“Socio-economic benefits of community based trophy hunting programs”

AUTHORS	Haidar Ali Malik Muhammad Shafi Himayatullah Khan Mussawer Shah Munir Khan

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Haidar Ali (Pakistan), Malik Muhammad Shafi (Pakistan), Himayatullah Khan (Pakistan), Mussawer Shah (Pakistan), Munir Khan (Pakistan)

Socio-economic benefits of community based trophy hunting programs

Abstract

The present study was conducted in Tooshi-Shasha Conservancy with the main objectives to evaluate the socio-economic benefits of CTHP for local communities and to reveal contribution of CTHP in reducing the illegal activities of poaching. Two villages were selected having sample size of 125 households. The study shows that trophy hunting fee benefits the local communities in the form of different developmental activities that includes construction and repair of the water channels benefiting up to (94.4%) of the total population in the study area and (77.6%) talented poor students getting direct benefits from trophy hunting fund in terms of scholarship scheme, loans for establishing micro enterprise. Moreover trophy hunting generates permanent as well as seasonal employment benefiting directly (62.4%) of the population such as VWW, daily labors, rent for horses, selling of handicrafts and porters etc. These activities provide economic incentives in the form of hunting fees, which changed the attitude and perceptions of the local communities towards conservation of wildlife. Thus communities support and actively involved in the conservation and protection of Markhor and other wildlife species in the study areas. As a result, poaching was controlled to a large extant. All most all communities expressed a desire to initiate similar programs in other areas of the district. The study findings also suggest capacity building of the local communities, transparency of VCC's operation and maintenance of funds and extension in wildlife conservation in the area.

Keywords: conservation, endangered species, Capra falconeri (Markhor), Northern areas, chital, Pakistan.
JEL Classification: Q20.

Introduction

Trophy hunting[1] is a wildlife conservation tool widely recognized and accepted for the conservation and protection of the wild resources by local communities through incentives in the form of hunting fees. This approach has been recently adopted in Pakistan where most species of wild Ungulates are threatened with extinction. Therefore, government and non-government conservation organizations are trying to conserve wild ungulates through trophy hunting programs in Community Based Conservancies (CBC) areas by providing the communities a share in the Trophy Hunting fee as an incentive. It is a very expensive hobby and thousands of dollars are required to participate in each hunting trip. Community Based Trophy Hunting (CTHP) ensures that trophy fees benefit local communities in the form of health schemes, education and employment etc.

Trophy Hunting is conducted in 23 countries of Africa. There are vast hunting industries in East and Southern Africa and small industries in west and central Africa. Since, South Africa has the largest hunting industry generating US $ 100 million revenue through trophy hunting each year and Namibia generates US $ 28.5 million per year (Booth, 2002; and PHASA, 2006) followed by Botswana and Zimbabwe earns 20 and US $ 16 million per year, respectively (Chardonnet, 2002 and Damm, 2005).

In Pakistan, the first trophy hunting program was Chitral Conservation Hunting Program (CCHP) for *Markhor*[2] started in 1983. As it was not a CTHP since all the revenue earned through trough trophy hunting goes to the Government. The program ended after 8 years when government of Pakistan banned the export of trophies including all the Big game[3] hunting throughout Pakistan. During these eight years 16 approved *Markhor* hunts was conducted and earned about US $ 250,000 as trophy hunting fee (Wildlife Department Khyber Pakhtunkhwa, 2006).

Meanwhile Torghar Conservation Program (TCP) was the longest CTHP in Pakistan on tribal lands in the Torghar range of North West Baluchistan, founded in 1986. The main purpose of launching this program was to conserve the decline population of Suleiman *Markhor* and Afghan Urial. The TCP was formally registered in 1994 as Non-Government Organization (NGO) Society for Torghar Environmental Protection (STEP). The program earned US $ 460,000 from 14 *Markhor*s and 20 Urial hunts during its first ten years (Johnson 1997). Bar Valley Program (BVP) was also CTHP in Northern area of Pakistan, launched in 1989 by World Wild Foundation (WWF). The core objective of BVP was to conserve the endangered population of Himalayan Ibex and to create awareness about the importance of wild life and natural resources among the local

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[1] Trophy hunting: The selected hunting of over mature wild male animal.

[2] *Markhor*: Capra falconeri.

[3] Big Game: Trophy hunting for large animals i-e lions, elephant, bears etc.

community. Mountain Areas Conservancy Project (MACP) was also CTHP initiated under the International Union for Conservation of Natural Resources (IUCN) Pakistan (Wildlife Department Khyber Pakhtunkhwa, 2006).

Wildlife Department Khyber Pukhtunkhwa is the only provincial department in Pakistan which has played key role in marketing hunts while Non-Government Organizations (NGO's) have taken leading role in marketing hunts on behalf of the communities in Balochistan and Northern Areas. The share in capital earned through trophy hunting was fixed in all three provinces (Khyber Pakhtunkhwa, Balochistan and Gilgit Baltistan) by National Council for Conservation of Wildlife (NCCW). At the beginning 75% share went to the community where the hunt occurs and 25% went to the government as a token but it was now changed to 80% and 20%, respectively (Wildlife Department Khyber Pakhtunkhwa, 2006).

In Chitral the conservation of Ibex and *Markhor* is conducted, since the state time. *Mehtar*[1], used to entertained their tourists at their hunting huts and earned revenues for the state. In 1969, when Chitral merged with Pakistan, the Wildlife Department Chitral (WDC) was also handed over to the government of Pakistan and in 1971 through notification of the commissioner of the Malakand division Chitral*Gol*[2] was declared as a wildlife sanctuary and Drosh*Gol*, Porat*Gol*, Toshi, and Agram*Gol* was declared as Game Reserve[3]. In 1975, Wildlife Department was established in Chitral. In 1983, *Markhor* hunting was launched to enthrall the member of SCI-USA, the first *Markhor* trophy auctioned in US $ 5000. Hence, the *Markhor* hunting permits were sold in the open market till 1990 (WDC, 2010).

Key objectives of the study wasto evaluate the socio-economic benefits of CTHP for local communities and to evaluate the extent, trophy hunting has contributed in reducing the illegal activities of poaching[4]. From the designated villages of Chitral district, Khyber Paktunkwa-Pakistan data were collected in 2014.

Materials and methods

District Chitral was the universe of study. There are two *Markhor* conservancies in Chitral viz Gahiret and Tooshi-Shasha conservancies. Each conservancy has 12 VCC's. The present study was conducted in Tooshi-Shasha Conservancy because the villages' lies in this conservancy are far poor and backward as compare to the Gahiret Conservancy. A total of 125 sample respondents were taken from the total population of 1250 households and randomly elected from two villages namely villages Seen and Karimabad.The sample size in each village was fixed at 10% of the population. For primary data the interview schedule was used as a data collecting tool. The sampled respondents of the area were interviewed randomly. Statistical package for social science "SPSS" was used for analysis after collection of data. Paired t-test was applied to draw conclusion about the population of *Markhor* before and after the initiation of CTHP.

Paired t-test statistic for H_o: $\mu_1 = \mu_2$.

$$t = \frac{\bar{d}}{s_d / \sqrt{n}}.$$

Results and discussion

Table 1 indicates distribution on the basis of direct benefits from trophy hunting. The result shows that (3.2%) sampled respondents obtained benefits in the form of employment, (8.8%) sampled respondents received benefits in the shape of daily labor, (2.4%) sampled respondents got subsistence allowance and (1.6%) sampled respondents got other benefits (as a guide and porter etc). Similarly, in Karimabad village, (10.4%) sampled respondents got benefits as employment, (16.8%) sampled respondents received benefits in the form of daily wages, (5.6%) sampled respondents acquired subsistence allowance while remaining (13.6%) sampled respondents got other benefits (in the shape of guide and porter). But (29%) sampled respondents were not getting any direct benefits from CTHP in Karimabad. Overall result shows that (0.8%) sampled respondents got subsistence allowance in the study area followed by Employment, other benefits, daily labor with (13.6%), (15.2%) and (25.6%), respectively. Whereas, (0.8%) sampled respondents from Seen and (29.6%) respondents from Karimabad village with an aggregate (37.6%) were not getting any direct benefits from CTHP. The study is in line with (Harris and Pletscher, 2002) revealed that (20%) of revenue generated from trophy hunting is invested to meet the running cost of wildlife conservation whereas the remaining (80%) is adapted for various developmental activities like improvements in infrastructure, provision of jobs which recognizes that wildlife conservation is for both the animals and people.

[1] *Mehtar*: The ruler of Chitral.
[2] *Gol*: The place between the two mountains through which the stream merges.
[3] Game Reserve: The area that is reserve for the trophy hunting.
[4] Poaching: Illegal hunting.

Table 1. Distribution on the basis of direct benefits from CTHP

Villages	Benefits from Trophy Hunting										Total
	A*		B**		C***		D****		No		
	No.	%	No.	%	No.	%	No.	%	No.	%	
Seen	04	3.2	11	8.8	03	2.4	02	1.6	10	08	30
Karimabad	13	10.4	21	16.8	07	5.6	17	13.6	37	29.6	95
Total	17	13.6	32	25.6	10	08	19	15.2	47	37.6	125

Source: Field survey, 2012.
Notes: A* = Employment; B** = Daily labor; C*** = Subsistence allowance; D**** = Other (Guide, Porter etc.).

Table 2 signifies distribution of the sampled respondents on the basis of indirect benefits from trophy hunting. In Seen village, (1.6%) sampled respondents got health benefits, (2.4%) sampled respondents got clean water facility, (5.6%) sampled respondents got road facility and (11.2%) sampled respondents received other benefits like energy, fire wood etc. In Karimabad village, (10.4%) sampled respondents receive health facilities, (18.8%) sampled respondents facilitated with clean drinking water, (19.2%) sampled respondents facilitated with road as an indirect benefit and (19.2%) sampled respondents got energy and fire wood benefits from the revenue generated through CTHP.

The overall data shows that (29.6%) respondents are getting benefits in the form of energy and fire wood, (24.8%) were facilitated with roads, (20.8%) with clean drinking water, (12%) with health facilities and only (0.8%) respondents were facilitated with education in Seen and Karimabad Village. While (12%) of the sample respondents were not getting any benefits. The study is line in with the result of Mitchell and Frisina, (2007) who stated that trophy hunting tourism provides income to a large proportion of people through engagement in various services such as accommodation, food, guides, rent of horses, and selling of handicrafts. In many *Markhor* inhabitant areas of Khyber Pakhtunkhwa basic facilities are not available where *Markhor* are found, therefore, income from tourism in these areas is negligible. However, the areas have great potential for development of the hunting tourism.

Table 2. Distribution of the sampled respondents on basis of indirect benefits from CTHP

Villages	Indirect benefits from trophy hunting												All
	A*		B**		C***		D****		E*****		No		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Seen	-	-	02	1.6	03	2.4	07	5.6	14	11.2	04	3.2	30
Karimabad	01	0.8	13	10.4	23	18.8	24	19.2	23	18.4	11	8.8	95
All	01	0.8	15	12	26	20.8	31	24.8	37	29.6	15	12	125

Source: Field survey, 2012.
Notes: A* = Education, B** = Health, C*** = Clean water, D**** = Roads, E***** = Any other (Energy, fire wood etc.).

Table 3 depicts sampled respondents on the basis of change in agriculture practices through trophy hunting. The figure shows that (4.8%) sampled respondents said that the program brought change in leveling practices, (8.8%) sampled respondents believed, it brought change in terracing, (4.8%) sampled respondents persuaded, the program contributed in provision of seeds and (5.6%) sampled respondents answered that trophy hunting brought change in other agriculture practices in Seen. In Karimabad village, (6.4%), (42.4%), (10.4%) and (16.8%) sampled respondent admitted that the program revolutionized in leveling practices, terracing, provision of seeds and others (Energy, fire wood etc) respectively. The accumulative figure shows that (11.2%), (51.2%), (15.2%) and (22.4%) sampled respondents believed that trophy hunting funds contributed in leveling practices, terracing, provision of seeds and others like construction of *Chakdams*[1] and irrigation channels correspondingly. The study is in lined with (Wildlife Department Khyber Pakhtunkhwa, 2006) affirmed that through trophy hunting funds interventions in agriculture productivity increased through construction of irrigation channels, *Chakdams* and diversified crop production in existing farm lands to meet the food requirement of the local community and grow fodder to reduce grazing pressure in the *Markhor* habitat.

Table 3. Sample respondents views regarding changes in agriculture through CTHP

Villages	Change in agriculture through trophy hunting				Total
	Leveling practices	Terracing	Provision of seeds	Any other*	
Seen	06 (4.8)	11 (8.8)	06 (4.8)	07 (5.6)	30

[1] *Chakdams*: Small walls are constructed in the way of rain water running down through mountains, to avoid sweep away the soil.

Table 3 (cont.). Sample respondents views regarding changes in agriculture through CTHP

Villages	Change in agriculture through trophy hunting				Total
	Leveling practices	Terracing	Provision of seeds	Any other*	
Karimabad	08 (6.4)	53 (42.4)	13 (10.4)	21 (16.8)	95
Total	14 (11.2)	64 (51.2)	19 (15.2)	28 (22.4)	125

Source: Field survey, 2012.
Notes: Any other* = irrigation channels, *Chakdams* (The values given in parentheses is % ages).

Table 4 describes nurseries raised through trophy hunting in the area. Sampled respondents with (14.4%), (7.2%) and (1.6%) said that less than one, two and more than two acre nurseries were raised in Seen village, respectively. In Karimabad, (48%), (21.6%) and (04%) sampled respondent answered that trophy hunting fund contributed in raised less than one, two and more than two acre nurseries in the village. While the remaining (0.8%) and (2.4%) sampled respondents from Seen and Karimabad answered negative as they were unaware of the program. The aggregate data show that (62.4%) sampled respondents agreed that less than 1 acre nursery is raised in their area and (28.87%) and (5.6%) sampled respondents answered that 2 and more than 2 acre nurseries been risen in their village. On the other hand, (3.2%) sampled respondents showed unawareness of any nursery raised in the area.

Table 4. Sample respondents on the basis of nurseries risen through CTHP

Villages	Nursery risen (area in acres)								Total
	Less than 1		2		Above 2		No		
	No.	%	No.	%	No.	%	No.	%	
Seen	18	14.4	09	7.2	02	1.6	01	0.8	30
Karimabad	60	48	27	21.6	05	04	03	2.4	95
Total	78	62.4	36	28.87	07	5.6	04	3.2	125

Source: Field survey, 2012.

Table 5 depicts that sampled respondents got benefits in the form of forestation done through trophy hunting program in their area. Sampled respondents with (6.4%) and (14.4%) said that the forestation area is below 05 acre in Seen and Karimabad and (11.2%) and (35.2%) sampled respondents said that 05 to 10 acre, forestation is done in their areas. Sampled respondents (4.8%) and (15.2%) said that approximately 10 to 15 acre forestation has been done in there locality while (1.6%) and (8.8%) sampled respondents said that there were above 15 acre forestation is done in these two villages and only (2.4%) sampled respondents from Karimabad answered the question in negative. The cumulative figure shows that majority with (46.4%) of the sampled respondents claimed that 05 to 10 acre forestation is done in the study area and (20.8%), (20%) and (10.4%) sampled respondents said that below 05, 10-15 and above 15 acre forestation is done in Seen and Karimabad village. Whereas, only (2.4%) sampled respondents from Karimabad village declined any forestation done in their area. The current study result are the same as (Sajjad, 1995) who concluded that one of the responsibilities of the Wildlife Department Khyber Pakhtunkhwa is improvement of habitat in areas where it has been degraded due to over-grazing, fuel wood collection, and timber extraction. Without suitable habitat, conservation of wildlife is impossible. Therefore, habitat improvement practices have become an important component of wildlife management.

Table 5. Distribution of the sampled respondents on the basis of forestation done by CTHP

Villages	Forestation (acre)					Total
	Below 5	5-10	11-15	Above 15	No	
Seen	08 (6.4)	14 (11.2)	06 (4.8)	02 (1.6)	-	30
Karimabad	18 (14.4)	44 (35.2)	19 (15.2)	11 (8.8)	03 (2.4)	95
Total	26 (20.8)	58 (46.4)	25 (20)	13 (10.4)	03 (2.4)	125

Source: Field survey, 2012.
Notes: The values given in parentheses is % ages.

Table 6 signifies satisfaction from program performance. In Seen village, (10.4%), (9.6%), (2.4%) and (1.6%) sampled respondents were satisfied in terms of successful conservation of *Markhor* and Ibex, carrying development projects, reducing poaching, and others (a forestation, employment), respectively. In Karimabad village, (30.4%) sampled respondents were satisfied in terms of successful of *Markhor* and Ibex, (32.8%) sampled respondents were satisfied in term of carrying development projects, (5.6%) sam-

pled respondents were satisfied in term of reducing poaching and (7.2%) sampled respondents were satisfied in term of forestation and employment. The summative data shows that (40.8%) sampled respondents were satisfied in terms of successful conservation of *Markhor* and Ibex and (42.4%), (0.8%) and (8.8%) sampled respondents were satisfied in term of carrying development projects, in term of reducing poaching, and others (a forestation, employment) correspondingly.

Table 6. Distribution of the sampled respondent on the basis of satisfaction from program performance

Villages	Satisfaction from program performance										Total
	A*		B**		C***		D****		No		
	No.	%	No.	%	No.	%	No.	%	No.	%	
Seen	13	10.4	12	9.6	03	2.4	02	1.6	-	-	30
Karimabad	38	30.4	41	32.8	07	5.6	09	7.2	-	-	95
Total	51	40.8	53	42.4	10	08	11	8.8	-	-	125

Source: Field survey, 2012.
Notes: A* = Successful conservation of *Markhor* and Ibex, B** = Carrying development projects, C*** = Reducing poaching, D**** = Other (forestation, employment etc.).

Table 7 explains distribution of the sampled respondents on the basis of awareness about operation, maintenance, and procedure of programs. Sampled respondents with (2.4%) were aware about operation, maintenance, and procedure of programs, (21.6%) sampled respondents were not aware about the program in Seen village, while only (6.4%) sampled respondents were aware about the operation, maintenance, and procedure of programs and (69.6%) sampled respondents were not aware in Karimabad village. By and large (91.2%) sampled respondents were not aware about operation, maintenance, and procedure of programs and only (8.8%) sampled respondents were aware about operation, maintenance, and procedure of programs.

Table 7. Distribution of the sampled respondents on the basis of awareness about operation, maintenance and procedure of programs

Villages	Awareness about operation, maintenance and procedure				Total
	Yes		No		
	No.	%	No.	%	
Seen	03	2.4	27	21.6	30
Karimabad	08	6.4	87	69.6	95
Total	11	8.8	114	91.2	125

Source: Field survey, 2012.

Table 8 demonstrates distribution of the sampled respondents on ranking performance of programs according to its effectiveness. As, (4.8%), (13.6%), (1.6%) and (3.2%) sampled respondents from Seen rank the program effectiveness in terms of construction of roads, water channels, quality health and grant for community based conservancies respectively. Likewise (10.4%), (47.2%) and (04%) sampled respondents rank the performance of the program in terms of construction of road, water channels and quality health and (8.8%) sampled respondents rank the program effectiveness in terms of grant for community based conservancies in Karimabad. While, (0.8%) sampled respondents in Seen (5.6%) sampled respondents in Karimabad believed that the program has effective in term of Scholarship Schemes for students, Forestation etc. The aggregate result shows that (15.2%), (60.8%), (5.6%) and (12%) sampled respondents ranks the program effectiveness in terms of construction of roads, water channels, quality health and grant for community based conservancies, correspondingly but (6.4%) sampled respondents of the total sample size rank the program effectiveness in term of Scholarship Schemes for students, Forestation etc.

Table 8. Distribution of the sampled respondents on ranking performance of program according to their effectiveness

Villages	Rank performance of program according to their effectiveness										Total
	A		B		C		D		E		
	No.	%	No.	%	No.	%	No.	%	No.	%	
Seen	06	4.8	17	13.6	02	1.6	04	3.2	01	0.8	30
Karimabad	13	10.4	59	47.2	05	04	11	8.8	07	5.6	95
Total	19	15.2	76	60.8	07	5.6	15	12	08	6.4	125

Source: Field survey, 2012.
Notes: The values given in parentheses is % ages. A = Constructions of roads, B = Quality of health, C = Constructions of water channels, D = Grant of CBS, E = Any other (Scholarship Schemes for students, Forestation etc.).

Table 9 shows distribution of the sampled respondents on the basis of protection wall constructed from trophy hunting fund. In Seen village, (21.6%) sampled respondent were benefited from protection wall constructed from trophy hunting fund and the remaining (2.4 %) sampled respondent were deprived from the benefits of protection wall. While, (64%) sampled respondents said that protection wall were constructed from trophy hunting fund in their area and the rest (12.4%) sampled respondents said that no protection wall were constructed from trophy hunting fund in Karimabad area. The accumulative figure shows that (85.6%) sampled respondents benefited with protection wall against floods and rivers while only (14.4%) sampled respondents were deprived of the protection wall facility through revenue generated from trophy hunting.

Table 9. Distribution of the sampled respondents on the basis protection wall constructed from CTHP Fund

Villages	Protection wall constructed from CTHP Fund				Total
	Yes		No		
	No.	%	No.	%	
Seen	27	21.6	03	2.4	30
Karimabad	80	64	15	12	95
Total	107	85.6	18	14.4	125

Source: Field survey, 2012.

Table 10 shows contribution of CTHP in promoting tourism in respective areas. All of the sample respondents positively answered and said that community based trophy hunting program promote tourism in Seen while in Karimabad village (72.8%) sampled respondents answered that community based trophy hunting program promote tourism, in their area and only (3.2%) sampled respondents were negatively answered and said that community based trophy hunting program did not promote any tourism activity. Overall result shows that majority (96.8%) sampled respondents agreed that the program played key role in promoting tourism in the area. Only (3.2%) sampled respondent did not agreed with the statement. The study has same findings that of (Williams and Hutton, 2005) who stated that trophy hunting has great potential and serves as an important source of incentives for local people especially in areas where the tourism industry cannot be developed due to its geographical local locality. Most of the *Markhor* inhabitant's areas are located in the northern areas Pakistan, where winters are long lasted and link roads are blocked due to heavy snow fall or poor conditions of roads and unavailability of hostelling facility are barriers in promoting tourism.

Table 10. Distribution of the sampled respondents on the basis of CTHP promoting tourism

Villages	CTHP promoting tourism				Total
	Yes		No		
	No.	%	No.	%	
Seen	30	24	-	-	30
Karimabad	91	72.8	04	3.2	95
Total	121	96.8	04	3.2	125

Source: Field survey, 2012.

Table 11, table provides information about reduction in deforestation due to CTHP. In Seen village, (20%) sampled respondents answered that CTHP helped in reduction of deforestation in their area while (04%) sampled respondents answered that CTHP has no contribution in reduction of deforestation. In Karimabad, (61.6%) sampled respondents agreed that through CTHP intervention deforestation reduced in their area and (14.4%) sampled respondents denied the effective intervention CTHP in reducing deforestation. By and large, (81%) sampled respondents admit the contribution of CTHP in reducing deforestation whereas only (18%) sampled respondents did not agreed with the views that CTHP reduced deforestation in their area.

Table 11. Distribution of the sampled respondents on the basis of CTHP helps in reducing deforestation

Villages	CTHP helps in reduction of deforestation				Total
	Yes		No		
	No.	%	No.	%	
Seen	25	20	05	04	30
Karimabad	77	61.6	18	14.4	95
Total	102	81.6	23	18.4	125

Source: Field survey, 2012.

Table 12 exhibits distribution of the sampled respondents on the basis of wish to continue the trophy hunting program in future. The study revealed that (16.8%) sampled respondents from Seen and (61.6%) sampled respondents from Karimabad, wish to set community share in trophy hunting between 51 to 75%. They believed that most of the trophy share should be invested in conservation of *Markhor* species but (7.2%) and (14.4%) sampled respondent suggested that the community share should be above 75% as the community owned the resource. The overall result illustrate that (78.4%) of the sampled respondents suggested community share should be 51-75% whereas (21.6%) of the sampled respondents suggested to reserved community share above 75%. The study has the same result with (Ahmad and Sattar, 2001) who concluded that conservation programs are successful and sustainable only when they fulfill the objectives of improving the socio-economic condition of the local people and ensuring optimal ecological benefits from conservation activities. Therefore, to create interest among local people in management and conservation programs, economic incentives as compensation to local people for the cost of conservation should be considered during development and implementation of conservation programs.

Table 12. Distribution on the basis of share of community in trophy hunting

Villages	Share of community				Total
	1-25	26-50	51-75	Above 75	
Seen	-	-	21 (16.8)	09 (7.2)	30
Karimabad	-	-	77 (61.6)	18 (14.4)	95
Total	-	-	98 (78.4)	27 (21.6)	125

Source: Field survey, 2012.
Notes: The values given in parentheses is % ages.

Table 13 displays distribution of the sampled respondents on the basis of increased trophy species after trophy hunting program. In Seen village, (2.4%) sampled respondents said *Markhor* species were in large number before launch of trophy hunting programs and (21.6%) sampled respondents revealed *Markhor* species were not bulky before initiation of trophy hunting program in the area. While after initiation of trophy hunting programs (23.2%) sampled respondents admit that *Markhor* species were increased and only (0.8%) sampled respondents said that no increase had been found even with the initiation of the program in Seen. In Karimabad village, (1.6%) sampled respondents believed that trophy species were bulky before trophy hunting programs initiation but (74.4%) sampled respondents views that trophy species were few before trophy hunting programs while after initiation of trophy hunting programs (69.6%) sampled respondents views that trophy hunting program was successful and made a huge increase in trophy species and (6.4%) sampled respondents said that trophy hunting program had not increase trophy species in the area. The overall result shows that only (0.4%) sampled respondents believe that *Markhor* species were abundantly present before initiation of the program but (96%) sampled respondents declined the statement. Whereas by and more (92%) sampled respondents admitted that *Markhor* species were increased in large number after the program launched. While, only (7.2%) respondents does not agreed with the statement.

To compare the *Markhor* population before and after launching CTHP t-test was applied. *t*-value was 3.921 (significant level 0.001) in the study area. The current study results in line with (Sajjad, 2005) stated that hunting of *Markhor* and Ibex is used as a conservation tool and is restricted to areas where communities are involved in the conservation of *Markhor* and other associated wildlife species through providing incentives in the form of a share of the hunting permit fee. Trophy hunting of *Markhor* fetches handsome amounts for the communities, which has resulted in keen interest within the communities for the conservation of *Markhor*.

Table 13. Distribution of the sampled respondents on the basis of increased trophy species after launching CTHP

Villages	Species increased									Total
	Before					After				
	Yes	%	No	%	Level of significance	Yes	%	No	%	
Seen	03	2.4	27	21.6	0.001	29	23.2	01	0.8	30
Karimabad	02	1.6	93	74.4		87	69.6	08	6.4	95
Total	05	04	120	96		116	92.8	09	7.2	125

Source: Field survey, 2012.

Conclusions and policy implications

The study concludes the trophy hunting programs have positive impact on community in the study area. The local communities in the study area got direct benefits as employment, labor, subsistence allowance and as well as indirect benefits in the form of development projects from trophy hunting funds that in-

cludes construction of irrigation channels, *chakdams*, roads and energy, respectively. On the other hand Khyber Pakhyunkhwa wildlife department adopted the CTHP strategy for watch and ward for the conservation of Markhor while local communities were involved and empowered for the management of wildlife resource. Comparison of growth rates (total population, male population, male/female ratio) during pre and post period of CTHP showed higher growth rates during the trophy hunting program. This indicates that CTHP was a very successful program in terms of conservation and management of Markhor. Following are the policy implications of this study.

1. Training of local communities is required for the effective management of natural resources and to improve the capacity of the local people for sustainable and proactive management of wildlife resources. This will help in increasing the involvement of local community in wildlife management.
2. Transparency must be ensured in utilization of fund and implementation of all conservation activities. Funds should be utilized with consensus of the concerned community in order to gain the trust and confidence of the communities in the institutions and for sustaining Community-based Natural Resource Management in the long run.
3. For maintaining healthy wildlife population, *Markhor* Habitat conservation is essential. Forestation process should be done at large scale in the *Markhor* inhabitant's areas for ecologically desirable values such as soil erosion, construction of check dams and water ponds in protected areas for fulfilling the water requirement of *Markhor* and other wildlife species.
4. Many trophy species are hunt down by poachers each year. Therefore very strict and rigid law is needed in order to reduce wildlife management offenses such as poaching, illegal deforestation etc.
5. The program should be extended to the Himalayan Ibex inhabitants areas of the district. It will be helpful in the social uplift of the communities of other villages of the district and a revenue generation source.

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