



Article

Local Communities' Attitudes and Support Towards the Kgalagadi Transfrontier Park in Southwest Botswana

Naomi Moswete ¹, Brijesh Thapa ^{2,*} and William K. Darley ³

¹ Department of Environmental Science, University of Botswana, Gaborone 00704, Botswana; MOATSHEN@mopipi.ub.bw

² Department of Tourism, Hospitality and Event Management, University of Florida, Gainesville, FL 32611, USA

³ College of Business and Innovation, University of Toledo, Toledo, OH 43606, USA; wd4361@gmail.com

* Correspondence: bthapa@hnp.ufl.edu; Tel.: +1-352-294-1656

Received: 16 January 2020; Accepted: 12 February 2020; Published: 18 February 2020



Abstract: Protected areas are of national importance and have developed into sources of benefits while in other situations have sparked conflicts among stakeholders, including residents from adjacent local communities, and park authorities. In this study, we examined community residents' attitudes towards the Kgalagadi Transfrontier Park (KTP) in the Kalahari region (SW Botswana). This study assessed factors that influence support for, or opposition to, the KTP. A questionnaire with semi-structured questions was used to gather information from head of households (N = 746) in nine villages in the Kalahari region. Overall, positive attitudes and support for the KTP as a transfrontier park were documented, though tangible benefits were limited. Further based on analyses, literacy, proximity, and employment status were key variables that influenced support. In addition, any increase in residents' perceived benefits, land ownership, conservation awareness, and local benefits resulted in increased support for KTP. The implications indicated that communities near the KTP (Botswana side) need to be consulted, while further communications between the KTP management and authorities and adjacent villages are required to initiate effective community conservation programs. Additional programs and community outreach initiatives would also enable positive attitudes and support of KTP.

Keywords: conservation; Transboundary Park; residents; attitudes; Kalahari; southern Africa

1. Introduction

Parks and protected areas are generally associated with benefits and related values (monetary, pride) by local residents due to improved quality of the environment, and other social and economic benefits including employment [1–10]. However, local residents' attitudes towards protected areas in the developing world have been mixed [1,3,11–17]. Research has identified various factors that influence negative attitudes such as, human-wildlife conflict [14,18–22], land claims [23–25], restrictive policies and access regulations to collect non-timber forest products (e.g., nuts, wild mushrooms, berries, seeds, medicinal plants and herbs, etc.), and livestock grazing [18,24,26–30]. Conversely, positive attitudes have been influenced by community and personal economic benefits largely derived from tourism [4,22,31–37]. As evident, there are challenges faced by stakeholders (i.e., local residents, resource managers, park authorities, tourism planners, developers, and conservation organizations) with respect to the balance of conservation priorities and livelihood needs [7,38–42].

In general, rural people in developing countries experience hardships and have had difficulties with minimal resources due to climate change, limited agricultural production as a result of

unreliable rainfall and recurring droughts, and population growth in villages flanking protected areas [6,10,13,21,26,34,43–47]. In southern Africa, livelihood activities with sole dependence on forest and rangeland resources have caused, and in some instances, exacerbated soil and land degradation [48,49]. Subsequently, instances of conflicts over natural resource use between different stakeholders that include park authorities and adjacent local communities [15,24,50–52] have also fueled unsustainable livelihood activities such as illegal hunting, overharvesting of rare species of flora and fauna [32]. In response, rural communities have resorted to new livelihood ventures, such as park-based community ecotourism and wildlife safaris enterprises in the form of Community-based Organizations (CBOs) or Trusts near or in Protected Areas (PAs) [5,47,52–55]. In Botswana, the government has introduced the concept of community based natural resource management (CBNRM) and community based organization (CBOs) (e.g., wildlife based Trusts) as a strategy to diversify rural livelihoods and reduce competition for the same resources among stakeholders [24,49]. It is through such initiatives that rural communities are encouraged to establish CBOs (Trusts) to develop community-based tourism enterprises from which they collectively plan, make decisions, manage and operate tourism enterprises and share benefits [5,56,57].

Thus, many rural communities especially those found in or near resource rich (i.e., fauna, flora, and cultural-heritage) protected areas have formed CBOs/Trusts which are comprised of one or several villages with equal rights of ownership and management. For instance, local residents of Khwai, Sankuyo and Mababe villages in the Okavango Delta region were found to benefit from ecotourism ventures via their CBOs/Trusts [54]. In the southern Kalahari region, marginalized communities with CBOs/Trusts accrued benefits from ecotourism activities tied to wildlife in PAs [33,47,58]. Likewise, residents of Khawa village and Ngwatle, Ukhwi and Ncaang settlements, all are located in the Wildlife Management Areas (WMAs) derived benefits from CBNRM - safari hunting operations through their CBOs/Trusts [56]. WMAs are areas reserved by the government for wildlife uses and other conservation activities. Permitted land uses are for consumptive or non-consumptive wildlife utilization. These areas are situated in the buffer zones of PAs and mitigate land uses conflicts, and are used for migratory corridors for wildlife [59].

Overall, tourism activities that occur in all types of protected areas create opportunities (e.g., tour guides, entrepreneurial activities (e.g., beadwork for souvenirs)) as well as lead to increased competitiveness as destinations [3,5,35,36,60,61]. Hence, it is important that local people are actively involved in all spheres of decision-making with regards to community-based ventures [33,37,62], and conservation of resources (i.e., fauna, flora, and cultural heritage) [7,53,63].

2. Site Context

The southwest Kalahari region is popularly known for and is associated with the Kgalagadi Transfrontier Park (KTP) that is conterminous with Botswana and South Africa (see Figure 1). KTP is the first transboundary protected area to be created in southern Africa [48,64,65], and has become important for conservation as well as sources of livelihood for local people that reside within or adjacent to it [5,7,41,52,58]. In Botswana, national parks and game reserves were created to safeguard and maintain wildlife resources, preserve biodiversity, integrate conservation and development activities, foster ecological education and promote park-based tourism to benefit environmental resources and people [41,66,67]. The government's commitment to conservation and preservation of the natural and cultural resource base, and the promotion of sustainable utilization of such assets are evident [29,68]. The protection and preservation of wildlife resources inside and/or in the Wildlife Management Areas (WMAs) or buffer zones of PAs have created increased numbers of wild animals in some parts of Botswana [69]. There has also been benefits in terms of improved grass cover and biomass for wild animals and for grazing domesticated animals—goats and sheep. It is also in these WMAs that local people have established CBOs through which they venture in tourism—e.g., photographic tourism and community camping sites for wilderness or nature-based tourists.

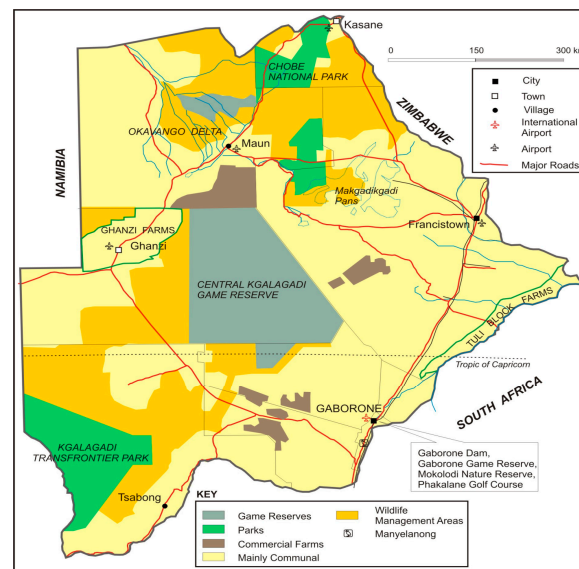


Figure 1. Map of Botswana depicting Wildlife Management Areas (WMAs) and the location of Kgalagadi Transfrontier Park (KTP) in southwest Botswana (P.G. Koorutwe).

In the case of the Kgalagadi, studies have identified that rangelands have supported a diversity of wildlife and livelihood activities such as game ranches (Tsabong, Maubelo and Maralaleng villages Trust/CBO located in Tsabong, Kgalagadi south) [32], subsistence hunting, and gathering [70]. Agriculture in the Kgalagadi region only benefits a number of small to medium scale commercial farmers [48,64,71], and there is over exploitation of tree resources, especially adjacent to villages and settlements [39,47,72]. Thus, recent recommendations include the necessity for alternative livelihoods in which rural people could use rangeland in a sustainable manner to benefit themselves and the environment [29,32,41,50].

Additionally, the Kgalagadi region has high unemployment along with limited opportunities to initiate income generating activities [47]. The KTP offers opportunities to further capitalize on and develop community-based ecotourism initiatives [32,33,47,61]. The recent emphasis on sustainable ecotourism initiatives demands that local people's involvement in tourism ventures, especially those that reside in or near PAs be increased, particularly among the most affected [16,29]. Given the importance in the establishment of the KTP for transboundary conservation, local residents have also had expectations for development opportunities for their respective communities [48,65]. Additionally, there is limited research that pertains to conservation, tourism, and local communities adjacent to PAs in southwestern Botswana [19,32,33,47]. Hence, the purpose of this study was to examine local communities' attitudes and support towards the Kgalagadi Transfrontier Park. More specifically, to identify factors which influence the level of support or opposition of KTP. This study only focused on communities on the Botswana side of KTP due to the paucity of research. Additional information about the South African perspective has been detailed elsewhere [7,25,30,58,70].

3. Methods

3.1. Study Site

The Kgalagadi region is known for its unique, large and relatively pristine ecosystem, with large-scale migratory routes for wild ungulates and predatory mammalian carnivores. The region has desert features such as salt pans, calcrete rimmed fossil valleys, and undulating and crisscrossing sand dunes scattered throughout its landscape [41,48,59,65,72]. The attractiveness of southern Kalahari and the greater KTP includes unique natural attractions—birdlife and social weaver nests. Other desert tourism attractions include cultural heritage with ethnic songs, music, dances, traditions,

local food, poetry, folklore, handicrafts, religion, language, and traditional costumes [47]. The study site is distinctive as it boasts of unspoiled wilderness, desert-adapted wildlife (e.g., elephants), and handicrafts of the diverse Kalahari people that include San/Basarwa, BaHerero, BaKgalagadi, and many others [47,73]. The architecture of dwellings is unique, and is an attraction in its own way as appreciated at the Trailblazers cultural village for tourism, situated about 10 miles from the village of Ghanzi in northern Kalahari.

The Kgalagadi district is sparsely populated (49,049) with a density of 0.38 people per square kilometer [74]. The population is comprised of six ethnic groups, namely Bangologa, Basarwa, Baherero, Batlharo, Coloureds, and Nama. Residents overwhelmingly live in the communal areas mostly in and around the villages of Matsheng, Kang and Tsabong [48]. On average, the village/settlement size consists of 198 inhabitants. Within the district, there are more people and settlements in the southern Kgalagadi region (59%) than the north (41%) [48]. The economy is principally based on raising small scale livestock and nominal crop farming, while traditional livelihood activities inclusive of subsistence hunting and gathering are also evident [39,50]. For this study, nine village/settlements were selected from the districts: Kang, Ncaang, Ukhwi, Zutshwa, Tshane (Kgalagadi North) and Khawa, Struizendam, Bokspits, Tsabong (Kgalagadi south).

3.2. Data Collection

The targeted respondent was the head of the household. In the event this person (father or mother) was not available, then any member of the family (18 years or older) who had lived in the village or settlement for at least 12 months was requested. The survey questions were translated into the national language—Setswana. The translation was checked and verified for consistency by an expert in English and African languages. The questionnaire was translated back to English [75], as it is the official language and used as the medium of instruction at schools and government institutions. Responses to the survey questions (45–60 minutes approximately) were conducted verbally by the lead author who is a native of Botswana. Collectively 746 responses were completed for a response rate of 75% (see Table 1).

Table 1. Selected villages, population, distance from KTP and sample households.

Village/Settlements	Total Village Population (N)	Total Households (n) *	30% of Households	Household Sampled	Approx. Distance from the Park Fence (km)
North Kgalagadi					
Ncaang	175	43	13	37	250
Ukhwi	453	114	34	59	90
Zutshwa	469	118	35	55	75
Tshane	858	209	63	89	160
Kang	3744	913	274	122 (82) **	280
South Kgalagadi					
Khawa	517	128	39	75	21
Struizendam	313	76	23	44	23
Bokspits	499	122	37	53	53
Tsabong	6591	1608	482	212 (145) **	300
Total (9)	13,619	3331	1000	746	

* Household estimate = total population/4.1; Note: ** Initially sampled 30% of the total households and subsequently extracted 30% of this sample (number in parentheses) for data collection. (Source: GoB, 2001).

3.3. Operationalization of Variables

The questionnaire had items that measured various constructs and issues. First, attitudes towards KTP (independent variable) were operationalized with 13 items adapted from the literature [22,26,34,76]. The items focused on conservation priorities, land ownership, perceived benefits, resource use and management. Each was operationalized using a five-point Likert-type scale anchored by 1 (strongly disagree) to 5 (strongly agree). In addition, knowledge about KTP was operationalized with three items (Yes/No/Don't Know) such as: KTP provides opportunities for community development programs/projects; community campsites outside KTP accrue more money from visitors; and many visitors who visit KTP stay in my district.

Support for KTP (dependent variable) was measured via 5 items in a Likert-type scale anchored by 1 (strongly oppose); 2 (Oppose); 3 (Neutral); 4 (support) to 5 (strongly support). The items focused on support or opposition towards KTP regulations and guidelines, management staff, transfrontier status, conservation area, buffer zones and wildlife management areas. The items were adapted from the literature [43,77,78]. Finally, ancillary items that relate to age, gender, education, household income, employment, residency, ethnicity, household size, sources of income, and occupation were also measured. Among these, four items such as literacy (educated/uneducated), proximity to KTP (distance in kilometers), employment status (formal, part-time, self-employed, unemployed, retired), and length of stay (residence in the area) were included as covariates, as past research has demonstrated its applicability at this site [33].

4. Results

4.1. Profile of Respondents

With respect to the sample, 45% of the respondents were from Tsabong and Kang, 20% from Tshane and Khawa, and 35% from Ncaang, Ukhwi, Zutshwa Struizendam and Bokspits. Only 45% were males and 55% females, as reflective of the time of day for the household survey since most men were engaged in agricultural and livestock related work, and women largely focused on domestic chores. Forty one percent were in the 18-30 age category, 40% between 31 and 50 years old, and 19% above 51 years old. About 21% had primary education while 16% had no formal schooling. Only 18% reported a high school education. With respect to distance, 38% lived close (21–99 km) to the park whereas 62% lived further away (100–300 km). About two-thirds had lived at their current address since birth, while a third of the respondents had lived between 1 to 10 years. For income, 42% noted less than P1000 total household income per month, 31% between P1001 and P3500, and 26% reported over P3500 (US \$1.00–BWP 10.00 based on May 2017 USA-BWP conversion). The primary source of income was through formal employment (31%) (e.g., security guard, family welfare nurse) and self-employment (24%) (e.g., souvenir production for commercial purposes). In addition, 25% reported to be unemployed and were dependent on government aided welfare support programme. The study area had mixed race/ethnic groupings with Bakgalagadi as the majority, followed by Batlharo, Bangologa, and San/Basarwa.

4.2. Conservation Attitudes and Support for KTP

Some of the key findings relate to the fact that nearly all household heads (98%) agreed (strongly agreed and agreed responses combined) that KTP should be protected to benefit future generations, while 92% agreed to the importance in the protection for survival of plants. The majority (91%) agreed that it was essential for the government to devote more money toward a strong conservation program for KTP. However, 87% agreed that if hunting and cattle grazing were allowed in KTP, then wild animals would all disappear. Moreover, the majority (85%) agreed that unlimited access to natural resources (e.g., collecting fuel wood, medicinal plants, herbs, etc.) inside the KTP would lead to loss of and extinction of some rare species. About 70% disagreed (strongly disagreed and disagreed responses combined) that conservation and protection of KTP had taken land from the community. Similarly, 71%

disagreed that farmers did not have land to cultivate and graze their livestock due to KTP, while 20% agreed. Respondents were also asked to put forth their views about whether it would be better if some parts of the land in KTP were allocated to communities to utilize for agriculture. A sizeable percentage of respondents (69%) disagreed that parts of land from KTP should be allocated for agriculture, while 23% agreed (see Table 2).

Table 2. Residents' attitudes (percentages) towards the Kgalagadi Transfrontier Park (N = 746).

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
KTP should be protected for benefit of our future generations.	0.4	0.4	1.3	42.9	55
KTP protection has taken our land from us *.	17.8	51.7	9.5	17.8	3.1
It is important to protect KTP for survival of plants.	0.8	3.6	3.2	68.0	24.3
Farmers don't have land to cultivate and graze livestock due to KTP*.	19.2	51.7	9.0	15.8	4.3
Staff from KTP has done nothing for villagers' lives *.	6.4	36.2	20.0	29.8	7.6
It is better if some parts in KTP be allocated to the local people to use for agriculture *.	19.7	49.7	7.4	19.2	3.6
If hunting and grazing in KTP is allowed then wildlife will disappear.	2.4	6.3	3.6	57.4	30.0
If there is unlimited access to forest resources in KTP (Firewood, medicinal plants, forest foods) they will all disappear.	3.4	6.7	5.4	61.7	22.9
It is important for government to devote more money toward a strong a conservation program for the KTP.	1.2	3.9	4.4	62.9	27.5
KTP provides jobs for people from the village.	5.4	31.1	12.1	42.4	9.1
KTP is being managed for the local people.	4.2	35.3	16.4	35.3	8.7
I am happy to have my village next to KTP.	0.9	6.4	9.5	66.2	16.2
It is important to protect KTP for the survival of wildlife.	1.6	1.5	2.9	61.9	32.0

* Item reverse coded prior to analysis.

Similarly, majority of respondents (95%) expressed support (strongly support and support responses combined) for the protection of KTP as a conservation area. A sizeable proportion (72%) were supportive of KTP as a transfrontier park. Also, the level of support for the current management staff was noted by 65% of the respondents. Although the majority were supportive of KTP as a transfrontier park, there were others (21%) who opposed it (strongly oppose and oppose responses combined). Additionally, a large number (78%) were supportive of the creation of KTP buffer zones and Wildlife Management Areas, while 73% supported regulations and guidelines that maintained KTP as a transfrontier park (see Table 3).

Table 3. Residents' level of support (percentages) for Kgalagadi Transfrontier Park (N = 746).

Statements – I Support	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
KTP as a Transfrontier Park.	9.4	11.9	6.7	51.7	20.0
Current management staff at KTP.	1.1	14.6	19.2	51.5	13.5
Creation of buffer zones and WMAs.	2.1	6.2	13.0	58.8	19.6
Regulation and guidelines for KTP.	4.3	7.6	15.3	54.2	18.5
Protection of KTP as a conservation area.	0.4	1.2	2.8	65.5	29.8

4.3. Data Analysis

First, the 13-item independent attitudinal measures were assessed for appropriateness to conduct data analysis via Bartlett's test of sphericity and Kaiser-Meyer-Oaklin (KMO) measure of sampling adequacy. Bartlett's test of sphericity was highly significant (approximate chi-square = 1386.647, $df = 78$, $p < 0.001$), and KMO was 0.752, which exceeded [79] recommended cut-off of 0.60. Likewise, for the five-item dependent variable measure (i.e., support) Bartlett's test of sphericity was also highly significant (approximate chi-square = 753.445, $df = 10$, $p < 0.001$), and KMO was 0.699. These two measures for the independent and dependent variable measures suggested that the data was suitable for factor analysis.

Second, a principal component analysis (PCA) was performed using Varimax rotation with Kaiser normalization. Four factors (i.e., land ownership, conservation awareness, local benefits, and resource use) were generated and accounted for 53.14% of the total variance which exceeded the minimum cut-off of the 50% [79,80]. The four factors explained 20.09%, 12.27%, 10.03%, and 7.75% of the variance, and had eigenvalues of 3.00, 1.59, 1.30, and 1.01, respectively (see Table 4). The single factor for the criterion or dependent measure explained 46.71% of the total variance. Factor loadings 0.40 or greater were considered significant [81]. The reliability score ranged from 0.56 to 0.70, and were deemed acceptable [81]. Considering these scores, [82] recommend reporting the mean inter-item correlation for the items, and suggests an optimal range of 0.20 to 0.40. For this study, the ranges of inter-item correlation means were 0.241 to 0.440, and noted to be acceptable. Although reliabilities were lower than desired, they were not low enough to justify discontinuation given the range of mean inter-item correlations, number of items, and the unique nature of the data [81–84]. The items within each factor were computed as independent index, respectively. In addition, an index was created for the three items that measured perceived benefits about KTP which were: 1.) KTP provides opportunities for community development; community; 2) Community campsites accrue more money from visitors; and 3) Many visitors who visit KTP stay in my district.

Table 4. Factor loadings and reliabilities.

Constructs and Items	No. of Items	Loading	% of Variance Explained	Mean Inter-item Correlation	Reliability	Scale Mean *
Land Ownership	3		20.09	0.440	0.70	10.92 (2.58)
Farmers don't have land to cultivate and graze livestock due to KTP.		0.806				
KTP protection has taken our land from us.		0.802				
It is better if some parts of land in KTP is allocated to local people to use for agriculture.		0.705				
Conservation Awareness	4		12.27	0.242	0.56	16.96 (1.81)
KTP should be protected for the future of our new generation.		0.701				
It is important to protect KTP for the survival of wildlife.		0.601				
It is important for the government to devote more money towards a strong conservation program for KTP.		0.570				
It is important to protect KTP for survival of plants.		0.479				

Table 4. Cont.

Constructs and Items	No. of Items	Loading	% of Variance Explained	Mean Inter-item Correlation	Reliability	Scale Mean *
Local Benefits	4		10.03	0.241	0.56	10.76 (2.74)
KTP provides jobs to people from the village.		0.765				
Staff from KTP have done nothing for villagers' lives.		0.682				
KTP is being managed for the local people.		0.641				
I am happy to have my village next to KTP.		0.415				
Resource Use	2		7.75	0.396	0.57	8.01 (1.52)
If hunting and grazing in KTP is allowed then wild animals will disappear.		0.789				
If there is unlimited access to forest resources in KTP (e.g., firewood, medicinal plants) then they will also disappear.		0.775				
Dependent Measure						
KTP Support	5		46.71	.327	0.70	19.08 (3.16)
Regulations and guidelines to maintain KTP as a Transfrontier Park.		0.789				
Current management staff at KTP.		0.753				
KTP as a Transfrontier National Park.		0.701				
Protection of KTP as a conservation area.		0.614				
Creation of KTP buffer zones and WMAs.		0.527				

* Scale standard deviation in brackets.

Furthermore, several techniques were used to ensure against multi-collinearity. First, a correlation analysis was conducted along with a collinearity diagnosis. The bivariate correlations ranged between 0.01 and 0.49, and were below 0.70 [80] (see Table 5). Subsequently, cut off points were earmarked to determine multicollinearity—tolerance value of less 0.10, or a variance inflation factor (VIF) value of above 10 [84] (p. 164). The tolerance value for each of the variables was 0.98 or less with 0.98 as the highest, which is greater than 0.10. The variance inflation factor (VIF) was 1.432 (highest), which was below the cut-off of 10. Collectively, the multicollinearity assumption was not violated. In addition, discriminant validity assessment was performed, and the bivariate correlations ranged from 0.01 to 0.49, while reliabilities were from 0.56 to 0.70. Thus, discriminant validity was verified for the constructs.

Table 5. Correlation matrix of study variables, means and standard deviations.

Variables	Z ₁	Z ₂	Z ₃	Z ₄	X1	X2	X3	X4	X5	Y1
Covariates										
Literacy (Z ₁)	1.000									
Proximity (Z ₂)	0.11 **	1.000								
Employment status (Z ₃)	−0.20 **	−0.10 **	1.000							
Length of stay (Z ₄)	−0.50 **	−0.09 *	0.31 **	1.000						

Table 5. Cont.

Variables	Z ₁	Z ₂	Z ₃	Z ₄	X1	X2	X3	X4	X5	Y1
Independent Measures										
Perceived benefits (X1)	−0.07	−0.13 **	−0.07	−0.04	1.000					
Land Ownership (X2)	0.12 **	0.20 **	−0.07	−0.15 **	0.04	1.000				
Conservation Awareness (X3)	−0.06	−0.06	−0.13**	0.01	0.23 **	0.25 **	1.000			
Local Benefits (X4)	0.13 **	0.14 **	0.05	0.02	−0.40 **	−0.17 **	−0.32 **	1.000		
Resource Use (X5)	−0.05	−0.01	−0.07	−0.01	0.10 **	0.26**	0.35 **	−0.176 **	1.000	
Dependent Measure										
KTP Support (Y1)	−0.16 **	−0.11 **	−0.07	0.04	0.30 **	0.16 **	0.25 **	−0.40 **	0.16 **	1.000
Mean	0.60	0.62	2.46	28.51	0.37	3.64	4.24	2.69	4.00	3.82
Standard Deviation	0.49	0.49	1.20	19.84	0.32	0.86	0.45	0.68	0.76	0.63

* Correlation Significant at the 0.05 level (2 tailed); ** Correlation significant at the 0.01 level (2 tailed).

4.4. Regression Analysis

Hierarchical regression was conducted with five predictor independent measures (perceived benefits, land ownership, conservation awareness, local benefits, and resource use) along with four covariates (literacy, proximity, employment status, and length of stay) on the outcome dependent measure (KTP support). Except for perceived benefits that employed an index, means of the predictor and outcome constructs were used in the analysis. The use of means has two advantages. First, “it provides a means of overcoming to some extent the measurement error inherent in all measured variables,” and second, the mean is able “to represent the multiple aspects of a concept in a single measure” [81] (p. 116–117). In the analysis, two models were produced and referred to as Model 1 and 2 (see Table 6).

Model 1 presents the effects of the four covariates (literacy, proximity, employment status, and length of stay) on KTP support. The relationship was significant ($F = 8.854, p < 0.001$) as the variables explained 4.6% of the variance in KTP support. Literacy ($\beta = -0.183, p < 0.001$), proximity ($\beta = -0.100, p < 0.01$) and employment status ($\beta = -0.102, p < 0.01$) were all significant and had negative relationships with KTP Support. However, length of stay failed to register a significant relationship. So, the next step was to control the four covariates, and identify if the five independent variables could predict a significant amount of variance in KTP support.

Model 2 was highly significant ($F = 23.281, p < 0.001$) along with the change in the F value ($F = 33.273, p < 0.001$). Results demonstrated that with the control of the four covariates, the five independent variables predicted a significant amount of variance in KTP support. This new model explained 22.2% of the variance with the five independent variables that accounted for 17.7% of additional variance. Of the four covariates, only literacy had a significant effect on KTP support ($\beta = -0.116, p < 0.01$). Essentially, any increase in the level of literacy resulted in support for KTP. Among the five independent variables, only resource use was not statistically significant. Perceived benefits ($\beta = 0.143, p < 0.001$), land ownership ($\beta = 0.109, p < 0.01$), conservation awareness ($\beta = 0.071, p < 0.05$), and local benefits ($\beta = 0.272, p < 0.001$) were all positively related to KTP support. In addition, local benefits had the strongest relationship followed by perceived benefits, land ownership, and then

conservation awareness. Basically, any increase in each of the independent variables (i.e., perceived benefits, land ownership, conservation awareness, and local benefits) resulted in support for KTP.

Table 6. Hierarchical regression analysis with KTP support as dependent variable.

	Model 1			Model 2		
	B	Beta	T-Value	B	Beta	T-Value
Covariates						
Literacy (Z_1)	−0.236	−0.183	−4.420 ***	−0.150	−0.116	3.044 **
Proximity (Z_2)	−0.130	−0.100	−2.762 **	−0.077	−0.059	1.725
Employment Status (Z_3)	−0.054	−0.102	−2.685 **	−0.030	−0.057	1.643
Length of Stay (Z_4)	−0.001	−0.028	−0.660	0.001	0.020	0.522
Independent Measures						
Perceived benefits (X1)				0.278	0.143	3.964 ***
Land Ownership (X2)				0.080	0.109	3.047 **
Conservation Awareness (X3)				0.100	0.071	1.954 *
Local Benefits (X4)				0.251	0.272	7.213 ***
Resource Use (X5)				0.027	0.032	0.910
R ²		0.046			0.222	
Adj. R ²		0.041			0.213	
F Value		8.854 ***			23.281 ***	
df		4738			9733	
ΔR ²					0.177	
ΔF					33.273 ***	
VIF					<1.019	

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

5. Discussion

KTP has become important to Botswana due to its resource endowment that include the desert adapted wild animals (e.g., elephants, water buck) and vegetation (e.g., Kalahari tamma wild melon). Its geographic location in the deep and remote southwest region has made it a unique destination for tourists. In addition, the diverse natural and cultural-heritage resources have influenced the government to formulate policies to ensure sustainable utilization and management by various stakeholders that includes adjacent and nearby local communities. Based on a key stakeholder group (i.e., local communities), the objective of this study was to understand people-park relationship on the Botswana side of the KTP. Essentially, to examine local communities' attitudes and support of KTP, along with factors that influence the level of support.

In this study, the majority of the residents noted favourable attitudes towards KTP with respect to issues related to its protection to benefit future generations, additional resources for conservation programmes, restrictions on hunting and cattle grazing, and unlimited access to the forest resources. Such findings have also been identified in other PAs with residents to have shown greater understanding of biodiversity conservation [6,35,62]. Along with generally favourable attitudes towards KTP, the majority of respondents also demonstrated support for its protection, staff, regulations, and its transfrontier status. However, there were almost a third of respondents that noted the establishment of KTP had taken land from the community, and resulted in restricted access to cultivate and graze their livestock. Furthermore, almost a quarter of respondents were in favour of some portion of land from KTP should be allocated for agriculture. Such findings were not unique with respect to people-park relationship as negative attitudes have been associated with wildlife conflicts, lack of access to park resources, and perceived benefits [18,22,26,29,85], while positive attitudes have been

influenced due to community and personal economic benefits largely derived from protected area tourism [4,31–34,37,85].

Findings of the two regression models determined specific factors that influenced the level of support of local residents towards KTP. For the first model, three covariates (literacy, proximity, and employment status) displayed the likelihood to influence support for KTP. Of the three, literacy had the highest predictive validity, which implied that those who were educated member of the community were less likely to indicate support for KTP. This result was unexpected as residents with formal education would likely have more knowledge [76] about a tourism resource (e.g., KTP), and possibly indicated support. However, it is also reasonable to assume that the educated respondents may be privy to some “inside” information about negative issues associated with KTP [29].

The relationship between employment status and support for KTP area did not come as a surprise as several studies have demonstrated that benefits associated with jobs from PAs lead to strong support and positive attitudes by neighboring communities or villages [4,42,58]. When local people are able to accrue tangible benefits from a nearby PA, they tend to know more about it and develop positive attitudes and support [27,34,35,85]. However, in this study, it was identified that KTP created few jobs for members from the sampled communities. In addition, most jobs were part-time, but, positive attitudes and good relationships between the residents and park management authority still existed.

Proximity of residence had a negative relationship which meant that support for KTP decreased with distance. Perhaps communities that were further away were less likely to see or appreciate the benefits of KTP, and hence lacked support. This finding contrasted with other studies as communities that were in close proximity to PAs were found to have negative attitudes due to human-wildlife conflicts along with crop and livestock depredation [78,85,86]. For example, in Uganda, farmers who lived closer to and had farms on the boundary of Kibale National Park expressed negative attitudes toward the park and staff [4]. In the case of South Africa, similar negative sentiments were identified from the neighboring communities of Kruger National Park [2]. Likewise, in Belek, Turkey, residents that lived closer were less supportive of the forest reserve, as they had become more sensitive to the problems [45].

Residents’ length of stay in villages adjacent to the KTP did not have a significant effect on support. This finding deviated from other studies whereby long-term stay created a personal bond with the community or resource of an area, and hence established support for the Pitons Management Area in St Lucia [40]. Conversely, long-term community members who lived in and around Maputo Elephant Reserve in Mozambique were not supportive due to very restrictive conservation policies [78]. In this study, length of stay was not a good predictor of residents’ support for KTP. This meant that how long one has resided in the community or in a village next to the park did not necessarily warrant or influence support for the KTP, possibly due to lack of access to freely collect resources (i.e., firewood, forest edible food, or hunt) [28,52,62,87].

In the second model, perceived benefits, land ownership, conservation awareness, and local benefits predicted significant positive relationships with KTP support. Land ownership, conservation awareness, and local benefits were three of the four dimensions that measured attitudes towards KTP. Local benefits had the strongest relationship followed by perceived benefits, land ownership, and conservation awareness. Basically, any increase in these four would subsequently result in support for KTP. Local benefits relate to residents’ attitudes towards KTP with respect to job creation, locally managed, staff assistance and outreach, and proximity to the park. This finding was not surprising as perceived benefits is a key driver of support as also identified in other studies [2,6,8,12,14,18,29,42,60,76,77]. Likewise, such a relationship has been identified in other PAs in Botswana—Kasane Forest Reserve [28], Chobe Forest Reserve [27] and Chobe National Park [62]. Furthermore, such findings have also been reported in the southern Africa region whereby residents’ adjacent to Kruger National Park in South Africa displayed positive attitudes, and were strongly in support even though access to forest resources and hunting had been curtailed [2].

Perceived benefits resulted in KTP support, and this finding was expected as benefits equates to more awareness and likely leads to support. Benefits and knowledge about the park was based on such issues related operations and management of KTP, and visitor flows [88]. Land ownership attitudes towards KTP had an influence on support. Land ownership relates to residents' attitudes with respect to accessibility for hunting and cattle grazing, land utilization for agriculture, and land grab for the park [25,85]. Land grab refers to the act of seizing land in an opportunistic or unlawful manner and has to do with the issue of buying or leasing of large scale piece of land by governments, individuals or multi-corporations at times without proper consultations with local people mainly in developing countries [25]. Based on descriptive analysis, almost a quarter of the respondents had echoed such concerns; the majority perceived it otherwise and this resulted in support for KTP. While this relationship existed, however it is important for management to engage in active mobilization of outreach initiatives to educate communities about regulations and importance of the park's existence. Similar sentiments have been echoed elsewhere in Nepal [77], India [85], and South Africa [2,55,58].

Finally, conservation awareness attitudes towards KTP resulted in direct and positive support. These attitudes focused on issues that relate to KTPs protection to benefit future generations, additional resources for conservation programs, and protection for the survival of plants and wildlife. Overall, the overwhelming majority were supportive of these issues, and thus translated into support for KTP. This was not an unexpected finding as similar conclusions were drawn as residents' conservation attitudes were found to have positive links with support of protected areas [76,77].

Overall, positive support and favour of KTP emanated from both tangible and intangible benefits that individuals and the community derive from the activities of the park. However, the tangible benefits such as employment creation were minimal yet residents were supportive and in favour of the park. This implies that there are far more intangible benefits (e.g., pride, cultural attachment, sense of ownership, image, etc.) that are likely to influence nearby communities and demonstrate positive attitudes towards it. To avoid the negative attitudes and perceptions of KTP, it is important for the Park authority to consider these factors when engaged in decision making to help build good relationships between communities, conservation activities and park-based programs.

A systematic analysis of residents' attitudes and support towards KTP can assist government planners, local authority decision makers and PA authorities to identify stakeholders, especially local residents' concerns and issues for appropriate policies and actions to be formulated and implemented [2,8,23,25,55,78,85]. In some instances, strategic planning of transfrontier protected areas is a complex task due to the interdependence of multiple stakeholders that ought to be involved in the management and conservation of shared resources [23,70,88]. Currently, governments in developing countries, notably in Africa (e.g., Botswana, Namibia; Ghana, South Africa, Kenya, Tanzania, Uganda and Zambia) have developed community-based ecotourism in and around PAs to benefit adjacent local communities, and to preserve and conserve ecological resources [14,17,20,37,43,47,73]. Other developing countries beyond Africa including Myanmar, India and Nepal are also experiencing people-park relationship challenges [13,89]. Therefore, it is paramount that the perspectives of all stakeholder groups (especially resident communities) be identified and understood, so that they both can play a lead role in the issues that pertain to park resources, as well as tourism planning and development in their diverse areas [29,54,88]. Hitherto, studies have revealed that such issues are also evident in developed nations with effective managerial actions [23]. Therefore, successful management strategies could be reviewed and adopted to enhance rapport between communities and the national government with regards to access for resources in national parks.

It is also important that factors that affect or influence residents' support for conservation of transboundary protected areas within their local communities are identified to benefit policy reviews and implementation [2,12,14,22,90,91]. Based on the identified factors in this study, similar studies could be replicated elsewhere including the KTP on the South African, and in other similar locations with transboundary conservation areas globally.

6. Conclusions

The main focus of this study were to identify and assess adjacent local communities' attitudes and support towards KTP in Botswana—more specifically, to identify factors which influence the level of residents' support or opposition of the KTP. This study was delimited to local people whose villages were situated on the periphery of the park on the Botswana side. KTP is unique in the sense that it is the first conservation area to be legally declared as a transfrontier with ownership and management shared between two countries. Findings show that park-based tourism was well defined and benefits already accrued by those on the South African side see [58]. There was a need to engage in such a study to identify the issues that could assist to review policies and formulate strategies that would move towards ensuring that communities on the Botswana side benefit as well. Overall, important factors were uncovered and could be used to establish or change current policies with respect to community conservation programs and tourism to improve park-people relationships and increase benefits.

Author Contributions: N.M. and B.T. designed the research and wrote Section 1, Section 2, Section 3, Section 4.1, Section 4.2, and Section 5. N.M. collected the data. W.K.D. analyzed the data and wrote Sections 4.3 and 4.4. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Acknowledgments: Publication of this article was funded by the University of Florida Open Access Publishing Fund.

Conflicts of Interest: The authors declare no conflict of interest.

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