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Rangelands, Conflicts, and Society in the Upper Mustang Region, Nepal

Status, Rights, and Traditional Rangeland Management Strategies

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Rangelands are considered critical ecosystems in the Nepal Himalayas and provide multiple ecosystem services that support local livelihoods. However, these rangelands are under threat from various anthropogenic stresses. This study analyzes an example of conflict over the use of rangeland, involving two villages in the Mustang district of Nepal. This prolonged conflict over the use of rangeland rests on how use rights are defined by the parties, that is, whether they are based on traditional use or property ownership. Traditionally, such conflicts in remote areas were managed under the Mukhiya *(village chief) system, but this became dysfunctional after the political change of 1990. The continuing conflict suggests that excessive demand for limited rangelands motivates local villagers to gain absolute control of the resources. In such contexts, external support should focus on enhancing the management and production of forage resources locally, which requires the establishment of local common property institutions to facilitate sustainable rangeland management.*

Keywords: *Rangelands; conflict; traditional use; use rights; Nepal.*

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Introduction

Rangelands are considered critical ecosystems in the Himalayas. They occupy about 60% of the Himalayan landscape (Yi and Sharma 2009; ICIMOD 2012). Most of the rangelands in the Nepal Himalayas are at high elevations and in relatively dry regions. These rangelands provide various ecosystem services that support the livelihoods of local people and environmental benefits such as watershed protection, biodiversity conservation, and eco-tourism promotion (ICIMOD 2012). Livestock ranching and medicinal plant collection in rangelands are major livelihood support strategies for rural people (Miller 1997; Dong et al 2009). In addition, rangelands support many plant and animal species that are integral components of the Himalayan ecosystem as they provide ecosystem services and maintain sustainability of the region (ICIMOD 2012).

Despite the significant role of rangelands in Nepal, they are under threat from various anthropogenic stresses, including overgrazing and overexploitation of medicinal plants (Dong et al 2009). Additionally, the looming impacts of climatic change in the subalpine and alpine regions of the Himalayas are omnipresent (Sharma and Tsering 2009). Climatic change can adversely impact the rangeland ecosystems and their economic potential and ecological sustainability (ICIMOD 2012).

In Nepal, rangelands are generally treated as common pool resources (CPR). The existing mode of overuse and overgrazing of rangelands may lead to their depletion and ultimately push rangelands beyond the limits of sustainable yields (Blomquist and Ostrom 1985; Wade 1987). This depletion of CPR occurs due to either the lack of appropriate institutions for management or conflicting claims over rangeland resources (Adams et al 2002). Different modes of conflicts over rangeland use, such as conflicts between local communities and with government agencies, have been observed (Wily 2008; Bedunach and Angerer 2012). Usually conflict between communities over property rights poses serious challenges to the sustainable management of rangeland resources. These challenges could be the potential sources

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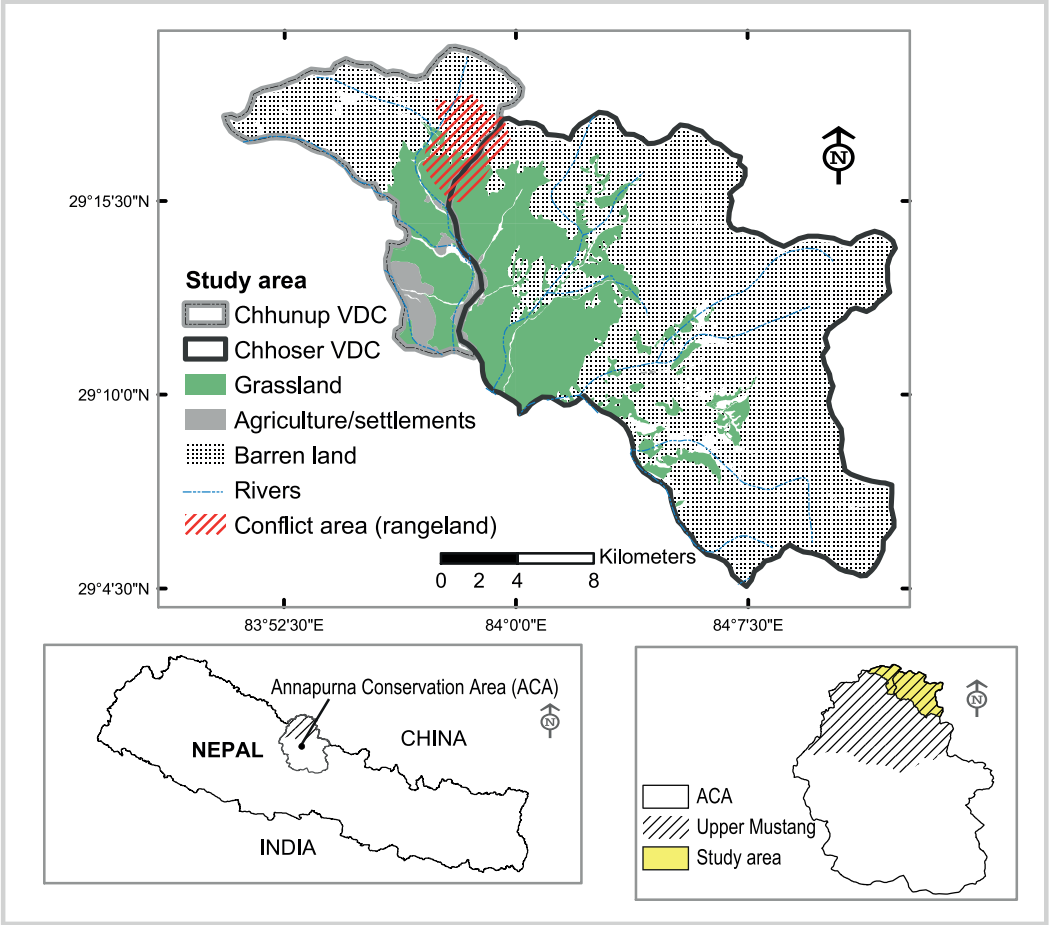
FIGURE 1 Land cover and conflict area in Chhoser and Chhunup VDCs, Mustang district. (Map by Achyut Aryal)



of free riding on rangeland use leading to the tragedy of commons (Hardin 1968). Occasionally violent conflicts between local and nonlocal villagers have been observed in the rangelands of the high mountains in Nepal, claiming several lives in the search of high-value resources such as *Yarsagumba* (*Ophiocordyceps sinensis*). Therefore, these sociopolitical dimensions are critical for the sustainable management of rangeland resources. However, studies on rangelands have focused primarily on their natural dimensions (Lehmkuhl et al 1988; Carpenter and Klein 1995; Katrina 1997; Dong et al 2009), while the equally important social dimensions have been generally overlooked (Richard et al 2000; Chetri and Gurung 2004).

In order to motivate and complement the policy dialogue on sustainable management of rangeland resources in the mountainous regions of Nepal, this study examines rangeland management issues at a local level. Specifically we use a case study approach to examine and discuss traditional rangeland use rights, conflicts, indigenous conflict management strategies, and other historical and social aspects from Mustang District, Nepal. We conclude by offering some policy relevant recommendations to strengthen the sustainable management of rangelands in the high Himalayan region of Nepal and possibly elsewhere.

Material and methods

Case study area

Nepal is located on the southern slopes of the central-Himalayan range, extending about 885 km east–west and 145–241 km north–south. Physiographically it is divided into five parallel zones running east–west: High-Mountain, Middle-Mountain, Hill, Siwalik, and Terai (Figure 1). Our case studies are from Mustang district, located in the High Mountain zone in central Nepal, where rangelands extend northward onto the Tibetan plateau. The district is sparsely populated, with the lowest population density (4.1/km^2) in the country. Historically, agriculture and animal husbandry are the two major economic activities of the traditional people in Mustang district (NBS 2002). However, the district is characterized by low agricultural productivity because of low annual

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TABLE 1 Land cover of Chhunup and Chhoser VDCs.

Land cover	Area in Chhunup (km^2)	Area in Chhoser (km^2)
Cliff	0.25	0.18
Agriculture	8.69	1.02
Rangeland (grassland)	32.09	95.50
Sandy area	3.15	3.31
Barren land	54.12	245.55
Total	98.30	345.56

rainfall, lack of proper irrigation facilities, low temperature, and a single growing season (Chetri and Gurung 2004). Due to environmental constraints and the limited amount of land suitable for cultivation in this zone (2500 km^2), animal husbandry is the primary source of income for people in the region (Aryal et al 2012a, 2012b). A long tradition of goat and sheep trading from Mustang to China reflects the social-cultural value of animal husbandry in the district (Chetri and Gurung 2004; Pokharel et al 2006; Aryal et al 2012a, 2012b).

Two Village Development Committees (VDCs, the lowest, rural-based administrative level of the Local Development Ministry of Nepal), namely, Chhoser and Chhunup of the Mustang district, were selected for this study. Both of the VDCs are situated in the northern part of the Annapurna Conservation Area (ACA) bordering Tibet, China. Bista and Gurung are the two dominant ethnic groups in these VDCs, and the dominant culture and religion (Buddhism) are similar in many aspects to Tibetan culture and tradition (NTNC 2008).

Data collection

We used participatory rural appraisal (PRA), community meetings, visual observations, and a questionnaire survey to gather information on rangeland use and management in Chhoser and Chhunup VDCs. The PRA method was used to document resource use patterns, property rights, conflicts, and traditional conflict management strategies. Two community and stakeholder meetings were organized separately for each VDC between October 2010 and June 2011, with key people that included VDCs members, local leaders, local nongovernmental organization representatives, and Annapurna Conservation Area Project (ACAP) representatives. In addition, 120 local residents aged 40 years and above (64 from Chhoser and 56 from Chhunup VDC), who had used rangelands in the past and knew their history, were randomly selected as survey respondents for a questionnaire survey. These respondents were interviewed in November 2010 (Chhoser) and June 2011 (Chhunup) to collect information on the underlying causes of rangeland conflicts and to explore potential solutions. Eighty percent of the respondents were male, and a high percentage of respondents (85%) were illiterate. In addition, direct observations of the rangelands were made to delineate the disputed area identified during the meetings and PRA. A group of 12 local people from each VDC (total 24) were selected in consultation with local agencies to verify disputed boundaries during the field visits. Two seasonal field visits (summer and winter) were made to the disputed rangeland with the representatives of each village on separate occasions to understand their views of the location of the boundaries. We then calculated the area of each VDC and estimated the disputed rangeland area from a land use map developed by the Department of Survey, government of Nepal, and the area of each VDC using ArcGIS 9.3.

Results

Rangelands in Chhoser and Chhunup VDCs, Mustang District

Our study focused on rangeland conflicts between Chhoser and Chhunup VDCs of Mustang district. Both VDCs include agricultural land, grassland, barren land, sandy areas, and cliffs (Table 1; Figure 1). There are only 147 households in Chhoser VDC, which covers an area of about 347 km^2, including 95 km^2 (28%) of grassland and a small percentage of agricultural land (0.3%). In comparison, Chhunup VDC has 197 households located within an area of 98 km^2, making it relatively more densely populated than Chhoser VDC. About 32 km^2 (33%) of the Chhunup VDC is covered by grassland and only about 8.69 km^2 (9%) is agricultural land (DDC 2009). In both of these VDCs, there are several patches of rangeland used for seasonal grazing, including Kyungchhyu and Tuhpang, the region's two largest rangelands. Other rangelands, such as Terahthang and Dihring Bhoto, are smaller in area and lack water sources. The Chhoser VDC has both summer and winter grazing pastures, while the Chhunup VDC has limited summer and winter pasture. Therefore, the people of Chhunup are fully dependent upon the summer pasture for livestock grazing.

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History of rangeland use in Chhoser and Chhunup VDCs

Historically people in the Chhoser and Chhunup VDCs had their own system for livestock grazing. The traditional grazing practices have the following characteristics:

- No grazing tax for herders of the same VDC.
- Decisions about grazing schedules and grazing sites are made by village leaders—*Mukhiyas* (village chiefs are nominated by the local community and are powerful because they regulate the economic, social, and judiciary systems in the villages)—in consultation with villagers and herders.
- Livestock from other VDCs are strictly prohibited because of the inadequate size of the pastures.
- Due to the insufficiency of pasture in winter, herders use the grazing land of the adjacent VDC (Lomanthang VDC) during the winter and pay a grazing tax to the corresponding *Mukhiya*.

The area of the disputed rangeland was 16.61 km^2. It was located on the western border of Chhoser VDC and the eastern border of Chhunup VDC and included parts of rangelands within Khukyu, Kyungchhyu, and Nahma Dhongtong areas (Figure 1). The estimated disputed rangeland area is more than half of the total rangeland area of Chhunup and one-sixth of the total rangeland area of Chhoser. In the past, the disputed land was a common grazing land used by local herders of both VDCs during summer to graze yak, goat, and sheep. As these villages practice transhumance, during winter the grazing land is left ungrazed, and herds are taken back to their respective villages because of the cold weather. Residents in these VDCs use livestock dung, grasses, and shrubs for cooking and heating, as there is limited woody vegetation in the area and they generally lack fuelwood. The residents of Chhoser VDC used to collect livestock dung from the disputed area throughout the year.

Conflicts between the two VDCs over the use of rangelands arose in 1985 as both claimed ownership over the same piece of land (Figure 1). The Chhunup VDC considered the rangeland to be under its administrative jurisdiction, whereas Chhoser VDC considered that they had a long history of using the land and claimed it based on traditional use rights. The conflict continued without resolution and lately became violent as the claim over the land intensified from both sides. The chronology of the conflict is reported in Table 2.

Traditional conflict resolution system

Several attempts to resolve this conflict at village and district levels have proven unsuccessful. Villagers of Chhunup claim ownership over the disputed rangeland on the basis of an agreement prepared in 1985. However, Chhoser villagers claim that the document was fake and legally void. During a 2011 meeting at NTNC-ACAP (Natural Trust for Nature Conservation-Annapurna Conservation Area Project), a proposal to tax Chhoser villagers for the use of rangeland was discussed. The proposal was refused by the Chhunup villagers, stating that they did not allow outsiders to use the rangelands within their VDC territory. On the other hand, the Chhoser villagers continue to claim their use rights based on having used the rangeland for over 150 years.

People's perceptions of conflict and conflict resolution

In a questionnaire survey we asked the respondents—ordinary villagers—about their perceptions of existing conflicts and possible resolution strategies. The majority of the villagers were aware of the conflicts: 75% were well informed about the rangeland boundary dispute, while the rest said they had no knowledge of the conflict. About 83% of the respondents agreed that the disputed rangeland area belongs to Chhunup VDC legally but supported the idea of allowing equal access to people from Chhoser VDC. In contrast, 17% of the respondents thought that the rangeland should belong to both VDCs, with equal access rights.

The majority of respondents (75%) suggested that resource use was the main cause of conflict. They cited three main incidents that added to the prolonged conflict between the two VDCs: (1) collection of *Caragana* by locals of Chhunup in the area belonging to Chhoser, (2) destruction of improved sheds by Chhunup locals in the area belonging to Chhoser, and (3) construction of a football field by locals of Chhoser VDC in the area belonging to Chhunup VDC. Only 10% of the respondents believed that the increasing commercial importance of trade around Ngichung village could be the cause of the conflict, and only 5% suggested that increased pressure on the rangeland was its main cause, mentioning collection of *Caragana* by locals in the area belonging to Chhoser.

Respondents were asked about the consequences of the conflict. A large number of respondents (45%) stated that the conflict had impacted on intercommunal social relationships and was deterring marriages between members of the two VCDs, which had been a traditional practice in the past. Twenty-five percent of the respondents thought that the conflict had threatened social security, 15% thought that it could break long-standing economic relationships, and the remaining 15% responded that it had created difficulties for people wanting to migrate from one VDC to another.

The perception of respondents about the possible solutions of the conflict also differed. Most of the respondents suggested two or three possible solutions (Figure 2). One-third of the respondents thought that a clear demarcation of a border around the disputed area could solve the conflicts. Only 8% thought that regulating *Caragana* collection could reduce the conflict because villagers of both VDCs collect this grass from the disputed land (Figure 2).

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TABLE 2 History and timeline of rangeland conflicts between Chhoser and Chhunup VDCs, Upper Mustang region of Nepal.

Date	Conflict situation	Conflict resolution strategy
1985	Members of Garphu in Chhoser VDC constructed sheds for herders on the Nahma Dhongtong pasture (Figure 2). The sheds were destroyed by the locals of Namdo in Chhunup VDC, who claimed that the land belonged to them.	The ruling king of Mustang at that time, Jigme Parbal Bista, resolved the dispute and gave a resolution paper (*Mialpatra*) to both conflicting parties. As per the agreement, Chhoser communities are not allowed to use the areas from Dhongtong to Lhehka Siji. The Chhoser communities did not accept the agreement, claiming that the agreement paper is a fake document.
2005	The ACAP supported the construction of an improved shed at Namdohngdhong through community mobilization of Chhoser VDC. After its completion the people of Chhunup again destroyed the shed, claiming their rights over the land.	The conflict was resolved through the initiatives of NTNC-ACAP, Lomanthang, with the decision that the herders from both Chhoser and Chhunup can equally use the constructed sheds.
April 2009	Direct confrontation arose between the people of Chhoser VDC and Nyamdo village (Chhunup VDC) when the people of Chhoser collected stones from the banks of the river alongside Nyamdo. Two local people from Nyamdo were seriously injured during the violent clash.	The settlement of the conflict was done at the village level with the provision of a compensation of NRs 15,000 (US$ 180) to each of the injured people by the communities of Chhoser VDC.
August 2009	The most violent conflict happened between the Chhoser and Chhunup VDCs. This clash turned Balley pasture into a battle field, resulting in serious injuries to many people.	NTNC-ACAP immediately initiated a negotiation process by mobilizing the representatives of both sides, as well as the police. Five persons from each VDC took part in the meeting, and the meeting unanimously imposed a ban on communal confrontation and decided to seek support from the Chief District Office (CDO) of Mustang to find a permanent solution to the conflict between both VDCs.
September–October 2009	As per the decision to seek support from the CDO of Mustang, two meetings were called in the presence of Mustangi King Jigme Parbal Bista. However, the second meeting could not be held because of the absence of representatives from Chhoser VDC.	

Discussion

This case study highlights the significance of rangelands in the livelihoods of mountain communities. However, unclear rangeland policies and the remote location of these rangelands are major barriers for their proper management in Nepal. The prolonged dispute identified in this case study clearly indicates the need for an institutionalized intervention in rangeland management from local to national governments. This view is supported by some previous findings. Pariyar (1998) stated that the rangeland sector in Nepal has not yet been addressed by the government because of the lack of a definite government body, even at national level, which means that there is an ambiguity in responsibility between governmental authorities for the management of rangelands. Legally, rangelands are considered "forests" and thus are under the jurisdiction of the Ministry of Forests and Soil Conservation. However, in practice the Pasture Development and Livestock Improvement Services of the Ministry of Agriculture has been working to improve rangelands in Nepal. Therefore, local people implicitly associate the responsibility for rangeland management with the Ministry of Agriculture (NBS 2002).

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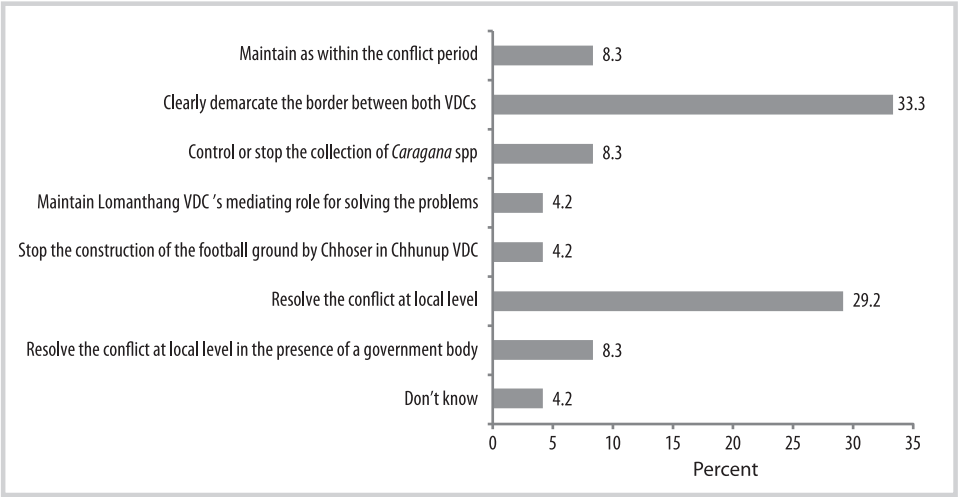
FIGURE 2 Local people's perceptions of conflict resolution strategies.



In Nepal's midhills, forest areas outside protected areas, which include rangelands near settlements, have for over 30 years been managed by local communities through community forestry programs (Pandit and Bevilacqua 2011). This program has not been widely adopted in high mountains, where rangeland ecosystems are more prevalent. Furthermore, local people depend more on high mountain rangelands than those in the midhills. In high mountains, rangelands and forest areas are still managed under traditional systems without formal management plans.

Rangelands supply 36% of the total feed requirement for livestock in the country. However, the estimated forage demand in high mountains exceeds the potential supply (Rajbhandari and Shah 1981; Miller 1993), and there is therefore a high dependency and pressure on rangelands in high mountains to provide livelihood support to local communities. This may partly explain why Chhunup villagers denied access to Chhoser villagers to a particular rangeland. In addition, although only a small fraction of people admitted that there is an increasing pressure on the rangelands, three quarters mentioned that resource use is a major issue leading to conflicts; thus, exclusion of individuals from another village could be a strategic move by Chhunup villagers to reduce the pressure on what they consider to be their own rangelands. Therefore, rangeland management programs should try to address tenure issues and social complexities in addition to suggesting how to maintain a balance between local demand and carrying capacity of the rangelands. Indeed, as this study shows, arguing about physical and environmental facts is far less likely to help solve the enduring conflict than finding governance solutions acceptable to all involved and based on noncontradictory legal and managerial frameworks. However, livestock development planners, who generally ignore the complexities of rangeland systems, often prescribe "improved" grazing systems as a solution to livestock development programs (Miller 1993; Pokharel et al 2006).

Most rangelands in Nepal are located in the north, bordering China (Tibet), and their use is still based on a traditional management system. After the political change in Tibet in 1959, China and Nepal established some agreements regulating livestock grazing in border areas. A significant change was made in 1988 when both governments agreed to stop animal migration between Nepal and Tibet (NBS 2002; Pariyar 2008). This meant that Nepalese herders now had to rely only on native pastures. In response, the High Altitude Pasture Development Project, funded by FAO/UNDP (Pariyar 2008), took steps during 1985–1990 to improve pastures, but their efforts failed to reduce the gap between forage production and local demand.

As we observed in this case study, local dependence on rangelands can lead to serious conflict between neighboring villages in search of foraging resources for livestock. This conflict was exacerbated as the neighboring VDCs based their rights to the rangelands on two different systems: legal rights based on administrative boundaries and traditional use rights based on social norms and historical practices.

Usually, when demand exceeds supply, conflicts increase over the use of limited CPR such as rangelands (Blomquist and Ostrom 1985; Wade 1987). This has raised the issue of defining rights over the use of CPR. Defining rights based on traditional use or administrative boundaries are competing solutions (Lehmkuhl et al 1988; Carpenter and Klein 1995; Katrina 1997; Dong et al 2009). In community forest management systems, access to forest resources based on traditional use is well established. However, in the case of rangelands it is more complex, as it involves a large geographic domain because of migratory grazing practices. Our analysis in this case

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study supports the idea that social dimensions are important drivers to ensure resource governance in rangelands (Richard et al 2000; Chetri and Gurung 2004).

In the context of this case study, traditional governing systems, that is, the *Mukhiya* system, had been historically effective for resolving local affairs involving resource management. However, there were no written rules; it is in fact a despotic practice. Decisions were largely based on the subjective judgment of a single person and local stakeholders were excluded from the decision-making process. Since the reinstatement of parliamentary democracy in Nepal during 1990, such traditional governing systems have become dysfunctional (NBS 2002; NTNC 2008; Pariyar 2008). However, new rules and regulations that came into effect after the political change could not be implemented equally across the country, particularly in remote mountainous areas, primarily because the government did not acknowledge the role of traditional institutions in resource governance. In the absence of authority, Nepal's rangelands were viewed as CPR and their open access status resulted in excessive overuse. Once local communities realized that dwindling rangeland resources were affecting their livelihoods, they attempted to gain control over their use. This became the source of conflicts in many resource governance cases across rural Nepal, including the one described here.

Conclusions

In this case study, historical evidence and local perceptions indicate that conflicts over the use of rangelands have become more complex due to increased demand. Moreover, lack of clearly defined national and local rangeland policies has created insecurity among villagers about the availability of sufficient forage to meet their needs. As the villages have limited rangelands, they refuse to acknowledge the traditional rangeland use practices of neighboring villagers. Given the lack of a proper policy, it is almost impossible to secure traditional use rights for villagers if they are considered outsiders based on (modern) political jurisdiction.

We propose two possible ways to manage conflicts in our study context, which may have relevance to many other areas in Nepal and mountainous regions elsewhere. First, the conflict we observed was related to the use of summer rangeland and the VDCs could share the use of seasonal rangelands in a fair manner. For example, Chhunup has political rights and boundary control over the disputed area, but limited winter grazing lands, while Chhoser possesses traditional use rights to the disputed area and has winter grazing lands. Hence, Chhunup could provide Chhoser's villagers summer access to the disputed area in exchange for being allowed to use their winter grazing lands. Second, an external authority should focus on enhancing the management and production of livestock forage on both private and public rangelands. Strategies to solve the enduring conflict should ensure that by allowing Chhoser villagers to use the rangeland, Chhunup villagers are not compromised in their usage of it. Furthermore, it must be widely understood that the continuation of conflicts over rangeland use not only threatens traditional social institutions, but it also leads to the degradation of this common pool resource. Hence, we believe that it is imperative that the rangeland management authority adopt the positive outcomes learned from Nepal's community forestry programs and apply them to sustainably manage rangelands in mountainous areas of the country.

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