

Article

Planning for Socio-Ecological Conservation in South African Nature Reserves: Model of Influences on the Attitudes of Proximate Communities

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Abstract: Conservation planning models need to be more inclusive, considering both social and ecological dimensions in order to achieve sustainable conservation. To do this, stakeholders need to understand the communities that border protected areas, which involves insight into attitudes. This research therefore aimed to determine what influences the attitudes of local communities towards protected areas, culminating in a model. The research was conducted at three case study sites across South Africa, each involving a nature reserve and a proximate local community. Multiple qualitative methods were used to gather data from the local community and protected area staff around different aspects that influence attitudes. Following cross-case analysis, meta-themes were identified that formed the building blocks of the model and informed the accompanying practical recommendations regarding implementation thereof. The model outlines the centrality of relationships between local communities and park stakeholders, which are impacted by benefits, costs, facilitators and detractors. It also outlines how positive attitudes can be fostered through practical actions. As communities receive and perceive the benefits of living alongside wildlife, there is potential for positivity to improve while simultaneously achieving biodiversity conservation that is supported by the community. In line with adaptive management, users can test and adapt the model, continually aiming for conservation planning that is more community-based.

Keywords: adaptive management; attitudes; conservation; community-based; planning; local communities; model; protected area staff; relationships; South Africa



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1. Introduction

For conservation to be successful, it is essential that communities living in close proximity to the conservation area are seriously taken into consideration in the planning phases [1], as well as in determining conservation policies [2].

Rai et al. and Raymond et al. [3,4] advocated inclusive conservation that extends conservation beyond the environment to include multiple stakeholders and social dimensions such as equity and wellbeing. Not only is this inclusion important for human wellbeing [5,6], but Lees et al. [7] argued that inclusion of multiple stakeholders (including local communities) in conservation planning, while still rare, is valuable in terms of improving positive outcomes for conservation. Obradović et al. [2] contended that “Local communities have an important role in biodiversity conservation and their participation is one of the most powerful tools for conservation in [protected areas]”. The inclusion of people has been highlighted in the recent target of the Convention on Biological Diversity, namely to expand protected areas and effective conservation while delivering benefits to society [8]. In the African context, this involvement is crucial, as communities bordering protected areas are often impoverished and dependent on the land [9]. In South Africa, recent legislation has called for regular interaction, collaboration and opportunities for communities to provide input [10]. Community input can also extend to the buffer zones beyond protected areas [11,12].

Out of various management approaches for protected areas, adaptive management has proved popular as a flexible combination of top-down and bottom-up management, fusing effective enforcement with local participation and beneficiation [13–15]. It advocates revisiting strategies as new knowledge comes to the fore and as the social, political, economic and ecological contexts change [15] and tailors new solutions to specific contexts [16,17]. A key feature of adaptive management is thus that it is an ongoing process of trial and error, learning together, communication and negotiation [18]. The term has its challenges and ambiguities but is a useful tool in specific contexts to improve management outcomes [19,20]. Torquebiau and Taylor [18] (p. 2543) referred to adaptive collaborative management or adaptive co-management and asserted that “people-based conservation is the only realistic alternative for long-term management of natural resources, even if it sometimes fails”. Research that explores the involvement of local people is therefore essential.

One of the first steps in bringing communities on board is to understand current attitudes towards conservation, which will assist in future planning. Angwenyi et al. [21] (p. 41) stated that “... communities’ attitudes, views and perceptions of these areas are critical for the success of conservation efforts” and Störmer et al. [22] contended that positive attitudes could be important for the sustainability of natural resource management programs. If stakeholders understand how a community perceives a protected area and its management, relationships can be built that are sustainable for both parties [21]. Abukari and Mwalyosi [23] contended that understanding perceptions can reveal which programs are succeeding or failing and this can assist in developing better policies. In spite of the above knowledge, Störmer et al. [22] contended that, while attitudes are important determinants of sustainability, they are not well understood.

The literature suggests that there are several influences on attitudes regarding conservation and protected areas. A community’s **knowledge and experience of the protected area** appears to play a role. Angwenyi et al. [21] investigated whether communities in the Eastern Cape knew how nearby reserves were managed and knew the role that the reserve played. The majority of participants did know, which was positive. Chowdhury et al. [24] contended that this knowledge influences attitudes towards conserved areas. The opportunity for locals to experience the reserve as tourists is less documented [25], but, where it does occur, it increases the perception of benefits received (Lee 2013).

The **relationship with the protected area** also influences attitudes. Good relationships between park managers and adjacent communities are essential for conservation success [21] and need to be more understood [26]. Stakeholders need to invest in long-term relationships built on trust that involve a strong network of community members [3,27,28]. The study by Rampheri et al. [29], based on a South African nature reserve, reported that poor communication and lack of job opportunities were the main reasons the communities felt they had a poor relationship with nature reserve management. They stated further that, if not addressed, this could cause resentment and conflict in future.

Inclusive conservation involves the sharing of benefits and a fair distribution of the costs of conservation [30]. Soliku and Schraml [31] reported that local peoples’ support for protected areas depends predominantly on their perceptions of the costs and benefits of living in or around these areas. These benefits and costs are therefore strong influences on attitudes towards conservation and local support of conservation and must therefore be considered in planning conservation programs [22,26].

Benefits are described in ecotourism research as incentives for residents to protect the environment that tourists pay to visit [32,33]. Benefit sharing is “when the protected area shares benefits with the local community for the purposes of improving their social and economic environment, and to foster a good relationship. Benefits can be tangible and intangible and include revenue sharing, access to natural resources, infrastructure development, sharing of information, collaboration, education and training initiatives, etc. The initiatives can come directly from the protected area or offered in collaboration with other organisations and government bodies” [34] (p. 2). Several scholars have proposed that benefits result in positive attitudes towards the environment [35–37], while others found

that benefits received do not necessarily cause positive attitudes [38,39]. Störmer et al. [22], who investigated the link between benefits and attitudes towards wildlife in Namibia, found that those experiencing more benefits had more positive attitudes, while research by Burgoyne and Mearns [40] in Kenya found that a perceived lack of benefits caused negative attitudes. Other authors have reported on the results of specific benefits, for example, employment creates positive attitudes [23] and access to natural resources is associated with involvement in conservation [29]. Fewer researchers have made the connection to actual behavioral actions. Hulme and Murphree [41] and Tran and Walter [42] found that benefits led to positive attitudes, which sometimes led to pro-conservation behavior, while others, such as Liu et al. [36] and Reimer and Walter [37], determined that benefits led directly to pro-conservation behavior. Others, such as Hill et al. [43], Kiss [44], Snyman [45] and Walpole and Goodwin [46], claimed that they could not conclusively establish these links. Casaló and Escario [47], following research in Spain, claimed that it was the strength of the attitudes that determined whether pro-environmental behavior would occur.

Ideally, communities should benefit from conservation, as this can improve community quality of life [3] and lead to positive attitudes and behavior towards the protected area [48,49]. Yet, in many contexts, communities are negative towards conservation and resent protected areas because they see no benefit [40,50]; experience inequitable distribution of benefits [51,52]; incur actual costs [21,53], with these sometimes outweighing the benefits [26]. “When the utility derived from living alongside wildlife is negative, negative attitudes . . . will continue” [26] (p. 11). Costs are defined as the negative impacts incurred by a community due to the presence of a protected area, such as reduced access or no access to natural resources, human–wildlife conflict, negative impacts on traditional cultural structures, increased prices, and conflict (such as with park management and between locals) [25]. Snyman [45] reported that, often, there are more people who will have to bear the costs of reduced or no access to a protected area than there are benefits that can be shared. Kideghesho et al. [48] suggested that locals experiencing higher costs are less likely to support protected areas; hence, costs need to be minimized. Some authors have reported on the impact of specific costs such as being negative towards conservation and tourism due to incurring costs from human–wildlife conflict [22,35] or being excluded from or having their access to natural resources, either for personal use or economic activity, restricted [2,21]. Rampheri et al. [29] reported that crop damage by wild animals causes negative attitudes towards conservation, in spite of other benefits being received. Locals may accept the need to protect wildlife, but this support does not extend to situations where people or their livelihoods are threatened by wildlife [51]. Negative behavior from costs appears to be more widespread than positive behavior from benefits. Burgoyne and Mearns [40] found that Maasai bordering the Serengeti National Park, who felt they were not receiving benefits, grazed their cattle inside the conservation areas. Ghoddousi et al. [53] in Golestan National Park (Iran) revealed that farmers suffer major losses from human–wildlife conflict. This results in a high rate of poaching, killing predators and using conserved land. Similarly, Stone and Nyaupane [28] found increased killings of “problem animals” in Botswana due to wildlife destroying crops and harming people.

A sense of **responsibility towards the protected area** is another aspect that can influence attitudes and contribute positively towards conservation, although it appears to be under-researched. People with a greater sense of responsibility are more likely to practice positive behavior towards the environment [54]. In the study by Angwenyi et al. [21], local people appreciated the value of nature and natural resources, knew that the reserves conserved biodiversity for future generations and knew that ecosystem goods and services resulted from this conservation and were important for humans and the environment. They considered this to be an indication that local communities can be effective co-custodians, but that this will require a relationship of trust. Obradović et al. [2] also found that locals had a strong sense of belonging to the protected area and wanted to safeguard it.

Several other aspects can also influence attitudes. These include **participation** in conservation and/or tourism, which appears to be closely linked to deriving livelihood

and other benefits [21,52,55,56] and increasing support for conservation [27,36]. Local people want to participate in protected area activities [21]. Zhang et al. [57], who studied conservation success in China's protected areas, turned this around and concluded that lack of participation results in negative attitudes towards conservation. **Multiple livelihood strategies** also influence attitudes, as they decrease exclusive dependence on natural resources for survival [45,58,59] and improve standards of living. A healthy active **tourism** industry also has an influence as, once locals recognize the link between a healthy natural environment and tourists coming to enjoy it, it can result in the protection of natural resources [60]. Other influences on attitudes can be, among others, **inclusion and recognition of cultural symbols** in architecture and tourism activities (exclusion thereof can cause negative attitudes) [14,61]; **cultural exchange** between locals and tourists [62]; **listening to local voices regarding their choice of benefits** to meet their specific needs [56,63].

Finally, **demographic factors** can also influence attitudes [2]. Higher levels of education are usually linked to greater acknowledgement of the importance of conservation and/or more favorable attitudes towards conservation [26,48,64,65], less dependency on natural resources [59] and pro-environmental behavior [47,66]. Some researchers have found positive conservation attitudes to exist more amongst older people [64], while others noticed these to be more prevalent amongst the young [26,65]. Casaló and Escario [47] linked age to actual pro-environmental behavior, with older people being more likely to change their behavior. Income also plays a role; households with higher incomes are less dependent on natural resources [38], while households with lower incomes are more interested in being involved and benefitting from conservation areas [2].

Research into attitudes can thus inform adaptive management and assist stakeholders in crafting new strategies. This primary research, conducted at three case study sites across South Africa, therefore aimed to determine what influenced the attitudes of local communities towards protected areas. It culminated in a model that can form part of a more inclusive approach to planning for biodiversity conservation and that widens stakeholder participation to include both the social and ecological dimensions involved in conservation. This research forms part of a wider PhD study by Queiros [25].

2. Methods

The data gathering was cross-sectional, conducted in three case study sites across South Africa, each at a specific point in time between December 2015 and September 2017. The study was completed in 2020. Each site comprised a local community (LC) living closest to the protected area (PA), as well as the protected area staff (PAS). The latter included management, conservationists and those involved in tourism. Each reserve had different management models and different levels of beneficiation programs and involvement with the local community (in order to capture a range of different scenarios and thus build a broader model). The case studies were: 1. Kekana Gardens community and Dinokeng Game Reserve in Gauteng province (a public–private partnership between provincial government and landowners; a fairly new reserve that opened in 2011, with some beneficiation programs already existing while others are being developed); 2. Khanyayo community and Mkhambathi Nature Reserve in the Eastern Cape (provincial reserve on community-owned land that is jointly managed by the provincial authority and a community trust; several economic and social upliftment programs have been developed over time); 3. Mngqobokazi community and Phinda Private Game Reserve in KwaZulu Natal (private reserve with some community-owned land and offering high-end tourism; a separate organization focusing entirely on the community has led to several well-established upliftment programs).

The research was qualitative to explore participants' feelings, perceptions and experiences [67,68]. Kumar [67] explained how social research into attitudes improves insight into how people feel towards certain situations, which plays an important role in improving policies and programs.

With the proximate LCs, the researcher spent a full morning with the group and used mapping, focus groups interviews and an adapted nominal grouping technique. The

questions and method used for each question are available in Table A1, Appendix A. For mapping, participants were given a large piece of paper and different colored markers. Focus group interviews were audio-recorded. The adapted nominal grouping technique involved participants writing down their answers on sticky notes, with one answer per note. As a group, these were then placed into categories and participants then voted on the order of importance of the categories. The research with the PAS was via individual semi-structured interviews, which were audio-recorded and conducted over several days at each case study site. Table A2, Appendix B contains the questions posed to PAS. Through the different methods, the questions covered the aspects that could influence attitudes, as gleaned from the literature. These included the LCs' knowledge and experience of the protected area; the relationship between the LC and PA; benefits and costs; positive and negative changes resulting from the presence of the PA; responsibilities towards the PA; how the positivity of the LC towards the PA could be improved; participants envisaging an ideal future. PAS were asked similar questions to LC members from the perspective of how they thought the community viewed the PA.

Non-probability sampling was used to select participants. With the LC, it was important, as per local culture, to start with the traditional leadership, after which a representative group was selected that combined different ages (over the age of 18) and a mix of females and males with varied positions in society. Permission was obtained from traditional leadership and the respective overseeing park management structures. The research was explained to participants, using translators where necessary, and informed consent was signed before commencement. Ethical clearance was granted by the Research Ethics Review Committee of the College of Agriculture and Environmental Sciences at the University of South Africa (Certificate number 2015/CAES/016). The final sample sizes were as follows for each case study: 1. 13 LC (6 females; 7 males) and 4 PAS (3 females, 1 male); 2. 19 LC (13 females; 6 males) and 5 PAS (1 female; 4 males); 3. 24 LC (12 females; 12 males) and 5 PAS (all males).

The recorded focus group interviews and individual interviews were transcribed and all the data (maps, interview transcriptions and notes from nominal grouping technique) were pulled into Atlas.ti for analysis. Inductive coding resulted in a detailed coding frame from which key themes were gleaned. Each case study was analyzed per question, with a summary produced at the end of each question and a further summary at the end of each case study. Using these summaries, the researcher then conducted cross-case analysis to compare the findings from the three case studies and extract the main influences on the attitudes of proximate communities. These became the meta-themes, which Yin [69] referred to as the most important issues emerging strongly from the cross-case analysis. The meta-themes were used to create the model on which the paper focuses, as well as the recommendations for implementation thereof. Readers interested in the in-depth analysis leading up to the meta-themes can consult Queiros [25].

3. Results and Discussion

This section first presents the main findings of the cross-case analysis in the form of meta-themes, which are presented in columns in Figure 1. Each column concerns an aspect identified from the literature that could influence attitudes of local communities towards protected areas. For each aspect, different questions were asked in order to probe laterally. Further analysis and drawing together of themes that overlapped with others led to the model presented in Section 3.2. In Section 3.3, recommendations are provided that were gleaned from the meta-themes and can assist in the practical implementation of the model.

3.1. Meta-Themes

The meta-themes that emerged from the cross-case analysis are shown in Figure 1. These are numbered and color-coded according to the content of the meta-theme to highlight the prevalence of each meta-theme across the various aspects that could influence attitudes. While several themes ran across the three case studies, some themes were specific

to one reserve only; for these, the reserve's name is shown in the block. The legend explains the color coding system where each color, encapsulating several meta-themes is allocated a "summary title". Figure 1 is followed by a brief discussion of the meta-themes as per Queiros [25]. If a meta-theme re-occurs under another aspect that influences attitudes, it is not discussed again, unless a new angle has emerged.

MT	KNOWLEDGE AND EXPERIENCE	RELATIONSHIP	BENEFITS	COSTS	RESPONSIBILITY	IMPROVING POSITIVITY
1.	LC enjoy visiting reserve and want to visit.	PAS more aware than LC of projects that improve relationship; and more positive regarding relationship.	PAS more aware of benefits than LC.	Limited access to the reserve as visitors causes negativity and is perceived as a cost.	LC either actively protect reserve or want to play this role. LC are negative if they feel excluded from this.	General education improves positivity towards reserve.
2.	LC appreciate reserve. Nature and animals are the focus and they want to learn about conservation and nature.	LC appreciate nature and conservation.	LC name more benefits than PAS.	Fear of wild animals is a significant cost and affects relationship.	If LC don't trust safety of reserve boundary, it increases fear of wild animals and negatively affects sense of responsibility.	Information on reserve improves positivity towards reserve.
3.	Information should be spread to all, not just leaders.	A good relationship decreases poaching.	Community leaders are more aware of benefits than wider community. Information should be disseminated to all.	Insufficient employment causes negativity and is seen as a cost.	A good relationship and benefits decrease poaching.	Employment is important and improves positivity towards the reserve.
4.	Those who visited as tourists know more about reserve.	Historical context influences expectation of benefits.	Employment is the most mentioned benefit.	LC perceive more costs than PAS.	LC have real fear of reporting serious poachers.	Phinda: Lack of management positions and perception of unfair employment policies
5.	Phinda: LC acknowledge a successful model and relationship.	LC reluctant to report minor poaching.	Education-related benefits are viewed positively.	More benefits than costs are acknowledged, which is positive.	LC appreciate nature and conservation.	Mkhambathi: Where development/infrastructure is less, it emerges strongly as a dream and positivity builder.
6.	Access to natural resources historically, influences attitudes today.	LC desire information.	Environmental education is important to LC and PAS.	Lack of access to natural resources is a cost.	LC want to learn about conservation and environment so as to understand their role and impact on reserve.	Involvement and interaction is clearly desired by LC, is a positivity builder and helps LC to understand conservation and their role in it.
7.		LC want more employment.	Infrastructure is seen positively where it has been received.	Dinokeng: LC view lack of information and interaction as a cost, resulting in a sense of exclusion.	LC reluctant to report minor poaching.	Genuine intent from PAS to see LC benefit (goodwill).
8.		Employing non-locals causes negativity.	Mkhambathi: Natural resource access is very important and viewed positively.	Historical context influences the expectation of benefits and the identification of costs.		Skills training and SMME development are important positivity builders and dreams for future.
9.		Lack of access to natural resources causes negativity.	Phinda: Education-related benefits are very important.			Dinokeng: LC request information provision.
10.			Visiting the reserve is a powerful benefit.			Dinokeng: LC discontent over employment of non-locals.
11.			Sometimes LC and PAS have differing perspectives on which benefits matter most.			PAS see community projects more as dreams and positivity builders than LC do.
12.			Even with challenges and budget constraints, LC do see the benefits.			Visiting the reserve is an important positivity builder.
13.			Phinda: Donation of meat is appreciative and enhances image of the reserve.			
14.			Either LCs are not seeing links between tourism and benefits or tourism-related benefits are not reaching them.			
15.			Reserves should have a mix of tangible and intangible benefits.			
16.			Phinda: Where LC benefit well, they are aware of it and appreciative.			

LEGEND	
Colour	Topic of meta-theme
Light Purple	Access to reserve as tourist
Light Green	LC appreciate conservation
Light Blue	Environmental education
Light Yellow	Information and interaction
Light Orange	Access to natural resources
Light Pink	Influence of historical context
Light Brown	Key differences between LC and PAS
Light Orange	Poaching and relationship
Light Green	Employment
Light Blue	Development/infrastructure
Light Yellow	General education
Light Pink	Human-wildlife conflict
Light Blue	Responsibility towards reserve
White cells indicate the remaining themes which are stand-alone	

LC	Local community
PAS	Protected area staff
MT	Meta-theme

Figure 1. Meta-themes: aspects that influence attitudes of communities outside Dinokeng, Mkhambathi and Phinda.

3.1.1. Knowledge and Experience

Understanding these themes reiterates the importance of communities knowing as much as possible about the PA and being able to experience the PA. There is little research on meta-theme 1 (MT 1), but Lee [70] confirmed this finding, stating that opportunities for locals to be tourists is important and that these opportunities increase the perception of benefits. This was true at Phinda and Mkhambathi, where locals viewed visits to the PA as benefits, which resulted in positive attitudes. As seen in MT 4, these visits enabled locals to know more about the PA as they increased familiarity with PA layout, geography and activities offered. MT 2 demonstrated an intrinsic appreciation for nature, similar to the findings of Allendorf et al. [71], Gadd [72] and Tessema et al. [73]. This emerged strongly in Störmer et al. [22], who found that local people were proud of their wildlife, knew that it

played a key part in the ecosystem and should be conserved for the future and that it was an important part of their culture. Almost half “felt artistically or spiritually inspired by at least some wildlife species” [22] (p. 197). Similarly, Gillingham and Lee [51] referred to locals recognizing the aesthetic values connected to wildlife as a benefit.

MT 2 also revealed a desire to learn about conservation and nature, a finding that recurred frequently, coupled with wanting to know about their role in and impact on conservation. While this research did not link environmental education directly to pro-conservation attitudes and/or behavior, its importance as a means to influence attitudes and/or behavior was reiterated by Imran et al. [74], Mogomotsi et al. [26], Owens and Drifill [75], Stem et al. [76] and Waylen et al. [39]. Swemmer et al. [77] also noted that environmental education builds capacity, while the research by Angwenyi et al. [21] showed that, for locals who were in favor of the nature reserves, one of the reasons for this was that they could learn about fauna and flora. The appreciation of nature and desire to learn about it emerges strongly in this research and PA management need to take note of this as it is a strong enabler of conservation success.

The importance of spreading information (MT 3) was also found by Mutanga et al. [78] in their study on four protected areas in Zimbabwe and the adjacent communities. In this context, communication between communities and PA staff was an important determinant in the people–park relationship. In contrast, irregular and insufficient information/communication can contribute to a negative relationship [51]. Gillingham and Lee [51], in their research in Tanzania, concluded that urgent attention must be paid to improving communication between local communities and the wildlife management authority. MT 5 showed that the good relationship at Phinda was readily acknowledged by the LC, even when the researcher was not asking about the relationship. MT 6 aligned with Rahman et al. [59] in that those whose livelihoods were traditionally shaped by access to natural resources over time had more dependence on these (and this influences attitudes) than residents who were newer to the area. On this note, Rai et al. [3] cautioned that, in the global south, separating people from their land can undermine conservation efforts.

3.1.2. Relationship

The questions leading to the meta-themes in column 2 revealed aspects that affect the relationship between LCs and PAs. Regarding MT 1, Collins [79] and Infield and Namara [80] found that communities sometimes failed to recognize existing benefits. Hill et al. [43], in research with rural communities within El Vizcaino Biosphere Reserve, Mexico, revealed that, while awareness of community-owned and -run beneficiation projects was low, awareness of projects initiated by the PA was even lower. Gearing up from awareness to positivity, Mutanga et al. [78] found that PAS were often more positive than the LC, which corresponds with this research (PAS were more aware than the LC regarding beneficiation programs and were more positive about the relationship).

MT 3 revealed that a good relationship decreased poaching. Stone and Nyaupane [28] concurred, stating that two years of building a sound relationship with the Chobe Enclave Conservation Trust resulted in less poaching. Also linked to poaching, MT 5 revealed reluctance to report minor bush meat poaching as locals empathize with those who poach out of hunger and are unlikely to report this. Though not emerging in this research, the literature points to disillusioned locals who tacitly or actively support poaching due to costs that they are incurring from the protected area [28,53,79,81].

The desire for information (MT 6) emerged again here, but it has not been found as a benefit in the literature. Communication emerged in Mutanga et al. [78], but straightforward passing on of information regarding a PA did not. Yet, this was important to the LC and could be administered fairly simply by PAS.

MT 7 aligned with several researchers (such as Collins [79]; De los Angeles Somarriba-Chang and Gunnarsdotter [82]; Lee [70]) regarding employment being one of the most commonly recurring direct benefits. However, Störmer et al. [22] pointed out that employment usually only benefits a few and therefore may not improve attitudes more broadly

across a wider community than other benefits might. MT 8 followed on from this and was consistent with Mutanga et al. [78], Odindi and Ayirebi [83], Saufi et al. [14] and Thondhlana et al. [84], who linked the employment of non-locals to negativity amongst the LC. Finally, MT 9 supported the findings of several researchers who found that restrictions on natural resource usage result in negative attitudes [48,71,78,80,85].

3.1.3. Benefits

The questions on benefits revealed the importance of specific benefits as well as observations on how benefits are viewed. MT 3 highlighted the importance of wide dissemination of information. Bennett et al. [85] emphasized awareness campaigns that focus on linking benefits to the existence of the park because this can improve positive perceptions, which locals link to greater support of the PA. Employment emerged under “Relationship” and, here, MT 4 recognized employment as a significant benefit, which was consistent with many studies [15,70,79,82]. Some authors have linked direct economic benefits to communities being more active in biodiversity conservation [21,44,74,86]. However, connecting to MT 15, other authors have cautioned against dependence on economic benefits as these could be interrupted or discontinued [72]. In addition, these benefits may encourage conservation for the wrong reasons, leading to failure of pro-conservation behavior should benefits be disrupted [87]. While the present research did not directly connect economic incentives alone to pro-conservation behavior, it was evident that, where locals held employment, attitudes towards the protected area were very positive. MT 15 (having a mix of tangible and intangible benefits) stemmed from the varying combinations at the three reserves (with Phinda leaning more heavily on tangible benefits than the other two reserves). Combining economic and non-economic benefits is essential, as it increases community wellbeing and the chances of sustaining pro-conservation behavior [40,72].

Most research related to education on the environment as a benefit that changes attitudes and/or behavior [42,74–76] or that helps locals accept resource restrictions [88]. Saufi et al. [14] referred to education on tourism as a benefit that increases participation and decreases economic leakage. Only a few, however, referred to general education and these were largely in the African context [45,77,88]. MT 5 and MT 9 also related to education in general, making this an important theme for conservation in Africa.

Facilities and infrastructure were mentioned in MT 7; the importance of this aligns with several researchers, such as Lee [70], Mehta and Heinen [89] and Stronza and Gordillo [90]. Development and infrastructure are a means of building trust with the community [40] and fostering goodwill [76].

MT 8 referred to resource access being important to the Khanyayo community outside Mkhambathi. This is confirmed by several other studies, for example, Allendorf et al. [71], Berkes [13] and Ghoddousi et al. [53]. Researchers such as Licona et al. [91], Nyaupane and Poudel [92] and Waylen et al. [39] argued that the LC should manage and control natural resources because this would result in more support for conservation and concern for nature. This was not found in the present study, probably due to the management models at the three reserves. At Phinda and Mkhambathi, though community trusts are involved, nature conservation is largely managed by a conservation agency at Phinda and the provincial authority at Mkhambathi. Dinokeng is managed by landowners and the provincial authority. Furthermore, locals live outside the three protected areas and Phinda and Dinokeng are Big Five territory. Also relevant to MT 8 was that conservation of a resource that could otherwise be destroyed/harmed was perceived as a benefit, which the LC appreciated [89,93,94]. This was relevant to Mkhambathi, where the LC appreciated that grass for thatching was conserved within the PA because it had been eradicated outside the PA due to human use of the land.

MT 11 was a key finding and, except for research by Mutanga et al. [95] and Mutanga et al. [78] in Zimbabwe and Thondhlana and Cundill [96] in South Africa, the author could not find other references to the LC and PA staff holding differing perspectives on which

benefits matter most and the importance of acknowledging this. Perhaps this indicates a new awareness of this gap in African conservation–community research.

MT 12 was a positive finding – in the African context where budgets are often limited and each reserve certainly has its challenges, the community did acknowledge receipt of some benefits. Where benefits were more prevalent (MT 16), this was acknowledged and valued. In the next column (Costs), MT 5 built on this theme, with more benefits than costs being noted at all three reserves. There was genuine intent from PAS to generate benefits for the LC (MT 7 in the “Improving positivity” column could also play a role in these findings).

MT 13 pointed to general community support as a tangible benefit (in this case, the donation of meat to the community by Phinda). Gillingham and Lee [51], Mutanga et al. [96] and Swemmer et al. [77] also noted this as an important benefit. Störmer et al. [22], in their work in Namibia, highlighted access to meat through hunting as a very significant benefit for locals, more so than benefits accruing from tourism.

3.1.4. Costs

The questions on costs led to meta-themes, some of which focus on specific costs and others on how costs are perceived. MT 2 revealed fear of wild animals as a cost. In the literature, human–wildlife conflict is the most commonly mentioned cost [5,65,97,98] and can cause negative attitudes towards a PA [35,38,53,78,80,88,90,93,97] or negative behavior [26,81,99]. Researchers have reported locals’ dissatisfaction with compensation schemes [22,26,51,81] or the lack of these schemes [78]. However, these are crucial in alleviating the burdens associated with conservation [30,100] and for improving commitment to conservation [100,101] and the attitudes of local people towards PAs [78].

Access to natural resources has been present in the previous two sections. This important theme emerged here in MT 6 (lack of access being viewed as a cost). This negatively influences support for conservation, as this hardship causes dissatisfaction [21] or leads to behavior that damages the environment [26,78,80,94].

For MT 7, the need for information has already been discussed in the previous two sections. However, the importance of interaction now surfaced. Participation can improve beneficence [49,56], as well as attitudes and behavior [60,102]. Participation in a conservation and/or tourism initiative is a form of interaction. MT 7 captured that lack of interaction is perceived to be a cost for the Kekana Gardens community outside Dinokeng, which resulted in a sense of exclusion. Soliku and Schraml [31] and Zhang et al. [57] also found that lack of participation resulted in negative attitudes. Regarding the importance of interaction, Bertella and Romanelli [103] and Simpson [55] argued that interaction between stakeholders is essential; Stronza and Gordillo [90] highlighted that it improves people skills and expands support networks for communities. Local people in the research by Angwenyi et al. [21] reported that being involved in meetings and decision making would result in sustainable conservation; the research by Gillingham and Lee [51] showed that local empowerment through active participation in decision making was crucial for good relationships. This present research showed the importance of regular communication and engagement between PAS and LCs.

3.1.5. Responsibility

MT 1, emerging from questions around a community’s sense of responsibility towards the PA, regarded the participants’ sincere desire to be custodians of the protected area. At all three reserves, the LC either played a part in protecting the reserve via actual protective actions (such as reporting poachers, escaped animals or fires) or truly desired to play a part. They were positive about this responsibility and negative if they felt excluded from it or did not have the correct information on hand to be a custodian. This finding has not emerged clearly in the literature, yet it is very significant. Communities voluntarily want to protect the different reserves, which in turn increases positive attitudes and positive behavioral actions towards the reserve. Nsabimana and Spencer [104] and

Rodríguez-Izquierdo et al. [105] found that rural communities felt, to some extent, that they were responsible for PA management and that this contributed to the success of conservation efforts. Spenceley et al. [106] (p. 12) referred to communities feeling responsibility toward the environment, citing “a strong sense of ownership and custodianship within the community” as a driver of success within community-based tourism, which in turn enhances environmental protection. Interestingly, if locals were unsure about the security of the boundary between them and the park, it increased fear and appeared to negatively affect their sense of responsibility (MT 2).

MT 3 highlighted that a good relationship and various benefits can decrease poaching, which pointed to improved custodianship. Relationship has already been mentioned as a key to decrease poaching. Here, the provision of benefits was linked to a decrease in poaching, which aligned with the findings of Stone and Nyaupane [28].

Learning about the environment was a meta-theme under “Knowledge and experience”. Here, a new addition was that local people wanted to learn about the environment so that they could understand their role in conservation and their impact on conservation. A very similar finding arose from research by Hill et al. [43] with rural communities in a Mexican biosphere reserve. Locals wanted environmental education so that they could better care for the environment. This also emerged in Angwenyi et al. [21], where locals were asked their views on how best to manage the reserve; one finding was that they wanted to be empowered with knowledge on the importance of the PA.

3.1.6. Improving Positivity

These meta-themes emerged from questions on how positivity towards the PA could be improved and from what participants envisaged regarding an ideal future for people and parks. It was to be expected that several benefits emerged again here, but only the meta-themes that provided new insight will be highlighted.

The literature has plenty of research regarding co-management and sharing of management but little regarding locals seldom obtaining managerial positions and the influence this has on positivity (MT 4). Participants were referring to their desire to rise in the ranks within Phinda to managerial positions. The perception that this was difficult caused negative attitudes. Mutanga et al. [78] found a similar view in research at Gonarezhou National Park in Zimbabwe, where locals occupied the lower paid positions, often being unqualified to take on higher positions. These findings highlight the need for in-house capacity building/training programs to develop staff.

Interaction (MT 6) emerged under “Costs” in the context of the Dinokeng LC lacking interaction. It appeared again here, along with involvement, as something that the LC would like to have that builds positive attitudes and even aids communities in understanding conservation and their role in it. There was wide consensus that involvement in conservation or natural resource management is important [18,31,107], with a lack of this causing conflict [96]. In addition, Lee [70] discovered that involvement leads to a better perception of benefits, which positively influences support for sustainable tourism development. Furthermore, of importance, is that this engagement should be ongoing and long-term [3]. The literature is clear regarding the importance of involvement; however, what is unique in this present research is that communities want to be involved, not only to benefit but also to understand conservation and how they can be part of it and how their actions influence it.

A final theme that has not been discussed yet was MT 8, revealing that skills training and small business development are important to build positive attitudes. The literature reviewed did not make the link between skills training and positive attitudes. However, several authors did note the importance of skills training and capacity building as an intangible benefit [14,76,79,90]. Rai et al. [3] (p. 8), in their work in India, stated that “... exposure of communities to knowledge and skill sets has opened a diverse array of livelihood options, and a stronger sense of their ability to promote their own sustainability”.

3.2. Model of Influences on Attitudes towards Protected Areas

The next step in the research was to create a practical model derived from the data and using the meta-themes as building blocks. Regarding this stage of consolidating data, Coles et al. [108] (p. 179) mentioned the “take-home messages” and Creswell [109] referred to lessons learned. Hence, in this section, the researcher used a model to achieve this. The meta-themes are still recognizable within the model but have been re-phrased to suit the different sections of the model. Where meta-themes in Figure 1 overlapped, these are now presented as a single item within the model. Figure 2 depicts the resulting model, which outlines the influences on attitudes towards protected areas and the conditions that give rise to pro- or anti-conservation attitudes. The researcher does not claim generalizability beyond the three case studies that produced the data that led to the model [110]. However, it could have areas of applicability to other PAs and surrounding LCs; users can therefore select what is relevant and customize the model based on their own findings or context. The model provides a practical tool that contributes to what stakeholders in biodiversity conservation need to consider in order to work optimally alongside communities in improving conservation planning and policy. It can assist in efforts towards a new form of management that is more inclusive and considers communities as active partners in conservation.

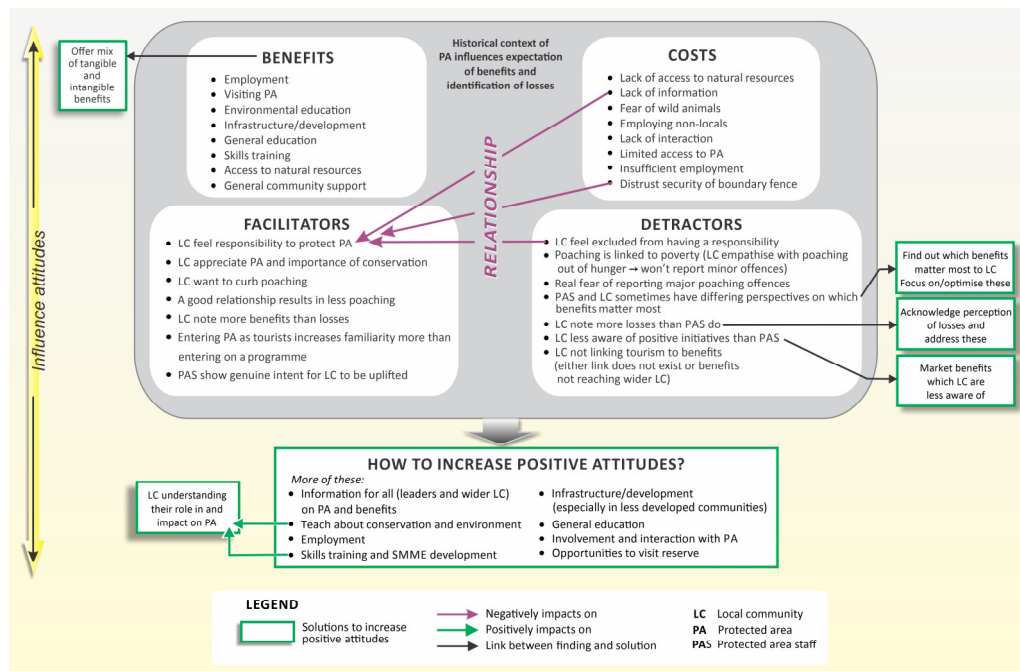


Figure 2. Influences on attitudes of local communities towards protected areas.

All elements within the model have an influence on attitudes; this is represented by the large bidirectional arrow running vertically across the schema on the left, entitled “Influence attitudes”. This could be a negative or positive influence, as is explained below. The model has two main sections (influences on relationships and solutions to increase positive attitudes) and several types of relational links.

3.2.1. Influences on Relationship

This research probed relationships as one aspect that influences attitudes towards protected areas. The literature suggests that relationship is important, but limited theory on this exists [96,111]. However, this present research revealed that knowledge and experience of the reserve, benefits and costs, the LCs sense of responsibility towards the PA and other influencing elements all had an impact on relationship. The centrality of “Relationship” is

thus shown by it occupying the largest frame, which surrounds the other elements. The elements within the relationship frame **influence both relationship and attitudes**.

The model depicts the top benefits and costs that emerged as meta-themes. For another protected area, these may be different and users can adapt it accordingly. “**Historical context**” is placed between “**Benefits**” and “**Costs**” as it influences expectation of benefits and identification of costs. The benefits received and costs incurred by the LCs at the three case study sites clearly influenced their attitudes. For example, when locals visited the protected area, were employed or knew someone who was employed, this clearly increased positivity; when locals felt that access to natural resources was limited or removed, this increased negativity. Occasionally, an influence on behavior emerged. In terms of positive behavioral actions, at Dinokeng, locals protected the boundary wall and reported escaped animals; at Mkhambathi they reported fires, poachers and escaped animals; at Phinda, local people were the eyes and ears for the reserve, reporting suspicious behavior and even catching poachers. On occasion, initiatives were suggested that reflected the desire to practice pro-conservation behaviors. For example, at Mkhambathi, young ladies were keen on initiating a community-run clean-up campaign within the reserve, while at Phinda, suggestions were made for the community to conduct an anti-rhino poaching campaign and to start a recycling facility. Negative behavior was evidenced in that, if locals lacked information or distrusted the security of the boundary fence or wall, this negatively impacted on them displaying pro-conservation behavior in terms of their responsibility to protect the PA (for example, not reporting fires, escaped animals or poachers).

The two other frames within the “Relationship” frame are those of the “**Facilitators**” and “**Detractors**”, which also influence attitudes. “Facilitators” refer to elements that are not benefits but that emerged from the research as positive elements relevant to the relationship and to nurturing pro-conservation attitudes. For example, the LC wanted to curb poaching and the PAS showed genuine intent to achieve community upliftment. “Detractors” are elements that detract from a good relationship and the nurturing of pro-conservation attitudes. Examples are that a community feels excluded from having responsibilities to protect the reserve and that communities perceive more costs than PAS. PA management would need to be aware of the elements within these two frames. Another PA may have different facilitators and detractors.

3.2.2. Solutions to Increase Positive Attitudes

Outside of the larger frame are the solutions to improve local wellbeing, as well as positive attitudes towards the PA. These are indicated within rectangles to the left and right of and below the “Relationship” frame. Solutions provided by participants are depicted in the **large solution rectangle** (entitled “**How to increase positive attitudes?**”) at the bottom of the model. It is important to focus on what the LC wants, instead of misguiding efforts in the wrong direction. Beneficiation programs should be designed in discussion with the community and then optimized. Employment is an expected one and is certainly important; however, some others may be simpler to implement in the short term, for example, providing more information on the reserve, teaching about conservation and the environment and involving and interacting more with the LC.

The **smaller solution rectangles** on the extreme left and right of the model are logical deductions based on key findings and are fairly simple solutions to implement. For these, the thin black arrows connect each finding to its respective solution. For example, a detractor is that “LC less aware of positive initiatives than PAS”. The thin black arrow leads to its solution box, namely “Market benefits which LC are less aware of”. Another solution following from the detractor of PAS and LC differing on which benefits matter most, is for PAS to find out which benefits are most important to the LC and to optimize these where possible.

3.2.3. Relational Links

The **one-directional thin black arrows** linking findings to solutions are mentioned in the previous paragraph. In another example, it was found that the community participants perceived more costs than protected area staff. The solution to this is that these perceptions are acknowledged and addressed, even if reserve staff do not see these as costs. Perceptions are powerful.

Further linkages between the different sections of the model that emerged from the data are shown with **thin purple arrows** (referring to “negatively impacts on ...”) and **thin green arrows** (referring to “positively impacts on ...”), which are interesting findings. Lack of information, distrust of the security of the boundary fence and feeling excluded from having a responsibility all negatively impact local people’s sense of responsibility towards the respective reserves. The implication is that if information were supplied, if there was more trust in the boundary fence and if local people were given clear responsibilities regarding protecting the reserve, they would, in turn, protect the reserve more. Furthermore, the model indicates that teaching about conservation and the environment, as well as providing skills training and facilitating small medium micro enterprise (SMME) development, positively impacts local people understanding their role in, and impact on, the protected area.

3.3. Recommendations for Protected Area and Community Stakeholders

The recommendations developed by Queiros [25] emanate from the meta-themes and can assist in the practical implementation of the model. The recommendations for community members are novel, since most guidelines focus on what management of protected areas or government should do. However, this research acknowledges that communities also have a role to play in facilitating a good relationship and in fostering economic and social development and biodiversity conservation. As Musavengane and Leonard [112] (p. 144) stated “... for conservation to be inclusionary it requires that people across every racial and social group work jointly to pursue the benefits that conservation has to offer”. Angwenyi et al. [21] concurred that, for sustainable conservation to be realized, communities should be active partners in managing PAs.

While the recommendations are contextualized to the three case studies, they could be helpful to other protected area managements and staff, as well as assisting different local communities to view themselves as active participants in fostering good relationships. Users can customize these to their own context.

3.3.1. Recommendations for Protected Area Managers

(a) Information and communication

- Communication and information regarding protected areas is important and greatly desired by the community. One means of increasing the flow of information is to appoint community liaison officers.
- Disseminate general information on the reserve to all sectors of the community, not only community leaders.
- Provide information that demonstrates the range of facilities and infrastructural gains due to the presence of the protected area (such as roads, community halls and bus shelters). While locals may notice schools and clinics, the existence of other facilities and infrastructure often do not get attributed to the presence of the protected area.
- Ensure that initiatives run/supported by the protected area that benefit the community are known to both community leaders and the wider community. At each reserve, there are community projects, education/training initiatives and facilities and infrastructure that can be attributed to the protected area but that locals did not mention. The initiative and information dissemination about it are therefore equally important in order to build positivity.

- The community always mentioned more costs than staff of the protected area mentioned. Whether you agree that these are costs or not, they are perceptions that are powerful in influencing pro-conservation attitudes and behavior. These should be explicitly acknowledged and addressed through providing information and environmental education and fostering awareness.
 - To mitigate unrealistic expectations from the community, which may even fall outside of the responsibilities of protected areas, educate communities on the different organizations involved, who is responsible for what and what the correct communication channels are for each organization. Openly discuss the limitations and realistic reach of the benefits offered.
- (b) Interaction with community
- Collaboration, involvement and interaction are important in improving positivity towards the protected area; they are desired by the community and help them to better understand conservation and their role in it. Harness this intangible benefit in a variety of ways: target newcomers to the area; bring locals into the protected area; host workshops; interact regularly with leadership and the wider community (find out what is working and what is not working). Interaction need not be complex and expensive. Simpler lower-budget initiatives include, for example, clean-up campaigns with the community; space for locals to have their own vegetable gardens; school recycling competitions.
- (c) Education
- Education-related benefits are highly visible and important in uplifting the local community and increasing the positive image of the reserve.
 - The fact that communities rate learning/training about the environment and animals as a top benefit is very positive. Locals attribute value to the environment and want to learn about it. If possible, grow your environmental educational programs beyond the target of school children only. Utilize community gatherings to teach and interact in this regard.
- (d) Employment and skills development
- Employment opportunities are vital and should be increased where possible.
 - Lack of employment also emerges as a loss. While it could be argued that there are more jobs now that the reserves exist (hence this is not a loss), lack of employment remains a perception. Cognizance should be taken of this.
 - Avoid employing non-locals as far as possible, since this is a clear cause of negativity towards the protected area.
 - Skills training (either for permanent employment or SMME opportunities) and SMME development improve positivity.
- (e) Use of the land
- If access to natural resources in a sustainable manner is possible, facilitate this, since it results in positivity towards the reserve, while lack of access causes negativity. Where it is not possible, use information sessions to meticulously address the reasons for this.
 - Acknowledge the cultural and historical importance of the land to local people. Access to sites for rituals and to ancestors' graves within the protected area should be promoted and facilitated, for example, by having official visitation days and offering transport.
- (f) Custodianship
- Communities are positive regarding having a responsibility to protect the reserve. They value the environment and want to learn more in order to be able to protect it. When local people feel that they cannot be involved in this way, it results in negativity and a notion of exclusion. Nurture this sense of custodianship and encourage the communities to see themselves as vital protectors, empowering

them through environmental education initiatives. Ensure that locals always know what actions to take in different situations and who to contact at the reserve (for example, when suspicious people are noticed or a fire starts).

- To set local people at ease, ensure boundaries are safe and reassure locals in this regard. If the communities do not trust the boundaries, it increases their fear of wild animals and appears to negatively affect their sense of custodianship. Some species are harder to contain (for example, snakes), so provide knowledge on how to handle these and who to contact if dangerous species “escape”.
- Community members are reluctant to report minor poaching offences. Consider having these incidents dealt with differently, perhaps via the tribal authority instead of via formal punitive structures.
- Community members have a real fear of reporting poachers. Consider implementing anonymous reporting structures.
- Where possible, support poverty-stricken families in the community. While local people want to curb poaching, they are sympathetic to those who poach bush meat out of hunger and are unlikely to report these incidents.

(g) General

- Find out which benefits matter most to the surrounding community and optimize those.
- Both tangible and intangible benefits are important. Do not focus on one to the exclusion of others. When budgets are small, focus on intangible benefits that are less expensive to implement. When budgets are large, do not neglect the power of the intangibles in improving lives and winning local support.
- Facilitate regular visits to the reserve across different sectors and age groups of the community. These are powerful for increasing positivity and an understanding of conservation. Consider using buses instead of game viewing vehicles in order to take more children into the reserve. For adults, consider dual pricing and special packages for locals (for example, a game drive and dinner). When communities perceive the reserve as inaccessible, it increases negativity.
- Relatively small gestures can make a large impact on the positive image of the reserve in the eyes of the community. For example, donations of meat at Phinda for community functions was highly appreciated.
- Focus on building the link between tourism and benefits so that local people understand that tourism provides benefits in the form of revenue, interaction with tourists, donations, sponsorships, etc. Create mechanisms to enable interaction, such as tourists visiting the local community; earmarking projects (in discussion with the community) that tourists can contribute to; facilitating opportunities for communities to showcase their culture (for example, arts and crafts or a community choir, dance or music group).
- Involving and benefiting communities cannot be an afterthought. It needs to be part of the planning from the start.
- Keep working on the relationship with the community. Strong relationships take much effort, patience and many years to establish.

3.3.2. Recommendations for Local Communities

- Acknowledge that the protected area can never employ everyone. Be creative in seeking out entrepreneurial opportunities that can provide income, support biodiversity conservation and add value to the tourism product.
- Communities rated learning about the environment and animals as a top benefit. Start environmental clubs and groups in your community, not only in schools but also in neighborhoods. Use these to teach and interact with your fellow community members regarding environmental awareness and sustainable practices in your own community, as well as the importance of and reasons for conserving the neighboring protected area.

- Encourage pride in the fact that you live adjacent to a protected area. Explain to those around you why conservation is important.
- Take the initiative in requesting information sessions about the reserve with protected area staff. Invite them to address clubs, societies and community meetings for both young and old on environmental topics that interest you.
- Have open and healthy dialogue with reserve management on which benefits matter the most to you and on feasible ways in which these can be optimized. Be realistic regarding the amount of benefits and types of benefit that can come from a protected area. Creatively consider what can be offered to your community and approach protected area staff with these suggestions (for example, meat for special community functions, vegetable gardens that make use of the protected area's water supply or seed funding for a local recycling plant).
- Take the initiative in increasing visitation to the protected area, for example, a society could gather a group of people who want to visit and approach protected area staff regarding a special package deal.
- While regular access to natural resources in protected areas can be complex due to dangerous wildlife, protected areas may allow access for special once-off requests. Engage with protected area staff regarding this.
- Work with protected area staff to maximize opportunities from tourism. Create simple authentic tourism products and activities that will attract tourists to your community; many tourists today are seeking this. Examples include arts and crafts; community dance, music or choir groups; creating opportunities/tours for tourists to visit the community; local gastronomy.
- Encourage cross-cultural contact between community members and tourists. Many tourists want this type of interaction; community members will also benefit from this exposure.
- Show tourists the social development needs in the community, providing them with an opportunity to sponsor a community upliftment initiative.

4. Conclusions

The ecological dimensions of conservation are being broadened to include social dimensions. However, more needs to be carried out in this regard [3]. For biodiversity conservation to be successful, a more integrated approach to conservation planning is required, one that focuses on social equity, mutual respect and optimal benefit-sharing in people–park relationships. Obradović et al. [2] (p. 13) contended that “A different management model, more inclusive and mindful of the role of local communities as important actors, could improve perceptions and attitudes towards achieving conservation goals, so that local communities recognize protected areas as an important resource that can improve their lives and develop their communities”.

Addressing costs and benefits can lead to community-based conservation programs that significantly influence the positive attitudes towards wildlife and conservation held by communities [22]. Furthermore, stakeholders need to move beyond costs and benefits and also consider multiple dimensions of social equity [30]. This model is an important step in this direction. With its focus on relationship (influenced by benefits, costs, facilitators and detractors) and data-derived practical solutions, it can assist stakeholders in aligning what communities want and need with what can realistically be offered by protected area staff and management, while conserving the natural environment.

Models such as this need to be part of the toolkit for the multiple stakeholders involved in biodiversity conservation. Planning for socio-ecological balance is vital for sustainable conservation [31,113] and the model and its practical recommendations could assist in fostering positive attitudes and improved wellbeing, while furthering conservation. In the spirit of adaptive management, the model can evolve as it is used and as the results are monitored.

A limitation of this research is that it only considered three case study sites. Further research with other communities in the same case study area and with different case study sites entirely would enhance the knowledge on attitudes towards protected areas. Moreover, actual behavior stemming from the presence of the themes discussed here is harder to measure and determine than attitudes. Nevertheless, this is essential future research, as positive or negative behavioral actions towards protected areas would directly impact on socio-ecological conservation efforts.

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Appendix A

Table A1. Questions asked to local communities (LC) [25].

* Focus Group Interviews	* Mapping	** Nominal Grouping Technique
What do you know about this nature reserve? What is inside this nature reserve? What can you do in there?	Draw a map of the reserve and your community.	What are the benefits of having this nature reserve near to your home? Which of those benefits are most important to you? Which are least important?
Tell me about the relationship between you and the nature reserve. How do you feel about living near the nature reserve?		What are the losses/costs of having this nature reserve near to your home? Which of those costs impact you the most? Which ones impact you the least?
How has the nature reserve changed the way you live (positive and negative)? How have things changed?		
Some people like this nature reserve and the animals. Some people think there are better ways to use this land. What would make you more positive towards the nature reserve being here over the next 100 years, that is, down to the time of your great grandchildren?		
What do your friends and family think about this nature reserve?		
Who of you have been into the reserve? How many times a year? What do you go in for? What did you think of your experience?		
Do you have any responsibilities for this nature reserve? If you do, how do you feel about these?		
For you, living near this nature reserve, what is your ideal future for your community? What is your dream situation?		

* The group was divided into two smaller groups. While one group was in the focus group interview, the other group conducted the mapping. The two groups then swapped. ** Both groups merged for the nominal grouping technique.

Appendix B

Table A2. Questions asked to protected area stakeholders (PAS) [25].

Individual Interviews
Tell me about your perceptions of the relationship between the local community and the nature reserve.
How do you think the nature reserve has changed the way the local community lives (positive and negative)? How have things changed?
What do you think would make the local community more positive towards the nature reserve being conserved in the future?
Does the local community have any responsibilities for/towards this nature reserve? If they do, how do you think they feel about these?
What are the benefits to the local community of living near this nature reserve? Which of those benefits do you think are most important to them? Which are least important?
What are the losses/costs to the local community of living near this nature reserve? Which of those costs do you think impact them the most? Which ones impact them the least?
For this local community living near this nature reserve, do you have any ideas on what an ideal future for them could be?

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