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Local perceptions on poverty and conservation in a community-based natural resource program area: a case study of Beitbridge district, southern Zimbabwe

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This study was conducted in a local community, namely, Ward 1 of Beitbridge district, southern Zimbabwe, with the following objectives: (i) to assess local perceptions on poverty in a Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) environment, (ii) to assess whether CAMPFIRE initiatives have enhanced livelihoods, and (iii) to analyze the involvement of local people in CAMPFIRE programs. A mixed-methods approach was used to collect data between September and October 2022, with 80 randomly selected participants being interviewed (structured interviews), 110 randomly selected discussants participating in focus group discussions held in all the five villages of Ward 1, and 10 purposively sampled key informants responded to semi-structured interviews. Data were quantitatively and qualitatively analyzed. The results showed that some villages had more benefits than others from the conservation programs and the contributions to poverty alleviation varied within the surveyed local communities. Most respondents in Ward 1 stated that they rely on subsistence farming as the major source of livelihood. Furthermore, most respondents highlighted that they were not participating in the natural resource management and allocation decision-making processes. However, based on this study, we conclude that respondents still view CAMPFIRE as one of the key solutions to poverty alleviation and that active local community participation in decision-making processes is lacking. The study recommend for active and full participation of local people in the decision-making processes, including previously marginalized groups, in the CAMPFIRE initiatives.

KEYWORDS

CAMPFIRE, community, conservation, perceptions, poverty

Introduction

Conservation areas managed by local communities remain the basis and foundation underpinning environmental management and preservation, especially outside designated protected areas (Gardner et al., 2018). While protected areas as defined by the International Union for Conservation of Nature (IUCN) enjoy more strict forms of legal protection systems, local community conservation areas face less strict legal regimes, particularly if they are not designated by law. Moreso, Africa's geographical spaces remain salient when it comes to the protection of the mainland ecosystem, if not alone sufficient to conserve it (Vargas et al., 2019). Anthropogenic induced threats to environments in developing countries usually manifest in areas where poverty intersects with spaces where a wide variety of wild animal species and significant organisms exist (Fisher and Christopher, 2007). There is increasing acknowledgment of the importance of local people and legal frameworks in the sustainable maintenance and governance of established communal protected or conserved rangelands (Corrigan and Hay-Edie, 2013; Garnett et al., 2018).

Community-based natural resource management (CBNRM) outside designated protected areas is one of the tested solutions to the knitted adversities of poverty and conservation, especially when it is underpinned by comprehensive and integrated management values, including fairness and accountability (Child, 1996; Chok et al., 2007; Gohori and van der Merwe, 2022). CBNRM entails matters of entitlement and obligations, ownership, traditional and contemporary knowledge, appropriate establishments, and the allocation of expenses and profits (Armitage, 2005; Addison et al., 2019). Extensive deliberations and discussions have been raging on concerning the underlying interpretations of the overlap of high biodiversity areas and existential poverty, leading to varied thoughts on how poverty in such typical environments could be alleviated (Naughton-Treves et al., 2005; Visseren et al., 2012; Plagerson, 2020).

For the past 30 years, community growth initiatives have repeatedly been pressing for poverty mitigation agendas that are focused on capacitating biodiversity protection programs. This is only effective and maintainable if they have a dual role of enhancing rural livelihoods and maintaining the environmental ecosystems (Agol et al., 2014). The key fundamental goal of identifying effective processes and systems for conservation areas is to enable the establishment of effective protection measures, develop, preserve species, and maintain various existing habitats. Worldwide, community conservation areas managed by local people often have maintained very high standards of environmental protection and livelihood improvement (Leiper et al., 2018; Schuster et al., 2019). There have been some lively engagements and consultations of local communities in debates and deliberations about these defined geographical spaces and environmental protection from regional to global forums (Duncan et al., 2018).

One of the CBNRM forms, the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), is a conservation initiative focused on protecting nature (flora and fauna) while at the same time enhancing livelihoods within the surroundings in rural communities in Zimbabwe. CAMPFIRE is

established and implemented through local and established governance structures; i.e., the Rural District Councils (RDCs) have the appropriate authority to manage and use local resources, particularly wildlife and derive economic benefits that are then transparently shared with the local communities (Muchapondwa, 2002; Tchakatumba et al., 2019). Thus, CAMPFIRE helps the local people on how to manage and utilize their own resources to alleviate poverty and enhance their livelihoods (Tichaawa and Mhlanga, 2015; Shereni and Saarinen, 2021).

Zimbabwe's Government rolled out CAMPFIRE in marginal and peripheral areas where agriculture was not viable in 1989 (Child, 1996; Taylor, 2009; Jani et al., 2019). It has taken long for local communities in Zimbabwe to embrace CAMPFIRE with only a few groups recording success in CAMPFIRE initiatives, and this has been largely caused by a number of factors including culture (not flexible to change), governance (centralized political and economic institutions), local politics, the people, and the scales of benefits and costs (Chiutsi and Saarinen, 2017; Zanamwe et al., 2018). CAMPFIRE projects have a key role in developing rural economic and resource management institutions through the effective, transparent, and sustainable use of natural resources (Gandiwa et al., 2013; Tichaawa and Mhlanga, 2015).

The benefits accrued from CAMPFIRE help rural communities to address some of the challenges they face while at the same time developing their surroundings. Therefore, one of CAMPFIRE's fundamental objective is that of mitigating rural poverty, which is achievable by giving the rural communities control and ownership of their resources. CAMPFIRE also demonstrates to local people that wildlife need not always be perceived as confrontational to human endeavors, especially in agricultural activities, but needs to be seen as a critical resource that needs to be managed, protected, and cultivated to provide income and food (Logan and Moseley, 2002; Shereni and Saarinen, 2021).

CAMPFIRE helps in building an understanding of the various positive conservation objectives that could have been difficult to be recognized by the majority in society in its absence (Infield and Namara, 2001; Rutebuka et al., 2012; Armitage et al., 2020). Its introduction was necessitated by the understanding that communities surrounding protected areas suffer for living with wildlife while little conservation benefits accrue to them. They lost their livestock to predators and record huge harvest losses due to crop-raiding animals with no compensation and/or any benefits for co-existence with wildlife (Jani et al., 2019). To manage the community losses in such situations, conservationists and policymakers converge on the thinking that poverty alleviation and the sustainable use of natural resources are intertwined and are best explained and understood when they are discussed together in a comprehensive process as they complement and are dependent on each other (Kangalawe and Noe, 2012; Ota et al., 2020).

Poverty has always been measured by how much a person earns per day as in total income, and those who earn less than US\$1 per day are deemed to be poor (Akindola, 2009). In this study, poverty was defined as a condition where local communities do not own, have access, control, and make use of the natural resources to enhance their livelihoods. However, the Human Development Index (HDI), developed by the United Nations Development

Programme (UNDP), has extended the poverty bracket to also include the health and education statuses, and various poverty assessment frameworks have been developed and they do capture the broader and detailed concept of poverty; for instance, the HDI recognizes that poverty is not simply a matter of income alone (Seth and Villar, 2017). The framework has incorporated other variables like the natural, human, social, and physical capital. This has been incorporated using an array of indicators starting from income, access to resources and basic infrastructure, to the vulnerability of populations and level of community organization (Shackleton and Gumbo, 2010).

Southern Africa faces some threats of increasing incidences of poverty compounded with changing climate, and for Zimbabwe, the most vulnerable areas are the rural districts with abundant biodiversity where the same resources can greatly reduce rural poverty (Muchapondwa, 2002; Ntuli et al., 2020). The perception that there is an inverse proportion (when conservation initiatives increase, poverty decreases, and when poverty increases, conservation efforts are undermined/decrease) between poverty and wildlife conservation is anchored on three carefully interconnected CAMPFIRE goals: (i) to reduce poverty as a necessary (if not sufficient) condition for wildlife conservation, (ii) to transform the structure of resource control from state to communal ownership, and (iii) to manage wildlife as a means of reducing poverty (Tichaawa and Mhlanga, 2015; Gidebo, 2023). At the core of this argument, there is poverty alleviation, wildlife conservation, and management that are seen as interdependent, with each standing as a complement to the other and each feeding off the other (Murphree, 2004; Tichaawa and Mhlanga, 2015). Consequently, conserving natural resources can have significant, quick, and direct positive outcomes/benefits on livelihoods, especially in communities where they exist (Fisher and Maginnis, 2005; Fedele et al., 2021).

The majority of the rural population in Beitbridge district relies on the natural resources, and the most common resources being exploited include vegetation, wild animals, river basins providing water, and wood (firewood and shelter constructions). It is, therefore, difficult to detach local people from their traditional environments, beliefs, and way of living (Carroll and Ray, 2021). However, despite the dependence on abundant natural resources, local communities are threatened by poverty. Poverty undermines the performance of livelihoods, and where livelihoods performance is low or poor, households fall, and the result of such performance is what is termed or measured as poverty (Sunderlin et al., 2005; Shackleton and Gumbo, 2010). Previous studies conducted in Beitbridge district focused on CAMPFIRE and economic benefits, ecotourism, and the protection of biodiversity without considering community perceptions, community benefits, costs, and the impact of these conservation initiatives on poverty and livelihoods (Zanamwe et al., 2018; Tchakatumba et al., 2019). This study is therefore grounded on the concept that there is a relationship between livelihoods, poverty, and conservation and that conservation initiatives contribute towards alleviating rural poverty. Focusing on one of the local communities, i.e., Ward 1, Beitbridge rural district, this study sought to (a) assess local

perceptions on poverty in a CAMPFIRE environment, (b) assess whether CAMPFIRE initiatives have enhanced livelihoods, and (c) analyze the involvement of local people in CAMPFIRE programs.

Materials and methods

Study area

Ward 1 of Beitbridge Rural District, southern Zimbabwe is located within the Great Limpopo Transfrontier Conservation Area (GLTFCA). In Zimbabwe, a Ward is made up of a number of villages and therefore it is bigger in size than a village, and these wards form a district. The study area is of interest given that Beitbridge RDC is one of the pioneer RDCs to initiate, embrace, and implement CAMPFIRE (Child, 1996; Chirozva, 2016). Beitbridge Rural District has a spatial extent of approximately 7,000 km² of communal land. The meandering Limpopo River on the south marks the border with South Africa, while on the west, the Shashe River naturally creates the western border with Botswana. Fauna habitation is predominantly found within and along the river basins, next to privately owned game ranches, safari areas, and national parks in South Africa (Metcalf, 1996). According to ZIMSTAT (2022), Beitbridge Rural District has an estimated population of 49,642 female and 44,358 male individuals. Ward 1 of Beitbridge Rural District has a total of 1,207 households with 2,817 of the Ward population being female and 2,455 being male, giving a total of 5,272 individuals (ZIMSTAT, 2022).

Ward 1 falls in a dry semi-arid area situated in the southerly direction from Beitbridge Rural District Headquarters, and the district has a total of 15 wards (Figure 1). The district's annual average temperature is 23.0°C, with a monthly average temperature varying by 10.7°C and a mean annual precipitation of approximately 333 mm (Chikwiramakomo et al., 2021). Ward 1 shares a boundary with Ward 15 of Chiredzi district on the north and both wards share their borders with both South Africa and Mozambique. Ward 1 Beitbridge has five villages with a sparsely populated settlement pattern that surrounds protected areas. Incessant droughts, low rainfalls, flash floods, and high temperatures continue to threaten livelihoods in this ward and its surroundings. Limpopo River soils have a high pH and workability and trafficability remains a challenge. Vegetation varies from bushy savanna where soils are fertile to shrub savanna in sand rocky areas with common tree types consisting of baobab (*Adansonia digitata*), mopane (*Colophospermum mopane*), and different species of *Combretum* and *Acacia*. Light and scarce grassland cover consists largely of *Sporobolus* spp. (love grass) and *Cynodon dactylon* (Dube et al., 2017; Matsa and Dzawanda, 2019). The foliage of the southern lowveld is mostly those plants that shed their leaves during periods of drought or in the dry season. Farming activities include livestock rearing, which is one of the major agricultural activities and the most common domesticated animals are cattle (*Bos Taurus*), goats (*Capra hircus*), donkeys (*Equus asinus*), sheep (*Ovis aries*), and pigs (*Sas scrofa domesticus*) followed by small-scale crop production for subsistence (Matsa, 2021).

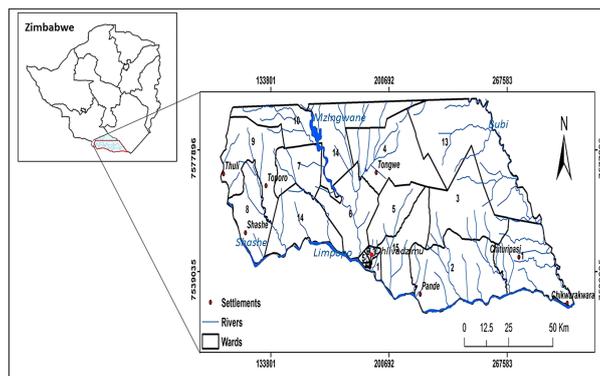


FIGURE 1

Location of Ward 1 of Beitbridge Rural District, southern Zimbabwe. Source: Chikwiramakomo et al. (2021).

Study design and data collection

The study adopted a descriptive–interpretive research design with the aim of assessing community views regarding poverty in a CAMPFIRE environment. This is considered the appropriate approach for this study as it provides an understanding of individuals' reflections of their experiences as they occur (Creswell et al., 2007; Alase, 2017). A purposeful method of sampling was employed to come up with key informants who responded to semi-structured interviews while random sampling was also conducted to select participants for focus group discussions. The criterion used to select participants in this study was random sampling, through picking numbers from a hat, and the numbers corresponded to the number of households in the village. Authorization to carry out the study was obtained from the Chief overseeing the area. The local authority (Beitbridge RDC) also approved our request to conduct our study in their area of jurisdiction. After the researchers had advised and informed would-be participants of the purpose of the study and the importance of their roles, the research participants gave voluntary consent to take part in the study. The demographic composition of participants in this study shows that there are no minors who participated and all participants were above 20 years.

The participants were also informed that they had the right to withdraw from the research at any time without any prejudice or risks, and the consents were verbal since written consent was not required as we stood guided by the traditional laws from the Chief overseeing the area, who assured us that his authorization was enough, allowing us to undertake the research and interact with his people (Giraudeau et al., 2012; Budin-Ljøsne et al., 2017). A CAMPFIRE committee meeting chaired by the Ward councilor was convened to elicit community opinions and attitude pertaining to CAMPFIRE and poverty. The observation method was also used to establish what was obtained on the ground and translate it to paper in comparison with what was captured from the structured and semi-structured interviews. This was achieved through some transect walks conducted from the Ward center to the furthest village, recording and assessing yields of cultivated/arable land, soil fertility, grazing pasture availability, and water points distribution. This enabled researchers to gain the exact reflection of the

CAMPFIRE impact on livelihoods in Ward 1. A pilot study was carried out at the center with the assistance of the CAMPFIRE committee members to ascertain time taken to complete the questionnaire, and make relevant translations from English to Vhenda, which is the local language used in the ward.

The researchers also assured the respondents that the findings would then be disclosed to the Ward CAMPFIRE committee. An inception meeting chaired by the Ward 1 Councilor was held at the ward center together with the village CAMPFIRE committee; a total of 75 participants attended the inception meeting. The village CAMPFIRE committee consisted of the following: village heads, the water point committee, and resource monitors. Every village has a CAMPFIRE committee and all the five villages were represented in the meeting, which came up with the way forward on how we were to administer questionnaires, conduct our focus group discussions, and carry out our interviews. The 10 key informants were selected from this main meeting and the contents of the questionnaire were explained together with the objectives of the whole data collection process so that it became clear to the participants. This inception meeting allowed the data collection process to roll out. Village heads were also instrumental in mobilizing communities for focus group discussions. Table 1 shows the demographics (sex, age range, and education level) of the participants who participated in the study.

Data on community perception on poverty and CAMPFIRE were collated through focus group discussions conducted in the five villages of Ward 1, i.e., Villages A, B, C, D, and E, between September and October 2022. A total of 110 discussants (local people) were targeted for focus group discussions; 80 people responded to structured interviews while 10 key informants from various sectors in the district responded to semi-structured interviews and these included the Department of Women Affairs and Gender, AGRITEX, traditional leaders, local authority (RDC), non-governmental organization (NGO) representatives, and other relevant ministry department agencies (MDAs). This sample size can be considered to be representative enough and makes it acceptable to generalize findings of the study to the entire target population in the area. Participants in each focus group were drawn from the five villages in the Ward, and this consisted of 76 female and 34 male participants, giving a total of 110 participants. Pre-testing of the research instruments was carried

TABLE 1 Socio-demographic profiles of the study participants (n =200).

Variable	Number (%)
Sex	
Male	41 (20%)
Female	159 (80%)
Age (years)	
20–29	8 (4%)
30–39	32 (16%)
40–49	76 (38%)
50–59	46 (23%)
60+	38 (19%)
Marital status	
Single	4 (2%)
Married	133 (66.5%)
Widow/er	52 (26%)
Divorced/separated	11 (5.5%)
Education level	
None	6 (3%)
Primary	116 (58%)
Secondary	56 (28%)
Advanced level	0 (0%)
Vocational	12(6%)
Tertiary	10 (5%)
Total	200 (100%)

out in Village F in Ward 2, outside of the study areas (Van Teijlingen and Hundley, 2002; Mikuska, 2017). This was meant to ensure that there were clear and valid questions (Table 2). Permission was sought from the Chief overseeing the area to carry out the interviews, and we made use of the Ward Councilor for accurate translations, and correct

TABLE 2 Drafted key questions and some examples of answers.

Questions	Options provided
What are your views on poverty and CAMPFIRE?	Open
Have you ever benefited from CAMPFIRE projects?	Yes/No
Do you agree that CAMPFIRE can alleviate poverty?	Agree, disagree, strongly disagree, indifferent
What do you expect from CAMPFIRE?	Open
Have you ever participated in CAMPFIRE meetings?	Yes/No
What are the visible developments brought by CAMPFIRE in the Ward?	Open

and consistent phrasing of questions. The interviews took approximately 35 min to complete.

Semi-structured interviews were held with 10 purposively selected key informants drawn from the main Ward CAMPFIRE, and this consisted of seven male and three female informants. Interview questions were formulated, and a short interview guide was prepared. Selection of key informants was conducted in consultation with the main Ward CAMPFIRE committee before bookings were made. Interviews with key informants were then booked and scheduled a day before. Scheduling was carried out in agreement with the key informant’s willingness, flexibility, and convenience. The researchers represented by the corresponding author would then request for the key informant’s indulgence as the interviews could take nearly 1 h to complete before the interview starts. The researchers were accompanied by the research assistant, village CAMPFIRE secretary, and the councilor who was also acting as the translator. During interviews, the researchers took down adequate notes according to specified questions as formulated and some follow-up questions where there was need and probe further where the response was not clear. Data were analyzed and checked for reliability and validity through a participant validation process. The validation was conducted by checking consistency on the data, which was captured against the participants’ interpretations and translations, tallying them with the descriptions as also observed on the ground. Table 3 shows the sample size, data collection method, and gender of all the participants in this study.

Data analysis

Data on local livelihoods and benefits in the five villages in the Ward were presented and analyzed by showing the patterns of revenue received over the past 10 years between 2011 and 2021. Data on participation and involvement in conservation projects were qualitatively analyzed by capturing the number of local members employed in the CAMPFIRE and those who could have participated in some development projects benefitting them either as individuals or as a community. These data were then grouped according to the answers obtained and aggregated by response option. The responses obtained were noted on an information page and then transliterated into English and then captured into a Microsoft Excel database. Where we received various responses especially on open-response questions, data are presented as the percentage (%) and in some instances may sum up to over 100% depending on each response and how it is presented.

Results and discussion

Local perceptions on poverty in a community conservation area

Only 7 out of the 22 (31%) participants showed satisfaction on employment creation by CAMPFIRE projects in Village A and 3 out of 22 (13%) indicated satisfaction on the poverty alleviation role of CAMPFIRE in Village A (Table 4). All the participants in Village D

TABLE 3 Sample size and data collection methods (n = 200).

Data gathering method	Number of respondents/participants		
	Female	Male	Total
Focus group discussion (randomly selected)	76	34	110
Structured questionnaires (randomly selected)	45	35	80
Semi-structured interviews with key informants (purposively sampled)	3	7	10
Total	159	41	200

—22 (100%) and Village E—22 (100%) were not satisfied with the poverty alleviation and infrastructure development role of CAMPFIRE. There was a low satisfaction in Village D where mean was 2.2 (standard deviation = 3.34) and in Village E where mean was 2 (standard deviation = 1.87) as compared with other three villages in Village A where the mean was 10.4 (standard deviation = 5.45) and in Village C where the mean was 8.8 (standard deviation = 3.44). The first three villages recorded higher satisfaction than the last two villages.

When asked for their views on poverty and CAMPFIRE, mixed responses were received. One interviewee had this to say:

Interviewee 1: *We are suffering here, we have never received any benefits from the CAMPFIRE program, we were told to open a CAMPFIRE account where our funds will be deposited as a village. We did all what is required of us and we created our village CAMPFIRE committee but up to now we are waiting for our allocation, we are in deep poverty, this conservation project should rescue us, we don't have clean water, roads, clinic, and a school in our village, we travel long distances to access these services.*

The other respondent said:

Interviewee 2: *We have seen this area benefitting us for the past years except in the last three years 2019, 2020 and 2021 where there has been no hunting conducted in our ward. We have seen the road from Village A to Beitbridge being graded using CAMPFIRE funds, boreholes being drilled, and classroom blocks constructed at Villages A, B, and C.*

Local livelihoods in a community conservation area

Villages A, B, and C benefited under CAMPFIRE up to 2018 and there was no benefit recorded in the last 3 years (2019, 2020 and

2021) as depicted in Table 5, mainly due to human interference, which has stalled hunting. The CAMPFIRE area was being used as a safe passage by people illegally crossing to and from South Africa, making hunting difficult. In 2011, the three villages had to equally share an allocation of a total of US\$2,593.50, and the same amount was also shared in 2018 among the same villages. In 2013, the ward recorded a good hunt and the same three villages shared a total of US\$3,855.72.

The years 2019, 2020, and 2021 recorded zeros in all the five villages as hunting has been stopped in the CAMPFIRE area citing human interference as people movement through the park area has increased. It is the CAMPFIRE's plan that benefits accrued from wildlife conservation could be used to address challenges local communities are facing, contributing to the development of their surroundings (Mutandwa and Gadzirayi, 2007; Tichaawa and Mhlanga, 2015; Jani et al., 2019). Below is an excerpt given by one respondent who was asked to share what they have benefited as a community so far from CAMPFIRE.

Respondent 3: *We have managed to build classroom blocks here at Village A through some CAMPFIRE funds allocated to us, the last time we remember getting our CAMPFIRE allocation as a village was between 2017 and 2018, may be Council is yet to give us our share, but the information we got is that, hunting has temporarily stopped because of frequent migration through our CAMPFIRE by people going and coming from South Africa.*

Community participation in a community conservation area

A 100% (n = 16) response was recorded on the conservation awareness question in Village A and C while Village B recorded 94%

TABLE 4 Perceptions in relation to CAMPFIRE on poverty, Ward 1, Beitbridge Rural (n = 110).

Village	Variable						Mean	Standard deviation
	Employment creation	Infrastructure development	Community participation	Poverty alleviation	Wildlife conservation	Total sample		
A	7	15	16	3	11	52	10.4	5.45
B	8	13	10	4	9	44	8.8	3.27
C	6	14	11	5	8	44	8.8	3.44
D	2	0	1	0	8	11	2.2	3.34
E	1	0	2	0	7	10	2	1.87

TABLE 5 Revenue received by Villages A, B, and C CAMPFIRE committees from the Beitbridge RDC between 2011 and 2021.

Year	Village A (US\$)	Village B (US\$)	Village C (US\$)
2011	839	839	839
2012	1,086	1,086	1,086
2013	1,298	1,298	1,298
2014	839	839	839
2015	936	936	936
2016	622	622	622
2017	668	668	668
2018	839	839	839

Source: Beitbridge RDC, Villages A, B and C CAMPFIRE committee's databases.

($n = 15$; Table 6). Villages D and E recorded zero responses on livelihood support, and very low responses on participation while the first three villages (A, B, and C) all recorded above 50% ($n = 8$). There was 0% ($n = 0$) responses on employment in Village E and 6% ($n = 1$) in Village D on the same variable. It is important to get commitment from local communities to protect, preserve, and conserve biodiversity, and this can only happen when local people are engaged, consulted, and participate in conservation initiatives in their villages (Vodouh  et al., 2010; Venter et al., 2018).

Another respondent recorded had this to say when asked what could be considered to promote CAMPFIRE in their Ward?

Interviewee 4: *If we want CAMPFIRE projects to succeed in this Ward, we should consult, engage, and involve local people in everything we do, be it high decision making meetings where hunting quotas are being allocated, employment of locals in the park, the allocation of CAMPFIRE funds, the channeling of funds to community projects, we should involve local people, they are the key stakeholders, they are equally the owners of these resources, hence their participation and involvement is vital.*

Key informants provided some valuable insights into the best conservation practices and what could be considered for implementation. As raised in the earlier interview; it is important to consult and involve the locals in decision-making processes with regard to conservation projects taking place within their surroundings. Failure to come up with instruments on how to

effectively control and manage resources in CAMPFIRE communities was suggested from existing literature as the main root generating all the other challenges and difficulties encountered in the sustainable utilization of natural resources in rural environments (Child, 1996; Gohori and van der Merwe, 2021; Gohori and van der Merwe, 2022). Once involved, the indigenous people are therefore able to operate, conserve, and preserve their wildlife, receiving benefits from direct sales and then begin as they will be seeing the value rallying everyone behind the sole goal of conservation. Communally owned resources and local community involvement in CAMPFIRE have reinforced their positive perceptions about biodiversity conservation (Mutanga et al., 2017; Shereni and Saarinen, 2021).

The results show that the three villages in the ward that have been benefitting more from CAMPFIRE have positive views towards poverty while the other two villages who are yet to see the benefits from the wildlife conservation projects have negative views on poverty. The two villages (D and E) have little to show as benefits from CAMPFIRE initiatives, and as a result, their livelihoods continue to deteriorate. The other three villages (A, B, and C) have markedly benefited from the conservation programs, and they view CAMPFIRE as a panacea to poverty. There were some indications that communities were not receiving cash direct from the rural council and that communities were benefitting through approved projects like expansion of clinics, procurement of drugs,

TABLE 6 Responses (frequency) given by community members in structured questionnaires.

Variable indicator	Village				
	A 22 participants	B 22 participants	C 22 participants	D 22 participants	E 22 participants
Employment	10 (63%)	8 (50%)	11 (68%)	1 (6%)	0 (0%)
Livelihood support	7 (44%)	9 (56%)	7 (44%)	0 (0%)	0 (0%)
Infrastructure development	13 (81%)	12 (75%)	14 (88%)	7 (44%)	0 (0%)
Participation	9 (56%)	11 (68%)	15 (94%)	3 (19%)	4 (25%)
Resource management	13 (81%)	14 (88%)	12 (75%)	5 (31%)	3 (19%)
Conservation awareness	16 (100%)	15 (94%)	16 (100%)	11 (68%)	13 (81%)

A total of 16 questionnaires were administered in each study village.

construction of classroom blocks, and irrigation rehabilitation. Moreover, results from this study also revealed that there is a decline in the revenue received in the last 3 years and this has been caused by the increased movement of people migrating to and from South Africa through the CAMPFIRE area. This has reduced or discouraged hunters from operating in the CAMPFIRE, thereby affecting revenue flow. No hunting has been recorded in the past 3 years in the CAMPFIRE, and this is affecting livelihoods and stalling development in the ward.

The findings of this study corroborates with those of [Lonn et al. \(2018\)](#) from their evaluation of contributions of community-based ecotourism to household income and livelihood changes in Cambodia where they outlined that community perceptions of livelihoods changed after the establishment of a community-based ecotourism project, and the household incomes and characteristics between those who were not in the ecotourism projects and those who were in the projects were so different. Furthermore, those who were not in the community ecotourism projects were poorer while those in the tourism project were better off, and this also influenced their perceptions on conservation and poverty, with those involved in the community ecotourism projects having positive perceptions and those not involved maintaining negative perceptions. [Lonn et al. \(2018\)](#) also established that there was a huge difference in the socio-economic growth between the areas that had implemented ecotourism projects recording significant economic growth and those areas that had not implemented such projects. Elsewhere, [Störmer et al. \(2019\)](#), in their study of the effects of community-based conservation on attitudes towards wildlife in Namibia, argued that CBNRM can deliver tangible benefits to local communities and positively impacts attitudes of local communities towards conservation depending on the type and magnitude of benefits and costs that individuals experience from conservation projects.

Conclusion

Local community perceptions on poverty were strongly related and influenced by what communities have benefited from the CAMPFIRE over the past years. Communities from three villages (A, B, and C) showed positive perceptions whereas those from the other two villages (D and E) showed negative perceptions on poverty. CAMPFIRE initiatives were perceived to have positively enhanced livelihoods in three villages in Ward 1 (A, B, and C), whereas they were perceived to have not significantly improved their livelihood as recorded in Villages D and E due to lack of significant benefits that accrued to local households from CAMPFIRE projects. The results suggest that there is generally less participation by local communities from the Ward in decision-making processes related to natural resources management. Based on the findings from this study, we recommend that (i) there is a need to undertake resources management awareness campaigns on the CAMPFIRE program, its objectives, and operational framework, and (ii) local people need to be engaged, consulted, and involved in CAMPFIRE program activities and decision-making processes including distribution of proceeds among the project beneficiaries.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material. Further inquiries can be directed to the corresponding author.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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