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Against the Tide: The Future of Transhumant Herders in the Kailash Sacred Landscape of Nepal

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Transhumant pastoralism, with its cultural, ecological, and socioeconomic significance, is an important livelihood strategy for mountain communities. Despite its importance, transhumant pastoralism is declining in the Hindu Kush Himalayan region. This study examines the drivers of change experienced by transhumant herders in Bajhang, western Nepal, in order to understand future implications for transhumant pastoralism in the region. Here, animals are raised to transport goods to remote villages and to earn supplemental income through the sale of milk, meat, and livestock. The study found that herders are experiencing multiple drivers of changes—including socioeconomic, political, institutional, ecological, and climatic—which have both positive and negative implications for their livelihoods. Herders have responded to these changes by altering their transhumance routes and by reducing the variety and numbers of animals raised. The increasing market demand for meat from freely grazed animals and limited road access are current factors contributing to the perpetuation of transhumant herding in Bajhang. Meanwhile, the institutional mechanisms provisioned in the National Rangeland Policy are neither functional in the study area nor able to resolve issues of the herders. The study recommends developing an incentive-based mechanism involving herders and other stakeholders to address the challenges faced by herders.

Keywords: *mountains; transhumant pastoralism; herder; livelihood; Nepal.*

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Introduction

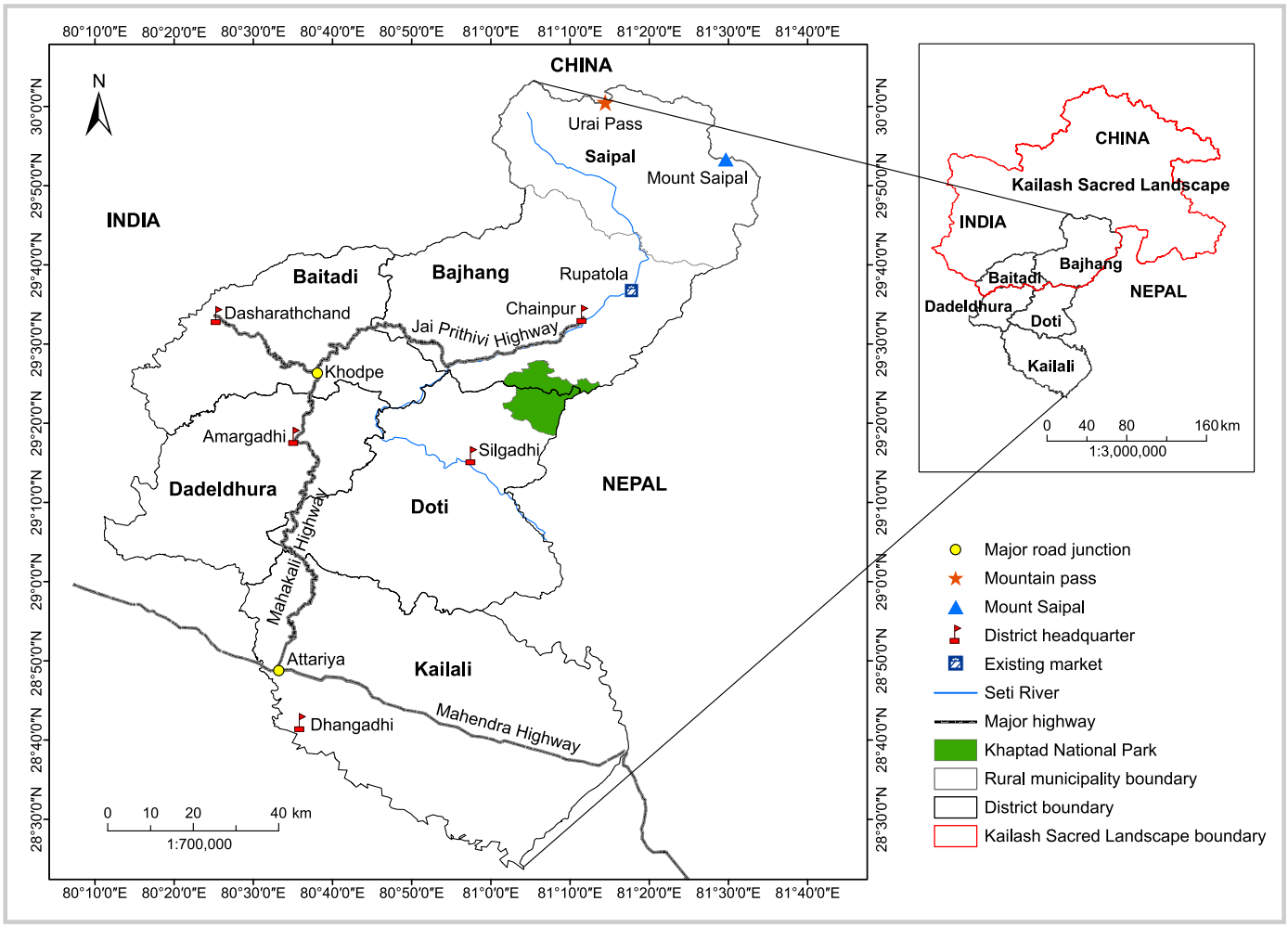
About 25 to 30 million people in the Hindu Kush Himalayan (HKH) region derive their livelihoods from livestock production for nutrition, fiber, soil fertility, draft power, transportation, trade, and social and religious rituals (Yi and Sharma 2009; Verma and Khadka 2016). They have adapted to low agricultural productivity, a harsh climate, fragile ecosystems, and remoteness (Jodha 1992; Nangju 2003). Transhumant herding is an important livestock production system of the region. The cyclical movement of transhumant herders with their animals is a strategy to cope with low temperatures, the shortage of forage, and seasonal availability of grazing resources at different altitudinal ranges (Bhasin 2011). The cyclical movement has ecological and economic significance: it gives a resting period for plants growing at higher elevations (Wu et al 2016). Transhumant herders support livelihoods of communities living along their route through barter trade (Jasra et al 2016).

Despite its significance, transhumant herding practices in the HKH region are declining (Banjade and Paudel 2008; Banerjee 2009; Namgay et al 2013; Aryal et al 2014a; Pandey et al 2016; Verma and Khadka 2016). Studies in Nepal reveal that transhumant pastoralism is facing multiple challenges due to institutional and economic reforms at different spatial scales (Banjade and Paudel 2008; Dong et al 2009; Aryal et al 2012, 2014a; Gentle and Thwaites 2016) and climate change (Aryal et al 2014b). Modernization, social changes, and infrastructure development are some of the driving forces for the shift from transhumant herding to other economic opportunities (Wu et al 2016). Lack of interest among the younger generation in pastoralism and their outmigration in pursuit of education and alternative economic opportunities have resulted in a labor shortage (Namgay et al 2013; Verma and Khadka 2016).

Policy changes are another major driving force for the decline of transhumant herding (Pandey et al 2016). Policymakers often frame herding as an outdated occupation that degrades forest and poses a threat to biodiversity (Agrawal and Saberwal 2004). Based on these assumptions, policies have been reformed to establish protected areas, to privatize or nationalize forest and rangeland, and to transfer bundles of property rights to nonherding communities that deny the traditional forest and rangeland use rights of herders (Banjade and Paudel 2008; Ali et al 2016). Closures of the borders for political and security reasons have also restrained the movement of transhumant herders (Chaudhary et al 2014; Pandey et al 2016).

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FIGURE 1 The study area: the Saipal Rural Municipality of Bajhang District in western Nepal. (Map by Sunil Thapa)



Climate change impacts, particularly erratic snowfall patterns, a decline in the amount of snowfall, and faster melting of snow than in the past, have adversely affected the quality and amount of forage for animals of transhumant herders (Joshi et al 2013; Gentle and Thwaites 2016; Rayamajhi and Manandhar 2020). Increasing incidences of natural disasters, such as snowstorms and avalanches, have also resulted in mass deaths of animals in the region (Tuladhar et al 2021). Increases in the incidence of livestock diseases have also been linked to changing climate (Gentle and Thwaites 2016).

All these changes have reduced herders' access to productive grazing areas and resulted in overgrazing, rangeland and forest degradation, and conflict between stakeholders (Banjade and Paudel 2008; Wu et al 2016), threatening natural resources and the livelihood of transhumant herders. Amid all the existing challenges, the important question is what aspirations the herders have for their future and how the government can support the herding community in sustaining or modifying their livelihood in the long run. This case study from Bajhang in Nepal aimed to (1) understand the characteristics of transhumant herders, (2) determine the drivers of changes they have experienced, and (3) examine prospects of transhumant herding in the region. The findings of the study will be useful for practitioners and decision makers in designing and implementing policies and programs to support the livelihoods of herding communities.

Methodology

Description of the study area

This study was conducted in Saipal Rural Municipality (29°31′48″ to 29°36′66″ N, 81°14′24″ to 81°24′12″ E) of Bajhang District in western Nepal (Figure 1). Its elevation ranges from 1641 masl to 7032 masl at the peak of Mount Saipal. It covers an area of 1467.27 km^2. This district forms part of the Kailash Sacred Landscape, a transboundary landscape of over 31,000 km^2 around the sacred Mount Kailash, and spreads across China, India, and Nepal (Zomer and Oli 2011). Saipal is bordered by 3 districts of Nepal, except at its north, where it is bordered by the Tibet Autonomous Region (TAR), China. Saipal has a population of 2987 (1497 males and 1490 females) in 432 households, most of whom are dependent on agriculture and goat and sheep rearing for their livelihoods (SRM 2020). A large proportion of the population are Chettri (77.8%), followed by Tamang (15.3%) and Dalit (6.9%). The Human Development Index score of Bajhang District is the second lowest in Nepal at 0.365 (GoN 2014).

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TABLE 1 Socioeconomic descriptive variables.

Variable	Frequency (%)	
	Group discussion ($n = 7$)	Questionnaire survey ($n = 35$)
Age (y)		
<30	0.0	20.0
30–60	71.4	77.1
>60	28.6	2.8
Level of literacy		
Illiterate	42.8	25.7
1–10 years education	57.1	51.4
>10 years education	0	22.9
Caste		
Chhetri	57.1	77.1
Tamang	28.6	14.3
Dalit	14.3	8.6
Years of transhumant herding		
<10	0	22.7
10–20	0	48.6
>20	100.0	28.7

Data collection and analysis

Both qualitative and quantitative methods were used for data collection. In April 2015, a focus group discussion was conducted with 7 transhumant herders from Saipal. All were men. Each of them had been herding for more than 20 years and had extensive knowledge of transhumance. During the discussion, information was collected on the history of transhumance in Saipal, the current status of transhumant practice, challenges for herding, drivers of change, and their implications for transhumant pastoralism.

From April to May 2016, 35 transhumant herders from Saipal were interviewed using a semistructured and open-ended questionnaire. They were asked about their socioeconomic status, coping strategies, future herding plans, and the support they needed to continue herding. This information was triangulated with the information collected during the previous year. Following Aryal et al (2014a), a snowball sampling technique was used to select the respondents, who had an average age of 40.1 years, and the majority of whom had been practicing transhumant herding for more than 10 years (Table 1). Further, key informants from the divisional forest and local government offices were also interviewed about policies and support for transhumant herders. To supplement findings from the field, the relevant policies of Nepal, along with peer-reviewed papers and gray literature relating to pastoralism, rangelands, and community forests (CFs), were reviewed.

Qualitative data were recorded in the field and later transcribed and translated. Inductive analysis was used to analyze the transcriptions (Thomas 2006). Average and standard deviation values, frequency, and percentages of quantitative data were calculated using MS Excel 2013.

Results

Characteristics of transhumant pastoralism in Bajhang

Communities in Saipal have practiced transhumant herding for generations, largely because of insufficient agricultural production. In 2015, more than one third of the total households were engaged in transhumant herding (KVDC 2016). Herders raised 2 categories of sheep and goats: (1) *paltey*, comprising male and female sheep and goats that were either castrated and raised for meat or uncastrated and raised for reproduction; and (2) *jakhna*, comprising solely castrated sheep and goats used for transporting goods during the winter. On average, 1 *jakhna* carries a weight of 20 kg, with sheep carrying a heavier load than goats.

Based on a group discussion and interviews, a list of transhumant herders and their livestock holdings in each ward was prepared to estimate the total number of *paltey* and *jakhna* in Saipal. In 2015, 119 households engaged in transhumant herding raised *paltey*, while 90 households raised *jakhna*. They owned an average (standard deviation) of 90 (65.8) *paltey* and 40 (30.4) *jakhna* individuals, adding up to an estimated total of 10,748 *paltey* and 3614 *jakhna*. Besides rearing livestock, transhumant herders also practiced subsistence agriculture, wove woolen carpets and clothes that were either for personal use or traded, and engaged in the trade of goods and medicinal plants such as *Delphinium himalayae* and *Ophiocordyceps sinensis*.

The group discussion with herders revealed that, during the summer (April to September), the transhumant herders move with their *paltey* and *jakhna* northwards to the mountain regions bordering TAR, China, in order to find livestock forage and to escape the heat and flies. In September, as temperatures and livestock fodder decline, they descend to their villages, where they remain until October/November. Before beginning their subsequent southwards journey, herders divide their animals into the 2 *paltey* and *jakhna* categories. The *paltey* herds are taken south to the lower belts of Bajhang and adjoining Doti District, where they remain until March. During this migration, herders also sell their animals to local villagers. The *jakhna* herds travel multiple times from the nearest market back to Saipal transporting food and goods, mainly rice. In April, both the *paltey* and *jakhna* herds return to the summer pastures in the north. Moreover, the herds travel via different routes between summer and winter pastures in order to allow regeneration of the already grazed pastures.

A reciprocal relationship exists among the transhumant herders (intragroup) as well as between herding and nonherding sedentary households (intergroup). Before migrating, 2 or 3 herding households pool their labor and animals to form a collective herd known as a *gol*. Each *gol* comprises between 250 and 700 animals that are managed by 3 to 5 herders. The herders who "lend" their animals to the *gol* and stay back in the villages either take care of the agricultural fields of the migrating herders or share the offspring of the animals lent to the *gol*. In the intergroup relationship, the sedentary households along the migration routes invite herders to camp on their fallow fields so that

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the animals can provide manure. In return, the herders are provided with food and locally brewed alcohol.

Drivers of change

The socioeconomic, political, and institutional changes experienced by the transhumant herders of Saipal were discussed during the group discussion. These changes, which have occurred at different or overlapping time periods, have both provided opportunities and posed challenges to transhumance.

Expansion of road network and market: The far-western region of Nepal, which includes Bajhang District, lacked road and market access until 1976, when the Mahakali Highway was constructed. Thus, the key function of transhumant herders was to transport and barter rice and salt between the lowlands of Nepal and the highlands of TAR, China. Toward the end of their summer migration northwards and before returning to their villages in August/September, the herders would travel to the market center of Taklakot in TAR, China, where they exchanged lowland rice for Tibetan salt. During their southward migration to as far as Kailali District, the herders would barter the Tibetan salt for rice with the sedentary households en route. On their return trip, the herders would barter Indian salt purchased in Kailali at the Indian border for rice with communities in Dadeldhura and Doti.

The 1970s brought about significant changes to transhumant herders. In 1975, China restricted entry and trade of Nepali livestock and goods. Herders were required to carry their commodities from the Nepal–China border and sell them to Chinese government depots in Taklakot. Meanwhile, construction of the Mahakali and Jai Prithvi Highways in the far west of Nepal resulted in the emergence of new markets en route.

In 2004, a branch office of the Salt Trading Corporation was established in Bajhang, providing iodized salt, which was cheaper than Tibetan salt. The increasing road connectivity gradually equated to a shortening of the transhumance migratory route, and, by 2015, the local market had shifted to Rupatola in Saipal's adjacent rural municipality of Talkot. Subsequently, *jakhna* transported food from Rupatola to Saipal during the winter, while *paltey* were moved to the lower belts of Bajhang and Khaptad National Park in Doti. The decline in the dependency of sedentary households on transhumant herders for their food and goods affected the income of the herders and resulted in the severance of traditional social ties between the 2 communities.

Promulgation of Forest Act and Rules: The records of the Divisional Forest Office Bajhang show that the first CF was established in 1995. This was followed by several programs to control open grazing and conserve forests. During group discussion, herders shared that, from 2003, they were restricted from entering and grazing their animals in the forests along the route to winter pasture because those forests had been handed over to the local communities.

Maoist insurgency: Nepal's Maoist insurgency was at its peak in 2002–2003. According to participants in the group discussion, at this time, they sought support from the Maoist rebels to overturn restrictions on grazing in CFs. The rebels favored the herders, whom they viewed as being oppressed and disadvantaged, while opposing the CF user groups (CFUGs), whom they regarded as state entities. Under threat from the rebels, the CFUGs allowed the transhumant herders entry into their forests until 2009, 2 years after the end of the Maoist insurgency. After this, the CFUGs reactivated their functions and responsibilities with support from government and nongovernment institutions, and, starting in 2010, herders were again restricted from accessing forests at many of their stopover points during their southward migration. At such points, herders were compelled to travel further without any food for their animals.

Legalization of yartsa gunbu *trade: Yartsa gunbu* (*O. sinensis*), commonly known as the caterpillar fungus, is a highly valuable medicinal species found in the high Himalaya (Shrestha et al 2019). The export of unprocessed *yartsa gunbu* was legalized by the government of Nepal in 2004. Since then, many people, from both within and outside of Bajhang District, converge in Saipal between the months of March and May to harvest this highly lucrative fungus. In 2014, 1 kg of *yartsa gunbu* fetched prices as high as NPR 2.5 million (US$ 21,186) in the Chinese market.

According to participants in the group discussion, during 1 collection season (ie 2–3 months) *yartsa gunbu* collectors can earn more than they could in an entire year of herding. Herders, particularly younger individuals, are therefore losing interest in herding and now aspire to other employment opportunities and lifestyles. Consequently, transhumant herding faces labor shortages and incurs higher expenses as labor must be hired from other villages. During the group discussion, a herder (62 years old) shared his experience:

> *I raised my family through earnings from herding, but my sons and nephews do not want to do herding. They are only interested in making easy money from* yartsa gunbu. *Since I am getting old, I have hired a laborer and pay him annually NPR 60,000* [US$ 508].

Promulgation of National Rangeland Policy: The National Rangeland Policy of 2012 recognizes the traditional user rights of herders over pastures within CFs. The policy provides for the formation of a district-level coordination committee and village-level rangeland user committees. However, the participants in the group discussion and key informants at district and village levels were unaware of these committees.

Advent of alternative pack animals: The growing influx of *yartsa gunbu* collectors in Saipal has increased the demand for a wide range of products, including instant noodles, alcohol, and energy drinks. In 2013, traders from Bajhang introduced mules to Saipal as alternative pack animals. While mules are 3 times more expensive than sheep or goats, 1 mule can carry the equivalent of 4 sheep or goats. According to discussants, the introduction of mules in Saipal has significantly impacted the income of transhumant herders who use sheep and goats to transport goods. According to a discussant (45 years old):

> *Earlier trails were not wide enough for the mules to move. In 2010–2012, we widened the trails through a foreign aid program. Later, someone from Channa* [another village in Bajhang] *brought mules to Saipal for transporting construction materials. Though expensive,*

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these days many prefer mules since they can carry all sorts of goods, more load, and transport goods in less time than sheep and goats.

Conflicts with sedentary communities: Herders face many hardships along their migratory routes. The discussants shared incidents of extortion, animal theft, and physical attacks by locals that had occurred en route since 2008. The locals reportedly threaten to confiscate animals unless the herders pay them the demanded cash amount. With little or no protection from public security forces, herders feel insecure, especially at night, when brutal injuries have been inflicted on them.

In the past, transhumant herders had a reciprocal relation with sedentary communities, as the former provided transportation services to the latter. With improving road accessibility and transportation services, the reciprocal relation has gradually withered. According to a discussant (58 years old):

Earlier there were no roads or any means of transportation. Our goats and sheep transported goods all over Bajhang. Now, they [sedentary communities] *have roads, so they no longer need our service.*

Increased meat demand: The group discussants reported that the demand for goat and sheep meat has increased significantly in cities like Kathmandu and Pokhara since 2014. The consumers in these cities believe that the meat of Saipal livestock is more nutritious than that of stall-fed livestock because they consume Himalayan medicinal herbs. Accordingly, their animals also fetch higher prices in these markets. This resurgence in meat demand, along with its high prices, has increased interest among Saipal herders to continue their transhumance. According to a discussant (41 years old):

Last year [2014], *I received an order from a trader in Kathmandu to deliver around 40* paltey. *Later, the trader informed me that there is a good demand for our animals, since consumers preferred our animals over others. This year too I have received order for over 50 animals.*

Temperature increase and snowfall reduction: The participants in the group discussion perceived a rise in temperature and decline in snowfall in Saipal, which is consistent with findings of other studies in far-western Nepal (Aryal et al 2014b). They reported that since 2015, the warmer winters with fewer snow days have become much more tolerable for their animals. Moreover, reduction in snowfall has enabled their livestock to access pastures at higher elevations than in the past. According to a discussant (65 years old):

When I was young, I took animals to the highlands only in Baisakh [late April or early May], *but recently, I take them in the last week of Chaitra* [mid-April]. *Nowadays, the climate is getting warmer, and we do not have as much snowfall as in the past.*

In 2015, of the 46 *gols* in Saipal, less than half migrated southwards to Doti after the summer. The remaining 24 *gols* abandoned this traditional transhumance route and instead grazed their herds in the high-elevation forests of Saipal and its vicinity. These forests, which were either government-managed forests, inaccessible to local communities, or located near the herders' villages, were given preference, as the herders would neither have to pay fees to the southern communities to use their forests nor be required to confront local communities or be subject to their harassment. According to a discussant (48 years old):

For the last 2 years, I have not taken my animals to Khaptad (Doti) in May; rather, I use forests in Melbisauna [neighboring village]. *The forest there is good, it's close to my village, and so far I have not encountered any locals or officials.*

Proliferation of toxic plants: The participants in the group discussion reported high livestock mortality after the animals consumed toxic plants in the summer pastures. While such plants were present in the past as well, they have recently proliferated in the high-elevation pastures. On the one hand, herders are not facing shortage of fodder in the summer pastures, but on the other, they fear that such toxic plants will increase in the pastures and thereby lead to fodder shortage in the near future. According to a herder (52 years old):

Within the last 5 years, there has been significant growth of bish *in the summer pastures. Usually, animals avoid the plant, but last year, my 3 animals died after consuming it. So, I pull out those plants whenever I see them, and throw them away. If they proliferate, there will be fodder shortage in summer pastures as well.*

The future of transhumant herding

The interviewed herders were asked about their plans for herding in the next 10-year period (Table 2). Encouraged by the increasing demand for sheep and goat meat, almost a third (31%) of the herders surveyed planned to increase and raise only *paltey*, while an additional one fifth planned to increase the number of *paltey* and reduce the number of *jakhna* in their herds. In contrast, only a quarter of the herders surveyed planned to either keep only *jakhna* or increase the number of *jakhna* and reduce the number of *paltey* in their herds. They reasoned that communities in Saipal would continue to depend on animals to transport their food for the foreseeable future, as the market in Rupatola is still 2 to 3 days' walk from the farthest village of Saipal. They also argued that although the road connecting the district headquarters of Chainpur with China is under construction, it would not necessarily pass through settlements in Saipal. Furthermore, raising *jakhna* is less labor-intensive than raising *paltey*, which is an important factor given the current labor shortage. *Yartsa gunbu* collectors also depend on their services, because rice can be transported over rough terrain only by sheep and goats. According to a discussant (45 years old):

With the increase in numbers of yartsa gunbu *collectors in the summer pastures, demand for transportation of rice and other foodstuffs by sheep and goats to those areas during* yartsa gunbu *collection seasons has increased. Trails to those areas are still narrow and rough, mules cannot travel.*

Herding involves intensive labor, and the ratio of profit to labor is much lower than for the collection of the currently more lucrative *yartsa gunbu*. However, the herders interviewed said they are unlikely to abandon herding for at least another 10 years. The trade of *yartsa gunbu* involves high risks, particularly due to the unreliable market price, which is fully dependent on Chinese traders. After the 2015 Nepal

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TABLE 2 Future plans to change livestock composition.

Composition of livestock	Frequency (%) ($n = 35$)
Increase and keep only *paltey*	31.4
Increase number of *paltey* and reduce number of *jakhna*	20.0
Increase number of *jakhna* and reduce number of *paltey*	14.3
Increase and keep only *jakhna*	11.4
Reduce number of *paltey* and *jakhna*	8.6
Abandon transhumant herding	8.6
Do not know	5.7

TABLE 3 Support sought by herders in order for transhumant herding to remain a viable livelihood option.

Measure	Frequency (%) ($n = 35$)
Remove poisonous plants from summer pasture	71.4
Resolve conflict with sedentary communities and CFUGs	51.4
Expand the market for their livestock products (meat, wool)	48.6
Plant fodder plants in government-managed forests	42.9
Ease administrative procedures for transporting animals	25.7
Hand over government-managed forest to herders	22.9
Develop skills on improved livestock production	22.9
Improve access to veterinary facilities	11.4

earthquake, the price of *yartsa gunbu* plunged by more than half, from NPR 2.5 million (US$ 21,186) per kg in 2014 to NPR 1 million (US$ 8474) per kg, because Chinese traders did not go to Nepal that year. Furthermore, herders doubt that *yartsa gunbu* harvests are sustainable, as the amount collected is declining on an annual basis.

One tenth of the herders planned either to reduce the size of their herds or to abandon transhumance altogether. Low financial returns (compared to other economic opportunities) and labor shortages were cited as major reasons for this decision. They also indicated that the younger generation was no longer interested in continuing herding. Further, they added that many community members perceived herding as a low occupation; hence, herders themselves hoped the younger generation would pursue their education and subsequently other economic opportunities.

According to the herders surveyed, a number of priority issues must be addressed for transhumant herding to continue as a viable livelihood option (Table 3). The removal of poisonous plants from summer pasture and conflict resolution with communities and CFUGs along their migration routes were the top priorities. Both issues incurred huge financial losses for the herders. Some herders recommended planting fodder species in government forests en route, while some suggested that select government forests be handed over to them so that they could improve fodder availability in these forests.

In addition, a quarter of all surveyed herders described difficulties in transporting their animals from Bajhang to Kathmandu and Pokhara. They were stopped en route by law enforcement officials (ie police, customs, and check post officials) and made to pay fees in varying amounts despite possessing receipts confirming tax payment and medical clearance from the district veterinary office in Bajhang. Herders also considered access to veterinary services as being important and complained about the bureaucracy involved in processing claims through livestock insurance.

Discussion and conclusion

The case study of transhumant herding practice in Bajhang, Nepal, shows that transhumant herders are witnessing multiple drivers of change: infrastructure development, socioeconomic, political and institutional, ecological, and climatic changes. These drivers of change and their interactions have both positive and negative implications for the livelihoods of transhumant herders. With road development and market extension, the demand for herders' services has declined (Aryal et al 2014a; Gentle and Thwaites 2016; Pandey et al 2016).

In the past 5 years, herders had planned to abandon herding and take up *yartsa gunbu* trade as an alternative livelihood option. However, recently, increasing demand for meat from the animals, fluctuations in the price of *yartsa gunbu*, and a decline in the amount collected per capita (Thapa et al 2014; Shrestha et al 2019) has motivated herders to continue transhumant herding. McVeigh (2004) reported a similar situation in Langtang, Nepal, where communities continued pastoralism after learning that the tourism industry is not a viable alternative to pastoralism. In Bhutan, rural communities plan to continue goat rearing because of their quick economic returns and low capital investment (Wangchuk et al 2016).

In the discourse of forest conservation and degradation in South Asia, including Nepal, open grazing is widely believed to be a major cause of forest degradation (Agrawal and Saberwal 2004; McVeigh 2004). This has led to the introduction of discriminatory policies, such as the Forest Act 1993, toward transhumant herding (Banjade and Paudel 2008; Dong et al 2009; Gentle and Thwaites 2016) and turned traditional social ties between communities into a competitive relationship (Li and Huntsinger 2011).

The Forest Act 1993 and Forest Regulation 1995 handed over the rights to manage and utilize forest to traditional local users. The rules ignored transhumant herders, who were also traditional but distant users. Such measures turned users traditionally sharing forest resources (ie herders and CFUGs) into competitors. Recognizing the plight of transhumant herders, the government of Nepal promulgated rangeland policy and enshrined herders' traditional rights over pastures inside the CFs. However, the prescribed

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institutional mechanism for the formation of local herders' committees will not be able to resolve their conflict with CFUGs because CFs located along the route to winter pastures are outside the jurisdiction of local committees.

The persistent conflicts between resource users escalate resource degradation and undermine the livelihoods of conflicting parties (Castro and Nielsen 2003). An incentive-based mechanism for engaging the stakeholders in dialogue, clarifying the roles and responsibilities of stakeholders, and sharing benefits and costs equitably resolved conflicts between resource users in Nigeria (Dimelu et al 2016). Institutional and technical support, such as planting fodder species, marketing livestock products, and providing veterinary and insurance services, has also been reported to increase herd size, improve fodder availability, and contribute overall to the socioeconomic development of herders' livelihoods in India, Nepal, and Pakistan (Namgail et al 2007; Dong et al 2009; Inam-ur-Rahim et al 2011). Formalizing the mechanism by which herders pay CFUGs to plant fodder species and allowing herders' animals to graze in CFs, with improved institutional governance, could be a way forward for resolving the conflict between transhumant herders and CFUGs.

Although transhumant herding is declining throughout the HKH region, it continues to thrive and is an important livelihood for the mountainous communities. Transhumant herding is still relevant in the present context, due to mountain specificities such as inaccessibility and marginality (Jodha 1992). The emergence of new opportunities has motivated transhumant herders to continue herding and seek the support of governmental and nongovernmental institutions to maintain their livelihoods. The government and other concerned institutions must acknowledge the significance of transhumant herding for the mountainous communities and provide necessary support for them to continue their traditional livelihood practice.

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