sustainable management practices which can be used to improve wildlife tourism in Matusadonha National Park

1. What measures can be used to address several challenges faced in wildlife resource management?
2. What sustainable management practices which you have been using to improve wildlife tourism in Matusadonha National Park?
3. Can you give me a list of sustainable management practices which can be adopted to overcome challenges faced and improve wildlife tourism in the long run?
4. Do these management practices been evaluated or its their first time to be implemented here?
5. Do you recommend formation of Community Based Wildlife Resources Management (CBWRM) can be a sustainable management practice to improve wildlife tourism and economic development here?
6. Do managers at Matusadonha National Park adopt suggestions from local people?
7. If yes, have you tried to implement these suggestions and how have you evaluated the results?

Interview guide questions

1. What is your highest level of education?
2. How many years have you been staying here?
3. Which cropping activities are dominant in this area?
4. Which common wildlife resources utilised in this area?
5. Does utilization of resources contribute towards economic development? If yes give examples of economic development activities.
6. Are you satisfied, do you agree, disagree or strongly agree that wildlife resources play a role in economic development?