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Ownership, Management and Utilization of Common Pool Resources in Mehlp Valley, Chitral, North Pakistan

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Abstract

In the remote mountainous valleys management of natural resources is closely associated with ownership regimes and perceived importance of resources for subsistence sustenance. Since livelihood strategies are quite similar in the Himalaya – Hindu Kush – Karakorum region of North Pakistan; however, the management techniques and utilization mechanisms adopted by the communities heavily depend on ownership regimes and availability of these resources within the territorial limits of a village. Usually, at micro level, locally available resources are kept under different ownership regimes. Access to, and withdrawal from the common pool resources is subject to a complicated system of rights, duties and responsibilities. With the passage of time autochthonous institution have been established for making appropriation rules without any external intervention. In this paper, an attempt is made to look into various aspects of ownership regimes, utilization pattern and management strategies of pasture resources in a remote valley in the Eastern Hindu Kush. Participant observation and focused group discussion were used for data collection. The results reveal that ownership and utilization pattern of the pasture resources is quite complicated. Though the ownerships are still held in de facto, however, the individual user groups are very effective in utilizing their resources in a sustainable way.

Keywords: Common Property Resources, Livelihood Strategies, Eastern Hindu Kush, Adaptive Mechanisms

Introduction

In the mountainous regions around the world available natural resources are playing a crucial role in subsistence sustenance of the inhabitants. The researchers have found out similarities in the ownership, utilization and management of natural resources among the mountainous communities from the Andes in South America to Alps and the Himalayas, Karakorum and Hindu Kush regions of the Indian subcontinent and adjacent countries (cf. Fɒrer-Haimendorf, 1971; Rhoades & Thompson 1975; Netting, 1974, 1976, 1997; Brush, 1976a, 1976b; 1982; Brush & Guillet 1985; Guillet, 1981, 1983; Kreutzmann, 1989, 2006; Ehlers, 1995, 1996, 1997, 2000; MacDonald 1998; Ehlers & Kreutzmann 2000 and Stɯber, 2001). Though, socio-economic changes in the mountain societies of the world are quite rapid and the local inhabitants are trying their level best to adjust themselves to these transformations. However, with the passage of time, dependence on the available common pool natural resources is also increasing. To ensure equity in the distribution of resource-units amongst the co-owners and resiliency of the resource base, local communities have formulated comprehensives codes for resource management. These indigenous rules and autochthonous institutions established for the utilization and management of natural resources are dynamic and have proved sustainable for ensuring livelihood strategies of the local population.

In the entire mountainous belt of northern Pakistan including Chitral district natural resources are also kept under different ownership regimes such as individual or private ownership, state ownership, common property and open access (cf. Buzdar, 1988; Bromely, 1989; 1991, 1992; Ostrom, 1990; Ostrom et al. 1999; Schmidt, 2004a, 2004b; Nafees et al. 2009; Velez, 2011; UN-Habitat 2012; Ruiz-Ballesteros & Gual 2012 and Moritz et al. 2013). However, in Mehlp valley these regimes are very complex and cannot be accommodated within the existing classification system (Fazlur-Rahman, 2007, 2009). Moreover, local level economic organization, adjustment with the environmental trajectories and long time feudal rule in Chitral has further complicated resource ownership and utilization pattern (Barth, 1956; Staley, 1969 and Eggert, 1990). Neither the colonial powers (Schomberg, 1938: 102f) and nor the Pakistan government has shown any interest in changing the existing system[1]. In such a situation the ownership titles of individuals as well as communities are still de facto and access to and withdrawal from different resources varies from village to village depending on the availability and economic importance of the resource for subsistence survival. In this paper, an attempt is made to briefly look into different ownership regimes and detailed case studies are presented on the sharing and management of common pool resources that had evolved with the passage of time. For this purpose, a small village in Mehlp valley, village Odier, has been selected for detailed analysis.

Material and Methods

This research is mainly based on participant observation and focused group discussions. During the fieldwork, conducted in 2001 and again in 2012, almost all the user groups were consulted and detailed discussions were held with the knowledgeable persons of each lineage and user group. Unstructured questions were asked about different types of ownership regimes, extraction methods and appointment of the traditional watchmen (*darophal*). Moreover, the duties of watchmen, their rights and different mechanisms adopted for resolving the free rider problem were also discussed in detail. Discussions were also held with the respondents to know the primary owners of each pasture and secondary users or usufructs. At the same time data on other common pool resources of the study area as well as other villages of Mehlp valley were also collected through the same methods to look into the similarities and differences in the utilization pattern of different resources.

Characteristics of the Study Area

Mehlp valley is located in the north western part of Chitral district. This is one of the left-bank tributary of Torkhow River. It is typically a cul-de-sac type of valley with a total length of approximately 25 kilometres. There are three villages in this valley i.e. Mehlp proper, Shoat located on the south facing slope, and Odier has north facing exposure. Two main streams drain the whole area (Map 1). The entire valley is located in a single cropping zone and due to high altitude, in the summer settlements; crop failure is also a common phenomenon. Similar to other parts of the northern mountainous belt (cf. Saunders, 1983; Ehlers & Kreutzmann, 2000 and Kreutzmann 2006) combined mountain agriculture is practiced as a strategy for subsistence sustenance in the valley. Both sectors of the traditional economy – agriculture and animal husbandry – have been effectively integrated. However, at present off-farm income, through government services and out-migration, is also contributing substantially in the household income (cf. Fazlur-Rahman 2007). The important food crops grown in the valley include wheat, barley, maize and potato and the main livestock species include sheep, goats, cattle and yaks.

Fodder and firewood are the main pastures resources of the study area. All the villages of Melhp valley are located above 2900 meter above sea level, where livestock needs 8 to 9 months indoor feeding. Outdoor grazing in the nearby pastures is possible only for 3 to 4 months. Meanwhile, in a tree less milieu, most of the household highly depends on pasture resources for cooking and heating. Both fodder and firewood are supplemented by fodder crops, irrigated grasses and irrigated plantations on the privately owned land. Usually households having little cultivable land heavily depend on the pasture resources.

Population of the village is increasing quite rapidly. The number of households in study area increased from 120 in 2001 (cf. Fazlur-Rahman 2007) to 148[2] in 2012 and at the same time population also increased from 1100 in 2001 to more than 15000 in 2012. This increase has had a multiple impact on the natural resources. It has caused fragmentation of the cultivated land and the size of land holding is also decreasing rapidly. At present more than 95% of the households have less than subsistence level of holding as defined by Saunders (1983: 16) for the Karakorum region[3]. Increase in households also increases the number of livestock in the village. This situation is further increasing the pressure on common pool resources for the provision of basic household needs such as fuel wood and fodder.

The study area has five small pastures in the close vicinity. In the arid mountain milieu both the productivity and regeneration capacity of the pasture resources is very limited. For efficient and sustainable management of pastures resources with equity amongst the co-owners, user groups have been created for each pasture. Each of these groups manages their pasture independently. They usually extract fire wood and fodder from these pastures in addition to grazing of livestock. However, according to the existing pattern of common pool resource utilization, others households of the village and people residing outsider village/valley do have some rights that have been labelled as secondary rights. This system of ownership, management and differential access rights are quite complicated and had evolved with the passage of time. Moreover, these traditional usage patterns became part of the indigenous traditional knowledge and almost all the households have equal knowledge on the functioning of the system.

Results and Discussions

Resource Ownership in Mehlp Valley

In Mehlp valley, the individual villages have well-defined horizontal and vertical territorial limits and clear boundaries. Natural resources located within these limits are kept under different ownership regimes for proper utilisation. Except in the case of arable land purchased by the households, written records of ownership and inheritance are neither kept by the state and nor by the individual households[4]. The whole system of land boundaries and share-and-access rights is maintained through traditional knowledge, which is orally transmitted from one generation to another. In this way everyone knows their own rights and respects others' rights by performing their duties. In case of any dispute or conflict, physical witnesses are presented to the village elders or court of law, and the old usage pattern is considered to be a main supporting proof.

Usually, land that falls within the command area of an irrigation channels in both winter and summer settlements is held as private property, and is mostly owned by

a household head. Irrigation water, which is the single prerequisite for the productivity of arable land (cf. Fazlur-Rahman 2006, 2007), and pastures are treated as common pool resources and are kept under communal or joint ownership regimes[5]. Moreover, to maintain equity at village level and proper utilization of these resources, the villagers have formed different user groups with pre-defined membership and clear access rights. Due to physical and climatic constraints productivity of these resources is very low, with extreme seasonal fluctuation, and a single resource (arable land or alpine pasture) is not sufficient for the subsistence (survival) of a household. At the same time the whole livelihood system of the inhabitants still heavily depends on these resources. Therefore, all these resources, in various ownership regimes, are integrated to ensure the provision of basic household needs for the entire season[6].

Similar to the whole northern mountainous region and elsewhere (Saunders 1983, Ehlers and Kreutzmann 2000; Kreutzmann 2006 and Fitzherbert 2007) in Mehlp valley livestock species and herd size heavily depends on the amount and availability of winter fodder. Therefore, fodder crops are regularly grown in the privately owned fields and the few pastures are also reserved for seasonal grazing as well as for annual fodder collection. Therefore, pastures are considered important resource-base because they provide forage, fodder and fuel wood for the communities.

Pastures and Pasture Resource Management

In the study area pastures and pasture resources are well integrated into the domestic production systems. The designation of differential ownership regimes to such resources is another strategy designed to fulfil the households' fodder and firewood requirements and compensate for deficiencies. These resources are shared among the co-owners. Strict equity is maintained for some resources; but for others, no such measures are adopted. There are five named pastures owned by the user groups of the village (cf. Map 1). Three of them are exclusively reserved for firewood, and two for fodder collection (Table 1). Similar to other localities (cf. MCkean 1992a, 1992b; Netting 1976 and Stuber & Herbers 2000), in Mehlp valley a variety of systems have been devised to control and manage pasture resources. In the study area this system of pasture resource management is known as *Saq* and that is practiced in other parts of Chitral district as well.

For about a century almost all the nearby pastures of the study area had been declared a reserved (*Saq*). It is a basically a term of Khowar language and is usually applied to pasture area that is purposely reserved for single or multiple resources (fodder, firewood or both), agreed upon either by the concerned households or by all the households of a village, through the creation of a joint user group with a definite membership. Based on access, implements used and duration of *saq* period, Faizi

(1999:9) has identified three different types of *saq* in practice. In all circumstances, the boundaries of *saq* areas are properly demarcated, and the responsibility for guarding against free riders and non-owners is entrusted to a number of selected persons locally called *darophal*. The whole community or the concerned user groups appoint these watchmen through mutual consensus for an unlimited time period. Within the *saq* territorial limits nobody (not even members of the *saq* community) is allowed to extract the particular resources for which it has been reserved without prior permission from the community/watchmen. This management mechanism is popular in the whole northern mountain belt of Pakistan and in the treeless area of upper Ghizer district (cf. Baig 1994: 121f.) similar conservation and management practices have been recently introduced. Moreover, such arrangements have been reported from Shishi valley, in southern Chitral. According to Klaus Haserodt (1989: 126) "Dazu gehцren die zeitweilige Schonung von dorfnahen Eichenbestдnden fьr eine stдrkere Winternutzung oder das zeitweilige Herausnehmen von Gelдndeteilen ьber eine Reihe von Jahren aus jeglicher Nutzung (*hujjat*) zum Zwecke der Regeneration." [The general practice of the villagers through temporal restriction on grazing near the villages for winter use and reservation of land parcels for the purpose of future regeneration]

Usually these reserved pastures are open for the collection of fodder and firewood resources. Fodder collection normally starts in August and firewood is usually collected in spring season. In both cases the dates are publically announced after Friday congregation in the central mosque of the village. For the collection of fuel wood both the duration of access and number of loads (*bar*) per household are also determined. However, fodder collection, similar to the old practices in the Khumbu region of Nepal (cf. Stevens 1993: 166), no such mechanism is in vogue.

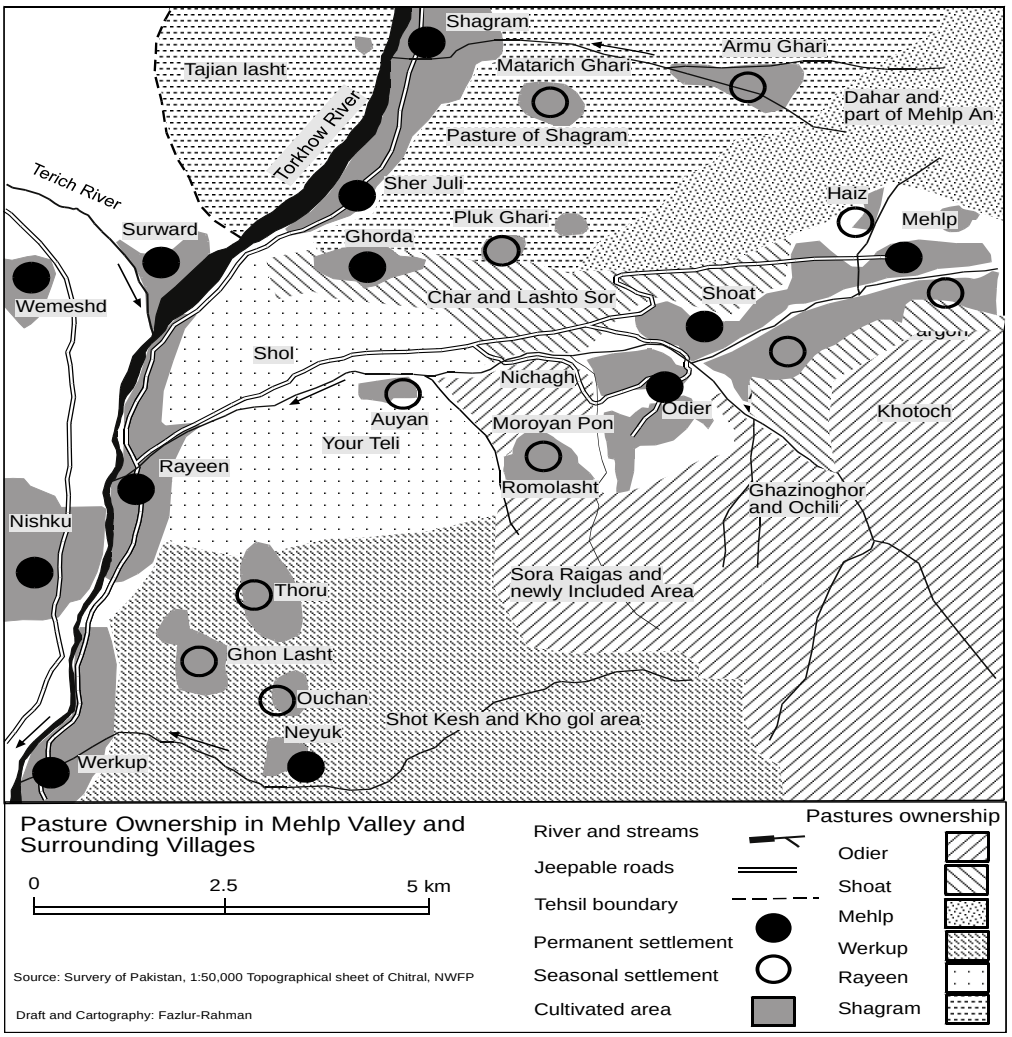
These general rules of *saq* are strictly applied to the pastures of the study area. Though the user groups are decentralised entities and decide almost all the management related matters on their own. To highlight the indigenous and self-supporting management, few case studies are presented from the study area.

Nichagh Pasture

The name *Nichagh* literally means an area having northern exposure. This area is located very close to the lower part of the village. It is a common property shared by 53 households of the village. The majority of the owners are Somalay (38 households); Bulay (6), Shadeyay (2) and Shaipay (5) and two households of the Nasketek clan are also included in this user group. Most of the owners have arable land and houses in the lower part of the village. For the last hundred years or so, the co-owners have declared this pasture a permanently reserve area (*saq*) for the

extraction of firewood. They have appointed two watchers (*darophal*) to control free riders and unauthorised users[7].

Map 1: Pasture Ownership in Mehlp Valley and Surrounding Villages



Source: Modified from Fazlur-Rahman (2007)

Different species of Artemisia and wild rose are grown here. The owners have the right to extract fuel wood and graze their sheep and goats in this area. Some non-owner households who have winter houses in the lower part of the village also have some secondary access rights and are allowed to graze their sheep and goats

here. This area has been divided into different named sections for the extraction of fuel wood, and every year one section is declared open upon consultation with the watchmen (*darophal*) and the elders of the user group. The system follows the general principles of reserve in open, i.e., there is a fixed designation of days, duration and number of loads per household. This ban is relaxed only in the spring season, shortly after the snowmelt. The spring thaw facilitates the extraction process, as the different species of Artemisia can be easily up-rooted from the soft, wet soil. Generally an owner can give his share to any member of the user group or any outsider, as he wishes. Members of this user group are also allowed to exchange their shares, on a permanent or temporary basis, with anybody else in other user groups, according to their convenience.

Table.1:Pasture Utilisation in Odier Village with differential rights

Pastures/ (Altitude in Meter)	De facto owners/ users	Primary owner (Hh)	Secondary users (Hh)	Resources	Extraction system	Watchmen (*Darophal*)
Nichagh (2700–3200)	Odier (defined user group)	53	-	Firewood collection, sheep and goats grazing	Reserved	Yes
-do-	Other households of Odier village	-	45	Only sheep and goats grazing	Allowed	No
Moryan Pon (3000–3200)	Odier (defined user group)	44	-	Firewood collection sheep and goats grazing	Reserved	Yes
-do-	Other households of Odier village	-	85	Only sheep and goats grazing	Allowed	No
Ghazinoghor (2900–3300)	Odier (defined user group)	51	-	Firewood, fodder collection and sheep and goats grazing	Reserved	Yes
-do-	Other households of Odier village	-	35	Only sheep and goats grazing	Allowed	No
Ochili Pasture (3100–3300)	Odier (defined user group)	80	-	Fodder collection only and livestock grazing for all households of Odier	Reserved	Yes
Sora Rai Gas (3200–3500)	-do-	118	-	-do-	Reserved	Yes

No: not relevant. Hh: households

Source: Fazlur-Rahman (2006; 2007)

No fodder collection is allowed from the Nichagh pasture. Rather, it is reserved for spring-season grazing only. Because of its proximity to the dwellings, even the weak sheep and goats can be driven there for daily grazing. This time of year also coincides with the extreme fodder scarcity in the village, as most of the households have depleted their fodder stocks. Therefore, all the households with winter houses in this part of the village occupy their house in the late winter or early spring season to avail this grazing opportunity.

Moroyan Pon Pasture

The Moroyan Pon pasture is *saq* area belonging to another group of households of the village. It is located towards the western side of the summer settlement of Romolasht. It has a common boundary on one side with the Nichagh pasture, and on the other side with the pasture and birch groves of Rayeen villagers. The boundaries on both sides are well defined, without any confusion. It is relatively small in area and has a southern exposure. In general this pasture is used by most households of the village for grazing sheep and goats during spring and winter season. Previously, yak owners also used it as a winter pasture. No fodder is collected from this area. This user group consists of 44 households. Except for two households (one each from the Shaipay and Shadeyay clans), all the co-owners belong to the Somalay clan. The group also keeps two watchmen (*darophal*) for proper control and management purposes and extracts fuel wood according to self-formulated regulations. This pasture is also declared open in early spring season and similarly other rules of the *saq* also applied to it.

Ghazinoghor Pasture

This pasture is located on the north-eastern side of the upper part of the village, close to the dwellings. It was an area rich in both firewood and fodder, and until 1989, it was reserved as a *saq* area for both purposes. A total of 51 member/co-owner households were entitled to collect fuel wood only (the case of fodder is discussed below). The majority of these households were from the Bulay clan (24), followed by Shaipay (13) and Nasketek (10). One household of Shadeyay clan and all three households of the Khushay clan were also included in this group. Out of the whole group, only 35 households used the area as winter and early spring pasture for grazing goats and sheep. After the amelioration of the surrounding areas, the nearby households were entirely dependent on it as their sole winter pasture for goat grazing. The whole area was suitable for development by constructing irrigation channels, in which case there would be no longer any shortage of water. In one section of the pasture there was even no need to construct a channel, because one of the seasonal streams was flowing through it. In the late 1970s one of the co-owners from Nasketek clan approached the state

and got permission to reclaim some area in the easternmost part of the pasture. Later on, another co-owner from the Shaipay clan also got ownership rights there for reclamation. This situation made it difficult for the other *saq* members to maintain the pasture for grazing. Eventually, with the financial and technical assistance of Aga Khan Rural Support Program (AKRSP), the area was ameliorated and brought under individual ownership.

Ochili Pasture

Ochili pasture is located towards the eastern side of the Ghazinoghor pasture. It was considered to be part of Ghazinoghor pasture for the collection of fuel wood and belongs to the same user group. It was also reserved for haymaking. Due to its exposure and steep slope, the growth of natural grass and fodder plants were sufficient for seasonal haymaking. Along with other pastures of the village, it was protected as a *saq* from the last week of May until the first week of August; grazing of sheep and goats were not allowed here. The date for collective haymaking in the commons was formally announced around the first week of August, after the Friday congregation in the central mosque of the village. Then the user groups were allowed to cut fodder from all the reserved communal pastures.

After the development of Ghazinoghor pasture, the village community declared the Ochili section of the pasture an open access (*rai*) for the affected households of the former user group. This step was taken to compensate them for the loss of their nearby pasture, and to facilitate their seasonal sheep grazing. Unfortunately, this measure was not enough for the affected households due to several factors: the Ochili pasture is relatively far away from the dwellings, and due to its steep slope, there is a potential risk of avalanches in winter and rock fall in spring. In the past the poor households were able to collect considerable amounts of fodder and firewood from this reserved area. Since the area has been converted into private property, the fuel wood production has increased for individual owners, but the poor households are now restricted to their own small plots for haymaking and the seasonal grazing of sheep and goats here has been stopped.

Sora Rai Gas and the Newly Reserved Area

The Sora Rai Gas area is located in the upper part of the village above the area owned by clans, at an altitude varying from 3,300 to more than 4,000 masl. A part of this area is bounded by the summer settlements of Nashtani and Lashto Dok. This pasture was and still is used for grazing sheep in the summer and goats during the late autumn and early spring seasons. The area was and is reserved for fodder and firewood collection. Some parts of the area, mostly the uppermost watersheds, were kept as an open access for year-round fuel wood collection.

The newly reserved area, located above the arable land in the Romolasht summer settlement, is handled differently. In the past, it was used for seasonal grazing and was treated as an open access for firewood collection. With the passage of time clans residing adjacent to the pasture encroached on the pasture land and brought under individual ownership, thus creating stress for sheep grazing and intensifying the use of this open-access pasture. Thus this area became heavily stressed and over-utilised. The villagers generally feared that the natural re-growth cycle of the plants, especially *Echinops sp.* (*istorjochun*), was slower than the extraction rate. Therefore, to avoid further deterioration of the habitat, a permanent ban on the collection of fodder and fuel wood has now been imposed on this area in 2001 and this pasture has been added to the village reserve pool (*saq*) through a unanimous decision of the whole community.

The boundaries of the saq area have been properly demarcated anew for the purpose of natural regeneration, and in 2009 this newly *saq* area was declared open for the collection of firewood; and every household was allowed to extract eight loads of firewood in 10 days.

Conclusion

This study reveals that at micro level management of common pool resources in the remote mountains area is quite complex and complicated to understand (Fazlur-Rahman 2009). There is general variation in management systems with respect to the availability of resource and its economic importance for the subsistence survival of the local inhabitants. However, two aspect of resource utilization are very common i.e. equity and sustainability. It is because of the fact the villagers are aware of the fact that their individual as well as collective survival lies in the long-term sustainability of these resources. Therefore, based on the designed principles of Elinor Ostrom (1990) they have devised management mechanisms for their common pool resources. Access to pasture and withdrawal of resources has been properly defined for all the co-owners in each pasture. Both the indigenous institutions and locally formulated rules and regulation are robust and working for a very long time without any conflict.

The villagers are sensitive to the degradation and overexploitation of pasture resources. Therefore they have included new area in the village reserve pool through mutual consensus and successfully managing it. This study reveals that the inhabitants have formulated different rules for firewood and fodder collection keeping the significance of pasture resources. For fodder collection from the reserved pastures, they are reserved for the entire season and after the opening date no restriction is placed on the duration as well as amount of fodder collected

by a single household. Contrary to this for firewood collection the reserved pastures are opened for a fixed number of days and the amount of firewood per shareholder is also fixed.

The case studies also show that in the formation of user group have special care has been taken to include those households who belong to one clan and residing in the same neighbourhood. This mechanism has been adopted with few exceptions. However, the secondary rights of other households, residing permanently or temporarily in the proximity of the pasture, has been respected. In this way households have been divided into primary and secondary owners/user. These differential access rights are one of main findings of this research.

These case studies also highlight the villagers' environmental knowledge, sensitivity to resource degradation and managerial skills and capability for the conservation of natural resources. It is concluded that traditional resource management and utilization based on principles of conservation and sustainability in the fragile mountain milieu were in vogue for centuries. The inhabitants of the remote villages were successfully implementing these concepts which were unknown to resource managers and government officials.

Notes

[1] Nevertheless, despite strong resistance of the local inhabitants a few years ago the revenue department has started land settlement and cadastral documentation in the district. As a result measurement of cultivated area of many villages of lower Chitral has been completed and survey activities are in progress in the upper parts of the district

[2] These households belong to six lineage groups i.e. Somalay (78) Bulay (30) Shaipay (19) Nasketek (12), Khushay (3) and Shadeyay (6).

[3] According to Saunders (1983:16) "It may be suggested that with careful husbandry the average household of 7-8 members may achieve self-sufficiency in a double cropping with 1.5-2 ha (30-40 kanals) and in single crop area with 2.5-3ha (50-60 kanals). This assumes a reasonably fertile soil, adequate supply of irrigation water, under current agricultural management practices and at a moderate living standard.

[4] Cadastral survey of this village has been completed. Now the revenue officials are busy in documenting the ownership records and relevant information as well as preparing the cadastral map for the village. This will change the ownership of the individual households and at the same time detail records will be available in the relevant department for consultation in case of any dispute.

[5] Access and withdrawal rights with respect to irrigation water considerably vary from other common pool resources (cf. Israr-ud-Din 1992, 1995 Baig 1994 and Fazlur-Rahman 2006, 2007, 2009).

[6] For example, the villagers are dependent on water resources for drinking, irrigation and running their water mills; likewise arable land produces food, firewood and fodder; and pastures are the main resource for seasonal forage, grazing, firewood collection and haymaking. Thus, all resources falling within the territorial limits of a village in different ownership regimes are amalgamated and used as production inputs, as well as supplementary sources, to ensure subsistence livelihood at village and household levels.

[7] This pasture is located very close to the winter dwellings, there is no problem of free riders; however, an organisation is always needed to oversee proper management.

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