



# Implications of Natural Resource Conservation Policies on Local Community Livelihoods (LCL) in the Sengwa Wildlife Area (SWA), Gokwe South District, Zimbabwe

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## Abstract

Protected areas (PAs) are managed for sustainable conservation of natural resources. While local adjacent communities are dependent on natural resources, there is limited access to the resources in PAs. Hence, debate on the role of PAs in improving local community's livelihoods often gives rise to conflicts. Solutions to this debate have been hampered by lack of information on the actual community concerns. To address the challenges, focus group discussions (FGDs) were done to identify local community concerns on the Sengwa Wildlife Area (SWA) resources, establish available park products and find out how PA policies impact livelihoods. Data collection was done by reviewing existing PA policies and through FGDs that were conducted in four villages (Gava, Chitita, Siamwanja and Muchoni) between the 10<sup>th</sup> and 27<sup>th</sup> April 2021. A total of one hundred ( $n = 100$ ) participants consisting of thirty-four youths (34%) and sixty-six adult (66%) participated in FGDs. Participants listed firewood, thatching grass, meat and water as key park products, while employment, control of human wildlife conflict (HWC) and social responsibility remain services available that can be offered by SWA management to local communities. Access to these products and services is limited due to PA policy restriction that prevents uncontrolled access by communities. However, participants who took part during FGDs showed positive support of SWA existence and this was independent of gender {Where,  $\chi^2_{(p\text{-value})} = 0.943$  } < {  $\chi^2_{(0.05;3)} = 7.815$  }. Community-SWA collaboration in areas of law enforcement and capacity building is necessary, hence we recommend for a framework that

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seeks to integrate local community livelihood and natural resources conservation in SWA.

## Subject Areas

Conservation Policies and Society

## Keywords

Community, Focus Group Discussion, Livelihood, Natural Resources, Protected Area, Sengwa Wildlife Area

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## 1. Introduction

Protected areas (PAs) are managed by means of policy frameworks for sustainable conservation. These policy frameworks include laws and policies that regulate level of utilisation. While local adjacent communities are dependent on locally available and cheap natural resources, access to the resources are limited due to regulations in place and applied to control utilisation and access. Hence, the debate on the role of PAs on improving local community's livelihoods often gives rise to conflicts. However, solution to this debate have been hampered by lack of information on the actual community concerns.

PAs are managed for different purposes (Prato and Fagre, 2014) [1], and these include the protection of wildlife species and ecosystems, safeguarding of landscapes, protection of watersheds and as important reserves of biological resources for sustainable use by local people (Abachebsa, 2017) [2]. PAs also offer important social economic and environmental benefits that are important on the survival of local indigenous communities (Miller and Gwaze, 2012) [3].

According to Arni & Khairil (2013) [4], PAs offer opportunities for recreational activities such as hunting, fishing and bird watching. The importance of PAs relies on the quality of ecosystems and their functionality in terms of services and products (West *et al.*, 2006) [5]. The diverse nature of PA ecosystems and natural resources provides for a variety of benefits to adjacent local communities. Natural resources is the basis of survival of most of people who live in rural areas adjacent to PAs and who mostly exploit natural resources for their livelihoods (Abachebsa, 2017) [2].

Over years, natural resource conservation and poverty reduction have both become international societal and political goals (CBD Technical Series No: 55, 2010) [6]. For the most part, PAs appear to have rendered local adjacent communities irrelevant in their management processes in Southern Africa, as they were based mostly on the protectionist approach. (Tafangenyasha *et al.*, 2015) [7]. The challenges generated by exclusion of local community involvement in PA management can fuel illegal extractions of natural resource products and the widespread silent killing of wildlife species for bush-meat and commercial trade

(Mutanga *et al.*, 2015 [8]; Tafangenyasha *et al.*, 2015 [7]) resulting in unsustainable natural resource extraction and conflicts.

Although PAs were primarily established for wildlife resource conservation, it is increasingly being realized that for effective PA management, local community livelihood (LCL) needs should also be considered (Bennett *et al.*, 2016) [9]. In Zimbabwe, PAs remain a cornerstone of a country's economy and the livelihoods of the majority of its population (Zimbabwe Fifth National Biodiversity Report, 2010) [10]. A number of policies are in place for the conservation of natural resources. However, these policies restrict free access to park products by adjacent communities for their use (Jones, 2008) [11]. Local communities lacking access to natural resources due to policy restrictions resort to other means which are detrimental to the protection of natural resources (Norfolk, 2004) [12]. In Gonarezhou, for example, Gandiwa (2011) [13] noted an increase in retaliatory and poaching activities as a result of restricted access by authorities, while Ntuli *et al.* (2021) [14], also mentioned that the main reasons for poaching are poverty, food insecurity and retaliatory.

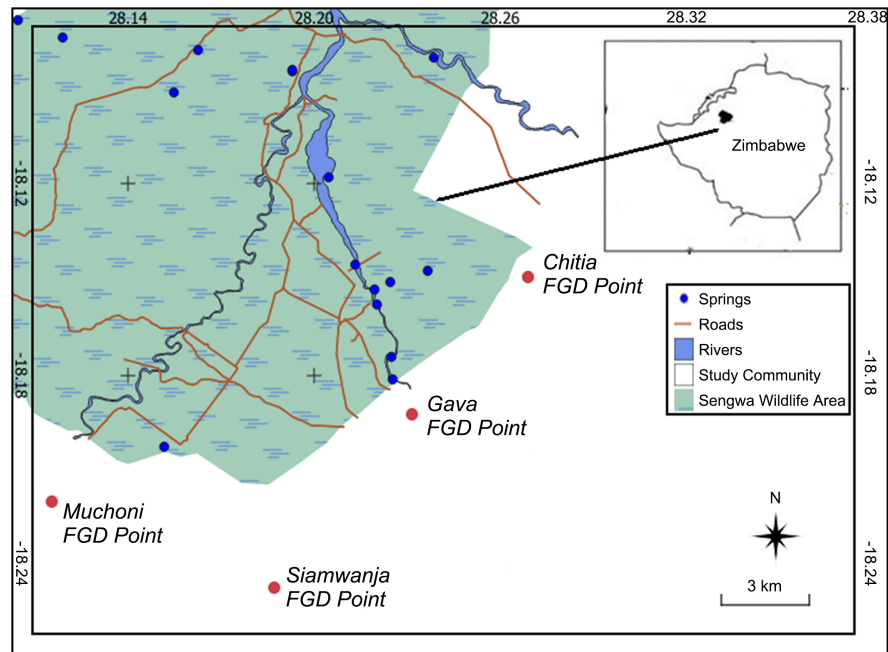
For effective protection and sustainable conservation of natural resources, consideration of local community well-being is an important factor in successful wildlife conservation (Brockington, 2004) [15]. Recommendations to move towards solutions which are beneficial to both the PAs and the local people are considered important (Holmes, 2013) [16]. Support by local people is essential for the success of PAs (Holmes, 2013) [16].

An increase in direct confrontation between Sengwa Wildlife Area (SWA) and adjacent communities has been witnessed. However, solution to such confrontations have been hampered by lack of information on the actual concerns. Some stakeholders think that this problem is driven by an unfavourable policy framework while others attribute it to a sheer act of defiance to the law due to poverty. Some stakeholders are of the opinion that support to SWA is also gender biased depending on type of resource. In that respect, this prompted the study to: 1) to determine key resources needed from SWA by groups of people in adjacent communities, 2) to explore how conservation policies restrict access by adjacent communities to needed natural resources in SWA, 3) to establish whether perceptions and attitudes towards the conservation policies in SWRA differ across gender and age, hence recommending a framework that seeks to promote integration of LCL and natural resources conservation in SWRA.

## 2. Materials and Methods

### 2.1. Study Area

Sengwa Wildlife Area (SWA) was established in 1965 in North West Zimbabwe. SWA is located at longitude 28.1948 east and latitude -18.0778 south and is only 373 km<sup>2</sup> in size (Figure 1). The area is typical of a semi-arid environment. Rainfall, measured locally at the institute, is characterised by monthly and intra-annual variability with a mean annual rainfall of 612.6 mm. Three seasons are experienced:



**Figure 1.** Study area indicating the location of Sengwa Wildlife Area and FGD Points in the adjacent communities.

the hot wet (November-April), the cool dry (May-July) and the hot dry (August-October). The main activities undertaken in SWA include safari hunting, educational trips and terrestrial research. Adjacent communities' extractive use of park resources include timber harvesting, firewood collection, medicinal plants and honey collection, bush meat poaching and livestock grazing although these activities are strictly prohibited in SWA. Major land-use practices in the adjacent Sai community is agriculture and livestock keeping.

## 2.2. Survey Methods

Four target communities were purposively selected based on their proximity (Sharing boundary) to SWA (*i.e.* Gava, Chitita, Siamwanja and Muchoni). The occupancy of the villages were regarded as frontline people who are likely to be immediately affected by any activities and are dependent on SWA park products and services. Analysis of station crime register and visitor's log-books to understand reasons for arrests and purpose of visit was done to have baseline information to the problems and purpose of visits before conducting Focused Group Discussion (FGD). Literature on policy and legislation relating to access and utilisation of park products was also analyzed in order to identify gaps to community involvement.

Purposive sampling of four villages (*i.e.* Gava, Chitita, Siamwanja and Muchoni) was done based on distance of the village from the park boundary. These four villages fall in Ward 3 and 4 of Gokwe South. FGD participants were drawn from people who live adjacent to the PA (*i.e.* within a 5 km radius from the SWA boundary) consisting of people of different roles in the community including Vil-

lage Heads, Pensioners, Councillors, Farmers and other household members who are permanent residence in that village. FGDs were held within communities from the selected villages located between the southern area boarded by Lutope River and eastern side of SWA stretching to Manyoni River, in a semi-circle covering a distance of five (5) kilometers from the park boundary into the Sai communal area. Previous studies found such a distance to cover localized impacts of a PA (Hartter & Goldman, 2011) [17]. Study area size from where community were drawn was 230 km<sup>2</sup>.

One FGD meeting was done in each village selected in this study. FGD meetings were conducted between the 10<sup>th</sup> of April and 27<sup>th</sup> April 2021 in the four villages. Each village was covered separately because of confounding variables in needs and geographical location. Information on community-park interactions, how policy issues affect the community park interaction, strategies that can be employed to balance community livelihoods and natural resource conservation were collected. Benefits currently enjoyed and losses incurred were recorded as well as community attitude towards the PAs were also discussed. FGDs standard guidelines were followed to facilitate progress and smooth participation by every participant. Hence, all ethical considerations were agreed upon by all participants prior to the discussions and data collection. These include protection of participant privacy and no rewards were promised relating to the research.

One facilitator assisted by one of the researchers was selected from among the participants to ask participants questions relating to agreed discussion topics which were highlighted prior to discussions. The FGD data was recorded by two local research assistants. FGDs data were collected in form of semi-structured forms, diaries and photographs. Facilitative discussion with initiation of open-ended questions were done.

Average attendance of twenty-five (25) participants from each of the selected four villages taking into account gender issues was recorded (Table 1). Total number of participants from all the four villages comprised 8% single women ( $n = 8$ ), 24% married women ( $n = 24$ ), 26% single men ( $n = 26$ ) and 42% married men ( $n = 42$ ). Participants who were categorised as single men and women were unmarried with age above 18 years but below 25 years of age.

**Table 1.** Socio-demographic profiles of participants from each FGD meetings held.

Village	Socio-Demographic Profiles				
	Total	Married men	Single men	Married women	Single women
Gava	28	13	5	7	3
Siamwanja	27	9	11	5	2
Muchoni	22	6	7	8	1
Chitita	23	14	3	4	2

### 3. Data Analysis

Data collected was checked, refined and scrutinized to match every topic discussed and objectives of the study. Data collected during FGD meetings were captured and coding of key ideas and themes was done basing on the topics discussed. Content analysis of data collected was done to summarise data collected from each of the four Focus Group Discussion (FGD) meetings done. The content analysis help to yield quantitative results from each FGD meeting then draw comparisons across focus groups (Nyumba *et al.* 2018) [18]. Summarised data on available park products, community experience and policy issues were presented in table format. Data collected from station visitor's and crime register were presented in graphical form showing number of each activity recorded covering January 2021 to December, 2021. A Chi square test was calculated at 0.05 to determine if participant level of support for Sengwa Wildlife Area (SWA) was gender based. Data from literature review on policies and laws governing access and natural resources utilisation in PAs discussed during FGDs were summarised in table format explaining purpose of the law discussed.

### 4. Results

Eighty-two percent ( $n = 82$ ) of the participants from a total of 100 who took part in FGD meetings, from all the four villages, indicated that they generate part of their income from the park resources. Of the eight-two participants, only two percent are benefiting from tourism and business related activities being conducted in the SWA. Specifically, of all the 100 participants who took part in FGD meetings, ten percent reported that they had not earned any monetary and/or non-monetary benefits related to community projects such as infrastructure development, water supply for livestock among other expected direct benefits as part of community support from the SWA management. Regardless of the cost incurred, participants held positive attitudes towards the SWA due to direct and indirect benefits that they had already gained, as well future expectations of positive gains by either way, that is, either illegal and/or legal means.

#### 4.1. Listed SWA Products and Services by Participants

From the FGD meetings conducted, all participants ( $n = 100$ ) mentioned a number of resources and services that can benefit communities which they mentioned are available in SWA. Water for domestic and livestock use, thatching grasses, biltong from local safari operators and grazing lands for livestock while park staff can also help to control HWCs, conduct education and awareness and capacity building in areas relating to balancing conservation and community livelihoods (Table 2).

#### 4.2. Resource Use by Communities between January and December, 2021 from the SWA

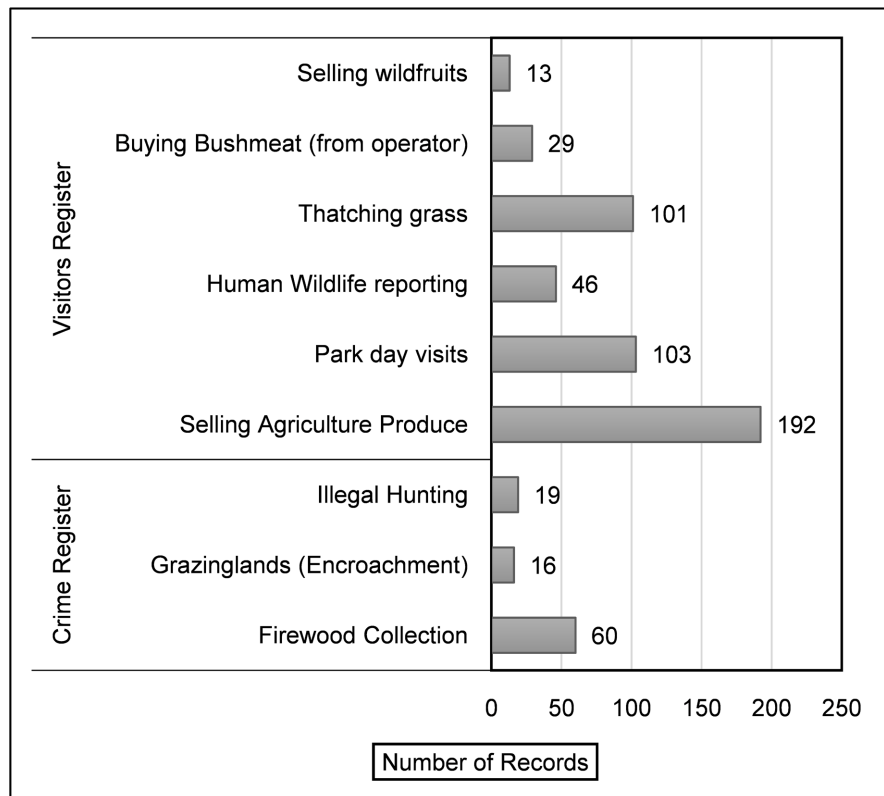
Identified list of resources utilised from January 2021 to December 2021 from

station records include wild fruit collection, bushmeat, grazing lands, HWCs mitigation, park visits, selling agri-produce and firewood. Community use varied with type of product and or service offered. Summary statistics of resource use and demand by adjacent communities around SWA based on 2020 SWRI records (Visitors and Crime Register) are shown in **Figure 2**. Crime register gave records of illegal activities while visitors register gave information of people visiting the station for different purposes such as tourism activities and selling garden produce.

Previous experience by locals such as fair treatment to locals and employment by SWA had been enjoyed. Other areas mentioned by participants are shown in **Table 3**.

**Table 2.** List of mentioned and available resources in SWA.

Village	Good/Services
Chitita	1) Local employment for casual workers in SWA; 2) Biltong and food rations for Village Heads and immediate frontline communities; 3) Thatching grasses and firewood; 4) Clean water for domestic use from Kove and Sengwa River; 5) Good social relations and respect, and cooperate social responsibility like funding sporting events.
Muchoni	1) Meat rations from animals killed during human wildlife conflicts; 2) Harvesting of thatching grass along Lutope River, firewood and construction poles for domestic fence, kraals and huts; 3) Whistle blower Incentives from reporting illegal hunting; 4) Casual worker employment for seasonal fireguards and boundary maintenance; 5) Good relations between park staff and communities.
Siamwanja	1) Clean water for domestic use from Ketsanga spring; 2) Parks offering assistance in controlling problem wild animal outside SWA; 3) Donation of School Equipments and free access to the Sengwa Wildlife Research Institute (SWRI) library by pupils; 4) Donation of Branded T-shirts and parks calendars to local schools; 5) Supporting local projects such as dam construction, road maintenance and allowing controlled access to firewood and thatching grasses.
Gava	1) Education and awareness and capacity building on HWC managements; 2) Meat, thatching grass, traditional grinding stones and firewood for local women, road maintenance from SWA to Mhota and free primary schools educational trips and research activities.



**Figure 2.** Resources use based on the quantity obtained from SWRI crime and visitor's register. Crime register contain records of crimes committed in relation to wildlife and access while visitors register list purpose of visits by local people such as sale of agro-produce and seeking assistance on HWC issues.

### 4.3. Local Community Access to Natural Resources in SWA and Policy Issues

Policy related issues raised by participants during FGD meetings include accessibility to park resources, full participation in PA management programs, equitable sharing of park products, stewardship and ownership of wildlife resources, support of community based initiatives and social responsibility as well implementation of criteria of the policies involved. Several legislation were mentioned and cited as examples (Table 4).

Challenges raised in each village during FGDs as a result of PA policy include cattle encroachment, poaching and HWCs issues. Other challenges raised per each village are listed as shown in Table 5.

### 4.4. Participants Attitude towards SWA

Participants attitudes towards the existence of SWA is influenced by direct and indirect benefits they gained and will expect to gain from it in future either through illegal or legal ways. The level of support was gender independent hence decision to reject  $H_0$ . (Table 6). Community support was calculated as a percentage for each category (*i.e.* men and women) of the total number of participants for each village who were in support of the SWA.



**Table 3.** Participants previous experience with the SWA.

Village	Previous Experience
Chitita	<p>1) Village leaders and their communities voluntarily helping to put off wildfires; 2) Incentives to the community by researchers working within communal areas from the SWA; 3) Maintenance of Park boundary fence by fence minders; 4) Meat rations shared equally among villages during elephant culling periods from 1988-1991; 5) Veterinary services offered to local farmers by researchers from international universities freely during experimental researches; 6) Free access to clean water from Kove River. 7) Boundary fence constantly maintained by Veterinary Department.</p>
Muchoni	<p>1) Park scouts only operating within the confines of the SWA; 2) Elephant meat distributed to communities during culling years (1988-1991); 3) Problem Animal Reporters selected from frontline communities and were rewarded; 4) Funds from CAMPFIRE received and developments with support from SWRI offered such as maintenance of fence and Lutope River crossing.</p>
Siamwanja	<p>1) Elephant culling benefits to immediate communities; 2) Employment of locals in various areas such as skimmers, general hands and cleaners; 3) Maintenance of transects roads was done by locals in exchange for money and other incentives; 4) Clear line of demarcation between parks and communities with secured electric fence installed; 5) Food staffs from local clients and researchers donated to less privileged households; 6) Quick response to problem animals sighted in communal areas.</p>
Gava	<p>1) Access to telephone line by communities in case of emergency; 2) Free transport offered to communities to cotton Depots; 3) Domestic water access from Sengwa gorge; 4) Free game viewing during holidays for pupils; 5) Social entertainment provided to local adjacent communities supported by the SWRI during national functions; 6) Good community park understandings and agreements at local levels were in place; 7) Domestic livestock cross to Munanai for pasture without being impounded; 8) Capacity building to locals on ways to controlling problem animals.</p>

**Table 4.** Listed examples of PA related policies and laws discussed during FGD meetings.

Policy issues	
Laws and Policies	Description
S.I 362 of 1990 [19]	Prohibits against unlicensed hunting, methods of hunting and restriction on use of certain weapons for hunting, entry into, encroachment and departure from, the Parks and Wild Life Estate as well use of unprescribed roads by visitors.
Parks and Wildlife Act (Chapter 20: 14). [20]	It provides for the establishment and management of PAs, conservation, and management of wildlife resources and associated habitats by the National Government in Zimbabwe.
S.I 108 of 2019 Parks and Wildlife Management Authority	SIXTH SCHEDULE: Charges for use of Authority Services and Facilities. NINTH SCHEDULE: Permit Fees for Exploitation of Products in Parks Estate
Trapping of Animals (Control) Act (Chapter 20: 21) [21]	Control use, restriction and regulation of the making, possession and use of certain traps for the purpose of trapping animals; to control the sale and disposal of certain animals; and to provide for matters incidental to or connected with the foregoing.
Constitution of Zimbabwe	Section 73 provides for environmental rights expounding the promotion of conservation, and securing ecologically sustainable development and use of natural resources while promoting economic and social development.
The National Environmental Policy and Strategy of June 2009	The policy aim to avoid irreversible environmental damage, maintain essential environmental processes, and preserve the broad spectrum of biological diversity so as to sustain the long-term ability of natural resources to meet the basic needs of people.
Protection of Wildlife (Indemnity) Act (Chapter 20: 15) of 1989	The Act indemnify and protect certain persons against criminal liability in respect of acts or things advised, commanded, ordered or done or omitted to be done by them in good faith for the purposes of or in connection with the suppression of the unlawful hunting of wildlife; and to provide for matters connected therewith or incidental thereto.

**Table 5.** Current challenges raised during FGD by participants from each village.

Village	Challenges
Chitita	1) Cattle encroachment and impoundments due to limited grazing lands in communal areas; 2) Controlled visiting days to SWA of communities; 3) Crop destruction by wild animals and livestock depredation due to removal of park fence; 4) No clear benefit sharing method from the CAMPFIRE program.
Muchoni	1) Accessibility to wildlife resources restricted; 2) Park community conflict related to social issues; 3) Severe droughts leading to limited water sources and grazing areas; 4) Limited source of income to improve LCL; 5) Uneven distribution of park products and provision of services.
Siamwanja	1) Streambank cultivation affecting water sources in adjacent communities; 2) Livestock losses due to diseases emanating from wild animals like foot-and-mouth disease; 3) Cultural values neglected due to park policies resulting in community misfortunes and high human wildlife conflicts; 4) Crop damage and livestock depredation by wild animals; 5) Frontline communities becoming first victims of targets by park staff during law enforcement operations.
Gava	1) Livestock encroachment into SWA resulting in depredation, impounded by park officers and trapped in snares targeting wild animals; 2) Limited access to park products such as traditional grinding meal stones for women; 3) Removal of game fence and poaching by illegal hunters lead to increase in HWC. 4) Limited assistance in case of emergency with transport.

**Table 6.** Perceptions and attitudes towards conservation policies in SWA between men and women participants who participated in FGDs.

Sex	Participants support to SWA existence				
	Gava	Siamwanja	Muchoni	Chitita	Total
Male	94 (96.35)	90 (86.91)	84 (85.42)	100 (99.33)	368
Female	100 (97.65)	85 (88.09)	88 (86.58)	100 (100.67)	373
Total	194	175	172	200	741

Pearson Chi-Square = 0.388, DF = 3, P-Value = 0.943  $\chi^2 = \sum (fo - fe)^2 / fe = 0.943$  and  $\chi^2_{0.05, 3} = 7.815$  There for  $\chi^2 < \chi^2_U$ , do not reject  $H_0$ . and conclude that community view over the existence of SWA is independent of gender.

#### 4.5. Integrated Framework for LCL and Natural Resources Conservation in SWA

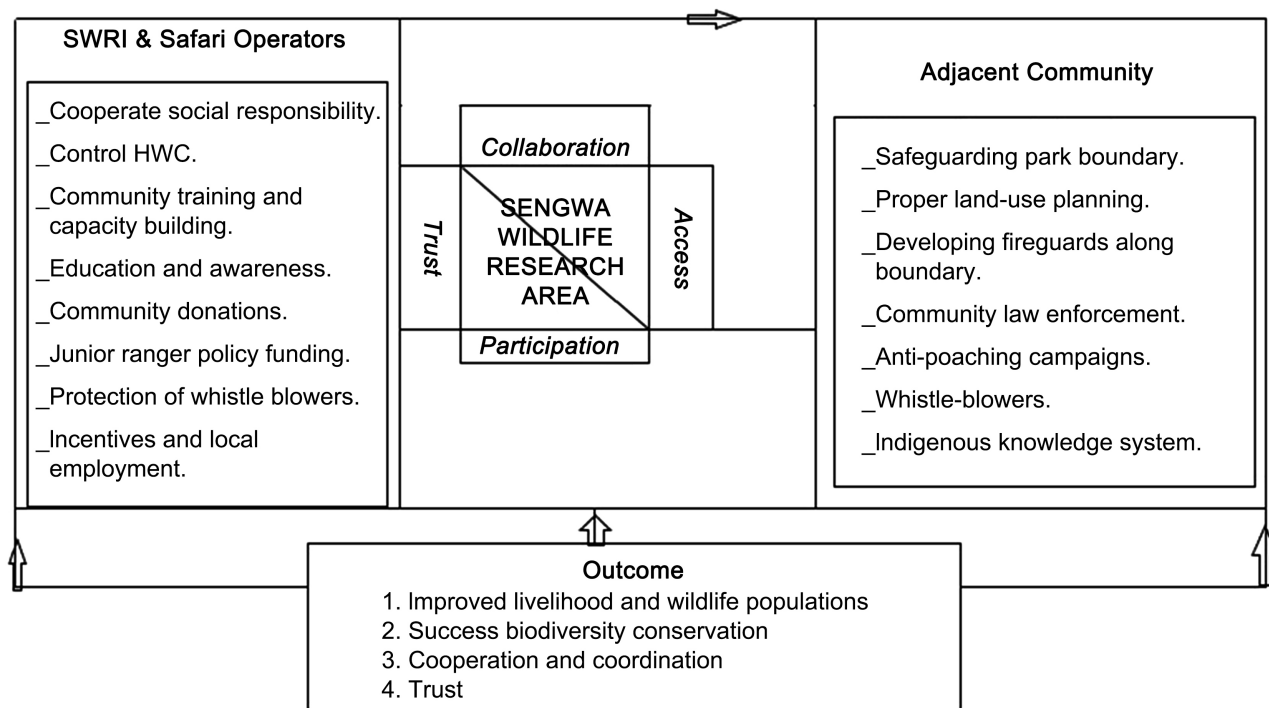
Trust, collaboration, access and participation were key pillars mentioned to integrate LCL and natural resource conservation in SWA. Integrating LCL and natural resource conservation can be done through collaborating in various areas (Figure 3) highlighted discussions and these vary to some extent across the landscape.

### 5. Discussion

#### 5.1. Key Resource Needs and Use by Communities Living Adjacent to SWA

The study identified a variety of park products that can be offered to communities to reduce household expenditure, improve community livelihoods and increase support for the protection of its source area, which is the SWA. The findings of this study demonstrates that adjacent communities to SWA can derive a significant share of their total income from ecosystem goods and services from the park. The findings subscribe to the notion that community income and livelihoods strategies may highly dependent on natural resource especially to those marginalized communal areas where there is limited alternatives for livelihoods (Roe 2010) [22].

Community needs vary, for example, school representatives expected services related to educational tours, while village heads were worried by high poaching and protection of their ancestral grave sites, cultural and sacred areas protection



**Figure 3.** Proposed Community-SWRI Integrated Framework to improve LCL and natural resource conservation in SWA.

which they relates to current misfortunes surrounding villages such as increase in predator-human conflicts and recurrent droughts in recent years. The study also revealed that different age groups and gender needs different resources for their livelihood, for example firewood and thatching grass were mostly mentioned by women and young girls, while casual employment by men. However, some products and services are necessary for every community survival, for instance, biltong offered by local safari operators was a need for everyone regardless of gender and villages while services to control human wildlife conflicts remain every household's expectations. The findings agree to observation by Mariki (2016) [23], in Tanzania where it was reported that local community needs vary from one area to another and differ with age groups and gender. Abachebsa (2017) [2] also mentioned that in Ethiopia resources requirements vary across gender and by geographical location from the study which was conducted.

## 5.2. Conservation Policies and PA Resource Accessibility by Local Communities

The study identified the need for State to enact enabling policies, legislation, regulations and supported institutional framework to support participation by local adjacent communities on PA conservation programmes. Clear, simple and transparent procedures for mutual accountability between park management and local communities were also mentioned as a way to reduce community frustration that may drive them to illegal resource extraction. Participants mentioned national laws such as S.I 362 of 1990 [19] and the Parks and Wildlife Act (Chapter 20: 14) [20], policies and regulations, local management arrangements like determining community visiting days to the park to have negative impacts on resource accessibility by local communities although they help to safeguard excessive resource extraction. A mentioned example was where adjacent communities are restricted to access waterpoints within the park through the Parks and Wildlife Act (Chapter 20: 14) [20]. However, water sources along the park boundary were benefiting local communities as source of domestic water and for livestock.

The study also found that both the constitution of Zimbabwe and the Parks and wildlife Act (Chapter 20: 14) [20] of 2001 does not specifically recognise community-based property right but environmental rights. This means property rights of communities can be lost when they are vested in the State on behalf of the communities (Wily, 2011) [24]. The rights of community are expropriated once the land has been compulsorily acquired for the establishment of a PAs hence community lose attachments to their historical lands and graves of their ancestors. The study established that currently adjacent communities do not have capacity to claim compensation for their livestock and field losses due to wild animals hence fueling park-community conflicts.

Parks and Wildlife Act promotes consumptive hunting and non-consumptive tourism. However, hunting and removal of any animal or part of an animal or sale of animals is prohibited in Parks and Wildlife Estate except if a person is a

holder of a professional hunter's license, learner professional hunter's license or professional guide's license. This means the local communities cannot carry out any wildlife related activities in any PA without the appropriate permits which may earn them livelihoods.

Adjacent communities also expressed concern on policies which prohibits the killing or injury of animals in self-defense which provides for the reporting of killing of animals or injury of animals other than dangerous animals. Due to the fact that local communities live adjacent to these animals they requested for powers to swiftly respond to such incidence of human wildlife conflicts on their own. Participants argued that relevant Authorities at times face transport constraints, hence local communities are better placed to carry out such roles. The same sentiments were highlighted by Mushayavanhu (2017) [25] in support of local community involvement in HWC mitigation strategies as a way to improve efficiency hence reduce unnecessary losses. This means problem animal control can best be handled by Animal Reporters, farmers and former Fence Minds (Machena *et al.*, 2017) [26]. The communities will identify their needs and support they require as well as appropriate rules and agreements. Nevertheless, such activities by communities cannot be institutionalised because local communities do not have legal status to conduct human wildlife conflict management on their own.

Even though community participation has been adopted expressly in the Constitution of Zimbabwe, it is still limited in the Parks and Wildlife Act. The Parks and Wildlife Act has limited provisions that support accessibility to park products. Despite the fact that the rights of access of local communities to natural resources have been addressed in terms of user rights, they have not been clarified in relation to decision making and management of natural resources. To this fact, Arni & Khairill (2013) [4] point out that sustainability of PAs is disrupted by rising conflicts among users of the products.

Most policies mentioned during FGDs indicate failure to addressing the relationship between management plans and reduction of HWCs which have impacts on livelihoods. The policies do not recognise the increased threats by wild animals and their activities on wildlife corridors and community forests. Participants expressed the need for consultations to inform how park policies work as well as identifying clear benefit sharing schemes that are context specific to their livelihoods. Park policies were observed neither promotes community access to natural resources nor they give clear framework on the sharing of benefits. It was acknowledged that although some arrangements were made at local level, however, these agreements were in most cases not legally enforceable, hence, should be incorporated in the supporting laws for them to be legally binding.

The study also observed that the central dogma to continued lack of park-community nexus is attributed to lack of capacity by the state, local communities and stakeholders to implement and enforce the various laws and policies in areas of access and benefit sharing. This further isolate community from legally accessing the park products and enjoy unlimited services which the state is sup-

posed to offer legally and to have full control of available resources for sustainable use. The point agree to same sentiments highlighted by Muchena (2017) [26] and Mushayavanhu (2017) [25] who both cited limited resources to operationalize and implement policies and laws as key drawback to improving LCL in Zimbabwe.

### 5.3. Perceptions and Attitudes towards SWA

The study also revealed that support by local communities to SWA is independent of gender. All participants anticipated for good relations and benefiting from the SWA. However, support by local adjacent communities to the success of SWA are linked more to resource use and previous experience by adjacent communities. The findings, however, contrast to remarks by Nyhus (2016) [27] who noted that women are more likely to have negative attitudes because their incomes are often more dependent on food crop production, which is likely to be highly susceptible to damage by wild animals, while men are more likely to focus on other activities, which may be less vulnerable to animal damage but utilise park resources much.

### 5.4. Integrating SWA-LCL in Natural Resource Conservation

Linking conservation and community livelihoods is particularly pertinent for SWA, where human population pressures and economic forces influence livelihoods and conservation programs. Addressing livelihood needs of local communities can lead to successful conservation initiatives where collaboration is based on the premise that, if communities receive economic benefits from SWA, they will change their attitudes and want to conserve and manage its source. Similar thoughts were cited by Wells and Mc Shane (2004) [28] who stated that when local communities get incentives from a PA related project with a clear revenue redistribution policies it increases benefits to communities, reduce park-community conflicts and strengthen conservation objectives and implementation of activities that may lead to improved park protection.

The study established that through collaboration, adjacent communities with existing close ties with SWA showed some form of supporting conservation through participating in snare removal, reporting illegal activities as well supply information on problem animals on time while those with no close ties exhibited ignorant and were unwilling to participate in resource protection. Therefore, there is need to focus on establishing the conditions in which resources can be legitimately managed and sustainably exploited by adjacent local communities as emphasized by Murindagomo (1990) [29]. SWA management may allocate park products right to frontline communities to harvest, for instance thatching grass and firewood, on regulated quantities hence illegal uncontrolled overexploitation can be reduced. Access to park resources should be subject to certain responsibilities, including endorsement by community leaders and implementation of a wildlife management plan that recognises local community participation (Mushayavanhu, 2017) [25]. Similarly, Muchena *et al.*, (2017) [26] suggested the practice as

a way that can strengthen both community livelihood and collaborative natural resource conservation. Participants showed their commitment to protect SWA and act as whistle blowers only if they get some benefits. For effective collaboration, participants call for equal treatment of all villages despite different geographical location around the PA which encourages full participation and togetherness.

The regulated utilisation of natural resources by adjacent communities in recent years may lead to significant improvements in human well-being and a decrease in poverty. Consistent with this, Tekelenburg *et al.* (2009) [30] suggested that a country's natural resources is inversely related to its Human Development Index (HDI), while World Wide Fund for Nature (WWF) (2012) [31] uncovers a clear relationship between increasing HDI and an increasing ecological footprint hence the need to provide park products to the community on a regulated basis based on trust and collaboration.

## 6. Conclusion

Participants view over the existence of SWA is independent of gender and is influenced by available natural resources that can contribute to their livelihoods. However, access to existing natural resources in the SWA is restricted due to existing national law and policies that are in place to reduce over-harvesting. Participation and legal access to natural resources in PAs need to be in place to balance natural resource conservation and community livelihoods for greater benefits to adjacent communities and for sustainable natural resource conservation in SWA. This is possible through establishing a framework that promotes the integration of LCL and natural resource conservation in SWA based on trust, collaboration and controlled access to park products. It is imperative that future studies that aim to understand the impact of SWA on multiple dimensions of local communities' well-being adopt a mixed-methods approach. This can be done through incorporating quantitative and qualitative assessments of community livelihoods as well capture heterogeneity through sampling individual and sub-groups.

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## Author Contribution

**Mahakata Innocent:** Conceptualization, Methodology, Writing original draft, Formal analysis, and Review and Editing. **Muboko Never:** Methodology, Writing, Reviewing and Editing.

## Conflicts of Interest

The authors declare no conflicts of interest.



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