Livelihood Assets of Mountain Communities: A Study of Lulusar Dudipatsar National Park Kaghan (Pakistan)

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Abstract

This study was conducted in Lulusar Dudipatsar National Park Kaghan Valley. The purpose of the study is to explore the livelihood assets of inhabitants of the study area. Therefore; livelihood assets of the study area were studied. The study area is dominated by three communities namely agro-pastoralists, pastoralists and nomads. All the three communities are depended on available assets and follow seasonal migration to utilize the seasonally available resources. They move up hill in summer and down to plain areas in winter. The livelihood of agro-pastoralists is depended on cash crop production, livestock and tourism related activities. The agriculture land is limited and crops are grown on terraces dug on hilly slopes. The livelihood of pastoralists and nomads is depended on herds (i.e. goats and sheep) and pastures availability. They keep large number of livestock. The study is based on primary data collection through questionnaires, interviews and groups discussion. Content analysis technique was applied for analyzing questionnaires and groups discussion. Conceptual analysis was applied for questionnaires to establish frequencies of the concepts while relational analysis was applied for groups discussion to establish relationship among different concepts. The study contributes to theoretical understandings of the Sustainable Livelihoods Framework (SLF), highlighting how access to the five capitals—natural, human, physical, social, and financial—shapes the choice of livelihood strategies in mountainous terrain. Chi-square analysis, narrative accounts, and spatial mapping tools were used to identify these variations.

Keywords: Crop Production, Mountain Communities, Livelihood, National Park Khaghan.

Introduction

Livelihood strategies are sum of activities carried by people to achieve their livelihood goals (Motiee et al., 2012). Thus household or an individual undertake various actions like occupation, jobs and production activities to cope with existing stress and shocks, are known as livelihood

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strategies (Rai, 2009). Livelihood is measuring of different activities adopted by people in circle of their capacity and capitals, whereas main livelihood capitals or assets are natural, physical, human, social and financial resources (Ansoms & McKay, 2010; Mutenje et al., 2010). Capitals or assets are resources owned or accessed by a household (Khayyati & Aazami, 2016). The choice of livelihood strategies is enhanced by livelihood capitals and household structure (Mutenje et al., 2010; Peng et al., 2017). The capability of a household to implement livelihood strategies is depended on the above five capitals (Martin et al., 2016; Halloran et al., 2027). Examples of natural capital are land, water and forest. Physical capital can have the shape of infrastructure, roads, tools and other goods. Financial capital can be in the form of cash, remittances and current assets (Ghadiri et al., 2015). The main human capital are population attributes, education and skills etc (Horsley et al., 2015). These capitals can be stocked, trade-off and moved for producing income for the household (Ding et al., 2018; Waleleign, 2017). Studying interactions between rural household livelihood strategies and livelihood capitals has gained momentum in recent years (Ding et al., 2018; Peng et al., 2017, Su et al. 2009, Fang et al., 2014).

The inhabitants of mountainous region are dependent on the available resources for livelihood. Animal husbandry and high pasturing form an integral part of mountain agriculture. This type of combined agriculture guarantees the subsistence of the mountain farmers (Clemens & Nüsser, 2008). Pastoralism, agro-pastoralism and nomadism are practiced as primary means of livelihood and are a major economic activity in Himalayas. In the summer they move from drier and warmer regions to wet and cooler mountains. This movement is reversed in the winter months (Chakrabarti, 2011). Resources are limited in productivity and neither animal husbandry nor agriculture or any other elements in high mountain agriculture alone is a workable economic strategy (Casimir, 2005; Fischer, 2000). Livelihood strategies in mountainous areas can be categorized into three groups: farm oriented, farm and off farm oriented and only off farm oriented (Worku et al., 2014). The livelihoods in mountains are mostly based on a combination of various income sources like agriculture, pastoralism, forestry, handicrafts, various services and trades. More recently, local industries, tourism or mountaineering are sources of diversity of household incomes in various combinations. Mountain communities participate in tourism activities to shape their livelihood strategies (Liu et al. 2018). Tourism contributes positively to mountain communities (Ali et al., 2024a, Muresan et al., 2016, Ali et al., 2024). For developing areas where tourism spots exist, tourism enhances development and brings about employment (Iorio et al., 2010). Tourism has diversified income sources of rural communities in many ways and has led to poverty alleviation (Ali et al., 2024b, snyder et al,. 2011; Wu et al., 2014; Nyaupane et al., 2011). Tourism related activities have improved living standards of the residents and preserved natural resources (Mbaiwa et al,. 2010).

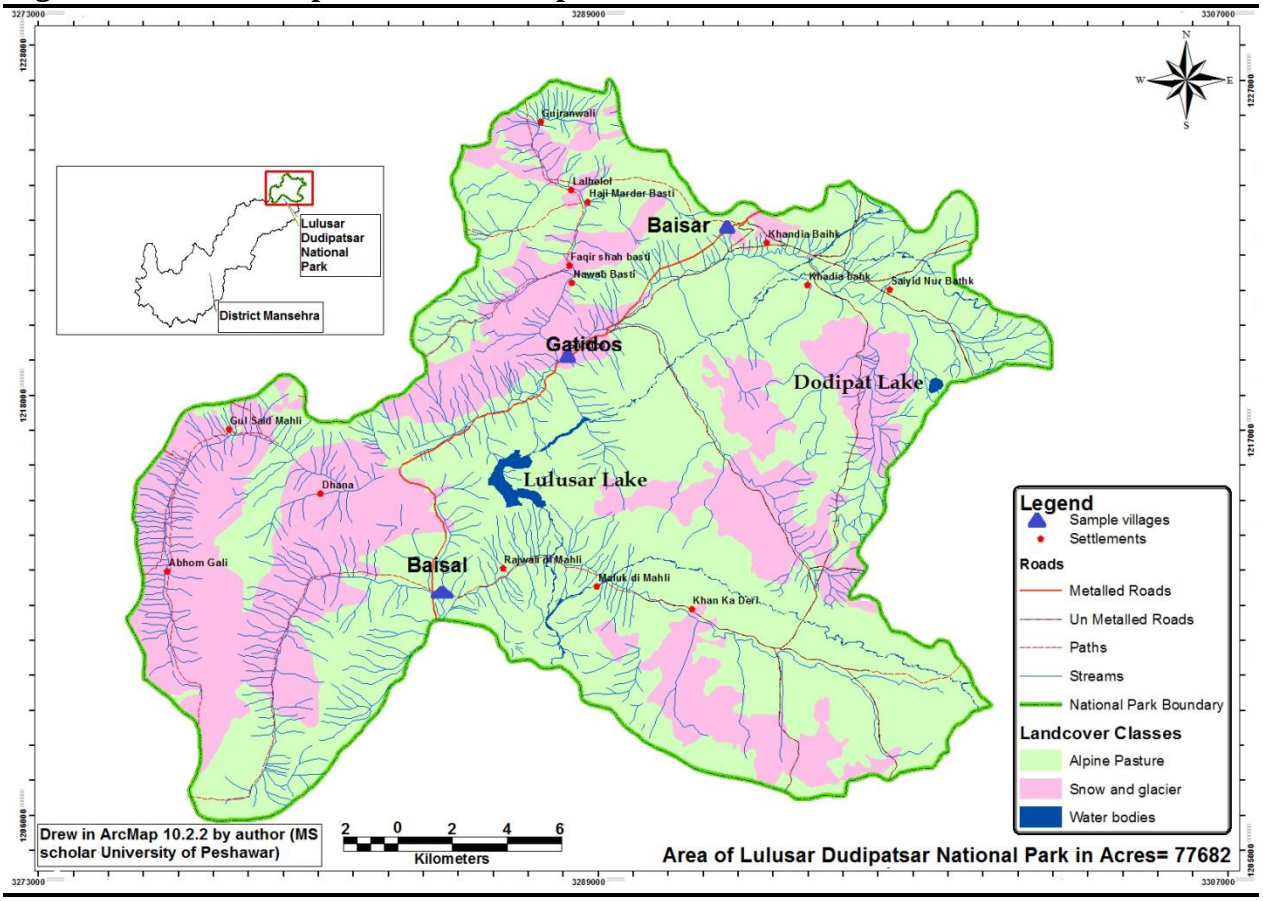
Methodology

Study Area

The Kaghan Valley is situated in District Mansehra, at an altitude of 3,410 m above mean sea level. District Mansehra lies from 34°-14´ to 35°- 11´north latitudes and 72° -49´ to 74° 08´ east longitudes in Hazara Division. Mansehra District covers an area of 4,579 square kilometers. It has Kohistan and Batagram districts in the north, Muzzaffarabad District of Azad Jammu & Kashmir on the east. On the south are Abbottabad and Haripur Districts and on the south-west District Torghar. The topography of the Mansehra district is dominated by high mountains. They vary in elevation from 2000 meters in the south to 4500 meters in the north above mean sea level. The northern part of the district is occupied by mountains of great height where Kaghan Valley is

situated. The upper portion of the valley has been declared as national park in 2003 (Figure 1). The high land pastures serve as summer grazing grounds for the livestock owners. The terraces on mountain slope help farmers to grow off season crops. Three communities are living there who are pastoralists, agro-pastoralists and nomads. In order to utilize seasonal productive resources of the study area, all of the three communities move uphill in summer and downhill in winter due to severe climatic conditions in winter. The inhabitants of the study area start their journey in mid of May towards Kaghan from the plain areas of KP and Punjab. They live in the study area till October/November. At the invent of winter, they move downhill towards plain areas to complete their seasonal cycle.

Figure 1: Location map of Lulusar Dudipatsar National Park



Sampling Techniques

This paper is based on the data collected from household surveys. The surveys were conducted between May and July 2018, and July and September 2019. To design questionnaire, initial inquiries were conducted. Survey questionnaire was finalized with the help of local field assistants before the household survey was conducted. A multi-stage sampling technique was used to select household samples. In the first stage, the study area was divided into three agro-ecological zones existing in the area. The purpose of this categorization was to include all the three groups of residents living at different altitudes (high land, middle land and low land) thus having different livelihood assets. In the second stage three villages were selected from the three categories respectively. These villages are located at altitude ranging from 2,427m to 4,173m AMSL. High

land is dominated by pastoralists, middle land is dominated by nomads and low land is dominated by agro-pastoralists. A total of 223 households samples were selected. One hundred and twenty households were selected from agro-pastoralists representing 17% of the total households. Similarly; eighty households were selected from pastoralists representing 21% of the total households. The number of nomads has been decreased significantly, therefore all households of the nomads were surveyed. The total number of the households of the nomads was 23. Next nine group discussions (n=66) were conducted to know various aspects of the local livelihood such as agriculture activities, animal husbandry, seasonal migration, land resources and off farm activities including tourism related activities. Three group discussions were conducted from each community. The number of group discussions was based on theoretical saturation (Bryman, 2016). Secondary data were also collected. Data about land ownership were collected from patwari office at Kaghan. Data about different taxes were collected from a check post established by landlords at entrance to Kaghan valley. Wild Life Department Government of Khyber Pakthunkhwa provided valuable information about the national park.

Data Analysis

The data collected through questionnaires were entered into Statistical Package for Social Sciences (SPSS). Graphs, diagrams and tables were produced where necessary. Content analysis technique was applied for analyzing questionnaires and groups discussion. Content analysis technique has two types: Conceptual analysis and relational analysis. Conceptual analysis was applied for questionnaires to establish frequencies of the concepts while relational analysis was applied for groups discussion to establish relationship among different concepts. Similarly; narrative analysis technique was applied for interviews of respondents and field observations. Narrative analysis is a type of analytical framework where researchers interpret the stories that are listed in the context of the research (Labov, 1997). In order to analyze livelihood strategies, five parameters were taken into consideration for the study. They are: Human capital, natural capital, financial capital, social capital and physical capital. These capitals exist in different shapes in different areas. A total of 31 variables (indicators) for these capitals were identified in the study area shown in Figure 2. Chi-square analysis was used to know how much the impact of these variables vary among the three communities: pastoralists, agro-pastoralists and nomads. Arc Map 10.2.2 was used to produce location map of the study area.

Results and Discussion

Seasonal Movement

Similar to other inhabitants of mountainous belt of the world (Fazlur-Rahman, 2014; Guillet; 1981; 1983; 1986) people of the study area practice seasonal migration in order to utilize the spatially segregated and seasonally productive resources of the study area (Ehlers, 1997). For this purpose, people have established two settlements: winter settlement and summer settlement. The study area also presents a series of altitudinal niches and resource on these belts are distributed vertically (Allan, 1986; Orlove, 1977; Uhlig, 1986a). Generally, people of the study area live in winter settlements during winter season from October to May. They live in summer settlements during summer season from May to October. However, the seasonal movement of agro-pastoralists is depended on crops calendar. Families members, livestock and goods are shifted to summer settlement through heavy transport vehicles. This journey takes 4 to 5 hours to reach the destination. The seasonal movement of pastoralists and nomads is depended on pasture calendar. These both communities are foot travelers. Their goods and family members are shifted through

horses, mules and donkeys. The journey of these communities takes few weeks to reach the summer settlements. Their route of migration depends on available grazing grounds. Livestock are grazed on the pastures found on the way to summer settlement. Dogs are kept for the protection of families and livestock.

Tax and Royalty Collection

Royalty is collected by the ruler family from all the three communities in different shapes. Pastures lands are purchased by nomads on lease basis from the ruler family. A large portion of the mountain, locally called *Mali*, is given to a nomad family where the boundary between two portions (*Mali*) is in most cases defined by seasonal stream. Livestock of the one family are not allowed to cross on to the *Mali* of another family. Few families of nomads combine and purchase *Mali*, the price of which varies according to the size of the *Mali*. Generally; the price of *Mali* ranges from one lac Pakistani rupees to 3 lac Pakistani rupees per season.

Pastoralists of the study area pay royalty on the basis of the number of their livestock i.e. goats and sheep. pastoralists are charged two hundred Pakistani rupees per animal per season. This royalty is collected at a check post set up by the ruler family at the entrance to Kaghan Valley. A man on duty at the check post counts the number of animals entering to Kaghan valley and collects the royalty accordingly. pastoralists are given pasture lands at the end of the valley near Babusar top away from other communities i.e. nomads and agro-pastoralists

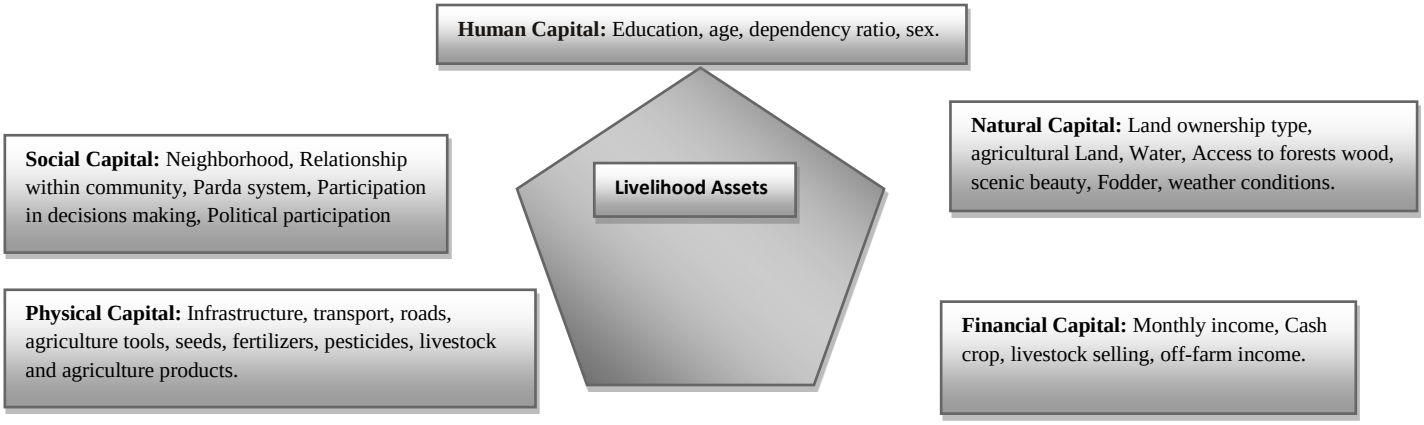
Agro-pastoralist community have a complex taxpaying system. Two kind of royalties are paid by agro-pastoralist: one for houses they live in and the other for agriculture products they produce. According to respondents, village community collects the royalty among themselves to pay it to the ruler family collectively. A person is hired by the ruler family to collect royalty from agro-pastoralists who visits the villages to collect the royalty. Each family of the villages pays royalty according to the size of land occupied and the number of livestock kept. Such royalty ranges from 5000 Pakistan rupees to 15,000 Pakistani rupees per household. Beside this royalty, the agro-pastoralists also pay tax and royalty for agriculture products they produce i.e. potatoes and peas. Agro-pastoralists are charged Rs. 200 per bag of potatoes or peas (i.e. 1000 Kg) in which Rs.150 goes to the ruler family and Rs. 50 goes to the government.

The summer pastures where nomads and pastoralists usually live during summer season are under the de facto ownership of Syed family. Nomads and pastoralists take the pasture lands on lease. The duration of the lease varies and depends on mutual consultation of the family elders (*masharan*). The rate of lease is defined by landlord Syed family. The money for the lease is collected and each family gives its share to the Syed family.

Livelihood Assets

Residents of the study area have arranged their livelihood according to the available livelihood assets. The livelihood assets exist in all five forms: Natural capital, human capital, social capital, financial capital and physical capital. Different indicators were identified for these capitals in the study area (Figure 2).

Figure 2: Lulusar Dudipatsar National Park: Livelihood Assets (2019)



Source: Field Data

Natural Capital

Agriculture land, grazing land, water, forests, scenic beauty and weather were identified as natural capitals in field by respondents. The land ownership in the study area is complex. There are different opinions about the property rights of land resource of the study area. According to the constitution of Pakistan, all the un-inhabited rangeland and pasture land belong to state property. Contrary to this, Ex-Ruler family (Syed) of the study area are of opinion that the land both agricultural and pasture right from Kaghan to Babusar top (including Lulusar Dudipatsar National Park) is their private property. They collect different taxes from all communities.

According to focus group discussions, the land of the study area (LDNP) is either *Malikana* or tenancy based. *Malikana* is a local term used for land inherited from the ancestors whose father or forefather had bought land from ruler family (Syed) in the past. They don't pay any tax or royalty to Syed family. Thus some agriculture land and grazing lands around the villages are Shamilat. Moreover, some people possess private agricultural land property in the study area. On the other hand, tenants (agro-pastoralists) of the ruler family describe themselves as *Qabza* Group. *Qabza* is a term used by farmers who have not bought the land and is inherited as such as *qabza* (occupied). It has become difficult for the landlord to take back their land. However they are still bound to pay taxes and royalties. The land where agro-pastoralists (who were mostly Gujjar) are settled, practically belong to them. However, they pay royalty for the land they have occupied. They also pay tax and royalty on their crop production to the government and Syed family. Grazing land was marked as the most important natural resource by pastoralists and nomads. Their livelihood is mainly dependent on the availability of grazing land. Pastoralists and nomads of the study area have no private or qabza property and they purchase grazing lands from the landlords on lease basis and pay royalty for grazing land to the landlord.

Agriculture land was identified by agro-pastoralists as the most important capitals for them. Agricultural land is very limited in the study area due to rough topography and physiography. The available land is mostly in the form of traced fields. According to (Table 1) there is a strong evidence that land ownership type, agriculture land size, water availability, benefits from scenic beauty and fodder collection vary significantly at less than 1% among the three communities i.e. Pearson chi square p values are .000, .001, .000, .000 and .001 respectively. Land ownership type i.e. bought and tenancy is common in agro-pastoralists that is 18% and 77% respectively while lease is common in pastoralists and nomads which is 88% and 98% respectively. Almost all of the

agriculture land is owned by agro-pastoralists. Out of all agro-pastoralists 43% have land size ranging from 1-4 kanal, 28% have land ranging from 5-9 kanals, 17% have land from 10-14 kanals, 7% have land from 15-19 kanal and 3% have land size above 20 kanal. Water deficiency also varies significantly among the three communities. All communities obtain their water from melting water of snow. Among the three communities, 70% of agro-pastoralists faces water deficiency. This deficiency occurs for crops in the month of August when almost all snow is melted away and crops are left on the mercy of rainfall only. Almost all of the communities have no access to forests due to government ban and thus no significant difference was found among the communities i.e. P value 0.8. Fodder collection varies significantly at less than 1% among the three communities where 70 % agro-pastoralists, 40% pastoralists and 25 % nomads collect fodder. The high percentage of agro-pastoralists show that they have little access to grazing ground compare to other two communities. Water, scenic beauty and weather were also marked important by agro-pastoralists. Residents take limited benefits from the forests as the area has been declared a national park. All communities get benefits from summer weather condition and no significant difference was found among the communities (i.e. P= 0.7). Agro-pastoralists grow crops and get income from tourism while pastoralists and nomads graze their animals in lush green grazing slopes.

Table 1: LDNP, Natural capital indicators and their effect on livelihood, 2019

Variables	Options	Agro-pastoralists %	Pastoralist %	Nomads %	P value
Land ownership type	Bought	18	6	0	.000*
	Tenancy	77	8	2	
	Lease	5	88	98	
agricultural Land size	1-4 kanal	43	8	2	.001*
	5-9 kanal	28	3	0	
	10-14 kanal	17	1	0	
	15-19 kanal	7	0	0	
	20 and above	3	0	0	
	No land	2	88	98	
Water deficiency	Yes	70	20	5	.000*
	No	30	80	95	
Access to forests wood	Yes	3	5	7	.8
	No	97	95	93	
Benefit from scenic beauty	Yes	91	28	15	.000*
	No	9	68	85	
Benefits from weather conditions	Yes	95	90	93	.7
	No	5	10	7	
Fodder collection	Yes	70	40	25	.001*
	No	30	60	75	

Note: * denotes significance at less than 1%

Human Capital

The major indicators identified in the study area for human capital are: education, age, dependency ratio and sex. Education can enhance the ability of people to utilize existing assets in a good way and produce new assets and opportunities. Education was found significantly different at less than 1% among the communities (p value .000). Over all the literacy rate is very low. Agro-pastoralists are more educated then the other two communities. About 25% of them have primary education,

11% have secondary education, 4% have tertiary education and 75% have no education. On the other side 83% of pastoralists and 97 % of nomads have no education. Age is the most important indicator. Age is divided into three groups: 0-14 years, 15-64 years , 65 years and above. There is no significant difference (p value .51) among communities regarding age. All communities have an average of 37% children in age group 0-14 years, 59% have adults in age group 14-64 and 5% have elders in age group 65 and above. The dependency ratio does not vary significantly among the communities i.e. p value is 0.62. All communities have an average dependency ratio of 41%. Similarly the male/female ratio also does not vary significantly among the communities. On average males are 51% and female are 49% in all the three communities (table 2).

Table 2: LDNP, Human capital indicators and their impacts on the three communities, 2019

Variables	Options	Agro-pastoralists %	Pastoralist %	Nomads %	P value
Education	Primary edu.	25	17	3	.000*
	Secondary	11	6	1	
	edu.	4	2	0	
	Tertiary edu.	75	83	97	
	No literacy				
age	0-14 years	37	36	38	.51
	15-64 years	58	60	59	
	65 and over	5	4	5	
Dependency ratio		42	40	43	.62
sex	Male	52	51	52	.70
	Female	48	49	48	

Note: * statistically significant at less than 1%

Social Capital

Neighborhood network, relationship within community, parda system, decision making and political participation were identified as major indicators for social capital. Neighborhood network, relationship within community, participation in decisions making and political participation were found significantly different among communities at less than 1% level with p values .001, .000, .001 and .000 respectively. Neighborhood network is strong in agro-pastoralists and nomads with participants 93% and 77% respectively compare to pastoralists (40%). This is due to the reason that agro-pastoralists and nomads are living in households situated close to each other while pastoralists are living in sparse houses situated far away from each other. According to focus groups discussions, if an household gets short of something like vegetable, milk, rice, flour, oil or other things of daily usage then they are borrowed from neighbors. Similarly relationship among agro-pastoralists and among nomads is also strong with participants 89% and 78% respectively due to the same reason. However 60% of pastoralists were also able to keep relationship among their community. Participation in decision making was very strong in agro-pastoralists with 84% participants. It was found in focus groups discussion that there is a decision making community of agro-pastoralists called Gujjar Biradhari. They make important decision within community. For example a decision was implemented where no jeeps for tourists were allowed to drive except that of Gujjar Biradhari. Agro-pastoralists are more active in political activities with 97% participants. This is due to the reason that they are tenants of a strong political family. All of the nomads have

no participation in political system. This is due to the reason that almost all of them are Afghans who have no right to cast vote. Female parda (veil) system is found strong among all communities and there is no significant variation found among the communities (p value 0.999).

Table 3: LDNP, Indicators for social capital and their impacts on the communities

Variables	Options	Agro-pastoralists %	Pastoralist %	Nomads %	P value
Neighborhood networks	Strong networks Weak networks	93 07	40 60	77 23	.001*
Relationship within community	Yes No	89 11	55 45	78 32	.000*
Parda system	Yes No	100 0	98 2	100 0	0.999
Participation in decisions making	Yes No	84 16	10 90	20 80	.001*
Political participation	Yes No	97 03	54 46	0 100	.000*

Note: * denotes significance at less than 1%

Financial Capital

Like other mountain communities (Fazlur-ur-Rahman, 2007) the people of the study area are mostly engaged in agriculture, off-farm activities and livestock husbandry. However with recent changes like surge in tourism and improved accessibility, the economic activities of the local inhabitants are diverse now. Besides agriculture and animal husbandry, they are engaged in different off-farm economic activities such as working in tourism and hospitality and self-business. Indicators identified for financial capital in the study area are: Monthly income, cash crops, livestock and off farm activities. All of these indicators vary significantly at less than 1% level among the three communities with p values .000, .000, 001, .001 and .000 respectively. Monthly income is the best yardstick to identify and determine the life standard of the people. Monthly income is high in agro-pastoralists of whom 40% earn Rs. 26,000-35000. On the other hand 52% of pastoralists and 65% of nomads are living below poverty line with monthly income up to 16,000. It should be worth mentioning that minimum wage set up by government of Pakistan is Rs.17000. This difference among the communities is due to the reason that pastoralists and nomads only have livestock and do not carry cash crop and off farm activities. On the other side agro-pastoralists grow cash crops and have occupied all off-farm activities thus earn handsome sum of money from tourism related activities. About 24% of agro-pastoralists have income from cash crop only but 78% have income from cash crop and off-farm activities collectively. Similarly 84% of pastoralists and 96% of nomads have income from livestock only. Almost all pastoralists (97%) and nomads (91%) sell their livestock to earn money while only 11% of agro-pastoralists sell their livestock.

Table 4: LDNP, Financial indicators and their impacts, 2019

Variables	Options	Agro-pastoralists %	Pastoralist %	Nomads %	P value
Monthly income	Upton 16,000	13	52	65	.000*
	17000-25000	36	25	19	
	26000-35000	40	16	12	
	36000 and above	11	07	04	
Cash crop only	Yes	24	02	0	.000*
	No	76	98	100	
Livestock only	Yes	02	84	96	.001*
	No	98	16	04	
Cash crop+off farm	Yes	76	02	00	001*
	No	24	98	100	
Selling livestock	Yes	11	97	91	.000*
	No	89	03	09	

Note: *denotes significance at less than 1%

Physical Capital

The main indicators identified for physical capitals in the study area are: houses, jeeps, hotels, roads, livestock, livestock number, fertilizers, pesticides, transport and access to market. All of these indicators except access to market vary significantly among the three communities at less than 1% level with p values .000, .001, .001, .000, .000, .000, .001, .001, .001, .000 and .341 respectively. House ownership is mostly tenancy based in agro-pastoralists with 85% households and lease based in pastoralists and nomads with 88% and 98% households respectively. This is due to the reason that agro-pastoralists are tenants of the royal family while pastoralists and nomads take houses and grazing lands on lease basis. many of the agro-pastoralists (47%) own jeeps while 21% are drivers. These jeeps are used for tourists to earn money. Agro-pastoralists have hotels among which 08% owned hotels and 12% have lease. Agro-pastoralists (93%) and nomads (88%) have more access to roads than pastoralists (61%). This is due to the reason that agro-pastoralists and nomads live near to roads while pastoralists live far away in grazing lands situated at the slopes of mountains. Most of the agro-pastoralists (62%) keep cow and goats, majority of the pastoralists (78%) keep only goats and almost all of the nomads (95%) keep only sheep. Livestock number varies among the three communities significantly. Most of the agro-pastoralists (86%) keep livestock in the range of 1-15, 45% have herds in range of 15-50 and 50% have herds in range of 50-100. On the other hand some pastoralists (55%) keep livestock in range of 15-50 and 40% keep livestock in range of 50-100. In nomads, 23% have number of herds in range of 1-15Fertilizer is only used by agro-pastoralists among which 35% use artificial fertilizers and 60% use natural fertilizer. Similarly; 72% of agro-pastoralists use pesticides for their crops. Almost all of the agro-pastoralists (92%) use vehicles for transportation purposes between high land and low land movement. While majority of pastoralists (76%) and almost of the nomads (93%) are foot travelers. This is due to the fact that nomads and pastoralists have large number of herds which they graze on the way to high land/low land to avoid stall feeding. A small percentage of pastoralists (10%) have no easy access to market due to far away existence from market.

Table 5: LDNP, indicators for physical capital and their impacts, 2019

Variables	Options	Agro-pastoralists %	Pastoralist %	Nomads %	P value
house	Own	13	03	0	.000*
	Tenancy	85	09	0	
	lease	02	88	98	
jeep	Own	47	05	0	.001*
	driver	21	07	0	
hotel	Own	08	0	0	.001*
	lease	12	02	0	
Access to road	Yes	93	61	88	.000*
	No	07	39	12	
Livestock	Cow+goats	62	05	02	.000*
	Goats only	11	78	03	
	Sheep only	04	12	95	
Livestock number	1-15	86	05	23	.000*
	15-50	04	55	45	
	50-100	0	40	25	
	100 and above	0	10	07	
Use of fertilizers	Artificial	35	0	0	.001*
	Natural	60	0	0	
use of pesticides	Yes	72	0	0	001*
	No	28	0	0	
Transport method	Foot	08	76	98	.000*
	Vehicle	92	24	02	
Access to market	Yes	100	90	97	.341
	No	0	10	03	

Note: *denotes significance at less than 1%

The findings align with the Sustainable Livelihoods Framework (SLF), which posits that a household's choice of livelihood strategy is influenced by its access to five key capitals—natural, human, social, physical, and financial (DFID, 1999). In this study, agro-pastoralists' diversified income sources reflect their better access to physical and financial capital, notably from tourism and market-linked crop production. Conversely, nomads and pastoralists, with limited access to such capitals, rely predominantly on traditional livestock-based strategies. This supports previous findings that increased access to financial and social capital leads to livelihood diversification (Fang et al., 2014; Martin & Lorenzen, 2016). The theoretical implication is that policy interventions aimed at enhancing access to diverse livelihood assets—particularly in marginalized mountain regions—can foster more resilient and sustainable livelihoods.

Conclusion

This study was conducted in Lulusar Dudipatsar National Park Kaghan Valley in the Himalayas of Pakistan. The study area is inhabited by agro-pastoralists, pastoralists and nomads. All the resources in the study area are seasonally productive and are available in summer season only. Therefore; all the three communities follow seasonal migration. They move uphill in summer

season and come down to plain areas in winter season. Both the agricultural and pasture lands of the study area belong to a royal political family. Agro-pastoralists are their peasants while pastoralists and nomads pay royalty to the royal family. The livelihood strategies of the three communities are different from each other therefore livelihood capitals vary among the three communities. Agro-pastoralists are depended on livestock, cash crop production and tourism related activities while pastoralists and nomads are only depended on livestock and pastures availability. Agro-pastoralists grow peas and potatoes as a source of cash income for them. However their source of income has been diversified due to tourism related activities. On the other hand, agro-pastoralists keep few number of livestock especially cows for domestic needs only while pastoralists and nomads keep large number of herds i.e. goats and sheep which is their source of livelihood.

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