

# Effects of Disintegration between Agriculture and Livestock Keeping on Transhumance Pastoralism in Gorkha

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## ABSTRACT

*Livestock keeping is an important livelihood option in rural households of Nepal. The livestock keeping is also directly associated with the local agriculture. The farmers residing at the lower valley (foothill) of rural hilly villages collect manure from their livestock and transfer these manure to their farming land to recharge the soil and to increase the agricultural production. In hilly and high altitude areas, the need of manure to the local farmers are also fulfilled by the sheep herding practices (transhumance pastoralism). However, the livestock keeping practices have been declining in the hilly areas due to various reasons through out the years, affecting the agricultural practices and production. Side by side, livestock data of Nepal shows that the sheep count is declining gradually which means the transhumance pastoralism (sheep herding) is also declining. This led to shrink in supply of sheep manure, further mounting challenges to the local farmers and agricultural production. The general objective of the study is to explore the factors behind the disintegration of agriculture and livestock keeping practices in the hilly areas and its association with the shrinking transhumance pastoralism. The researcher implemented an exploratory research design and conducted in-depth interviews with 12 herders, two ex-herders, one president of the community forest user group, two teachers, and two local citizens. The responses from interviews suggest that emerging market system, labor migration, and community forest programs are the main factors for disintegrating the relationship between livestock keeping and agricultural practices that led to waning of sheep herding practices at the high altitude areas.*

**Keywords:** Disintegration, Agriculture, Livestock, Transhumance pastoralism, Community forest.

## 1. Introduction

Transhumance pastoralism is one of the traditional livelihoods of hilly and mountainous Gurung people in Nepal, who mostly depend upon the local forests and grazing lands partially from farming. The transhumance pastoralists derive most of their income from domestic livestock using natural forage rather than cultivated fodders and pastures (Miller, 1987). To manage forage, a specialized form of mobile pastoralism is practiced that involves seasonal movement of the herd between pastures with some use of campsites (Abdi, 2003). It is also a regular movement of herds between fixed points to exploit the seasonal availability of pastures (Blench, 2001). However, transhumant pastoralism is also a responds to harsh climatic conditions, low productivity, and the search for livelihood opportunities (Moktan et al., 2008 and Namgay et al., 2013).

Today, pastoralists worldwide face myriad challenges and opportunities arising from economic development, social change, climate change, conservation and sedentarization policies, population growth, and war or conflicts (Behnke, 1983; Ellis & Swift, 1988). Some of these challenges can have a catastrophic impact on pastoralists' livelihoods, either temporarily or long-lasting (Scoones, 2008). Due to this, today, pastoralists are moving with less ability to maintain their subsistence livestock economies than at any time in the past (Bonte et al., 1996).

Transhumance pastoralism is a worldwide phenomenon, so similar features of seasonal movement can be observed in various hilly and mountainous regions of Nepal. As per the researcher's prior field observation near *Ghyachok* of Gorkha, several transhumance herders from *Sirdibas*, *Barpak*, *Bangsing* and *Nyak* used to bring their herd to lower hills for winter grazing purposes. Such seasonal vertical shifts have been in practice for many generations among such transhumance pastoralists in this region. It is also because, historically, the Gurungs were animal herders, migrating pastoralists growing a little grain to supplement the meat and milk from sheep (Macfarlane & Gurung, 1990). But with the growing population among Gurungs, Pignede (1966 as cited in Messerschmidt, 1976) describes that the rapid increase of the Gurung population led to the transformation of the forests into cultivated fields and the disappearance of the grazing lands as well as herding practices.

However, the mutual consensus between the herders and foothill communities, in terms of sheep manure and grazing areas has remained the deciding factors for the continuation of transhumance herding practices in Gorkha. During winter season, the farmlands at lower hills usually remain fallow for nearly a month or two to prepare base via the *Perma* system for the next harvest by recharging soil with livestock manure. In case there is a shortage of or less collection of livestock *Manure* from their animal shed (*Goth*), welcoming sheep herders to establish their camp on their farmland is the

only way to gather sheep manure within two or three days. This process (camping and manure collection) goes all around the land in the lower hilly areas until and unless any landowner is not interested or required to do so. In return, the villagers let the herder graze their sheep in their local forests or grazing lands. In addition, the villagers also provide *Kharcha* (corn, millet, liquor, etc.) to the herders. This was the basic social exchange relation between the lower hilly community and the herding group during that time, but nowadays this social relationship has gone upside-down. The herder group provides goats or sheep to the local community as a “*Syaula Ko Mol*” (the price of green forage) because their sheep consume local forests including essential medical herbs and others.

On the other hand, expanding the state-induced community forests (CFs) and protected area systems in traditionally used rangelands did not recognize and respect customary practices (Acharya & Baral, 2017). Due to this, Community Forest Users Groups (CFUGs) have either banned winter pasture herding or heavily taxed such practices. Transhumance herders of Humla, who used to move their sheep and goats south to *Bajura, Kalikot, Accham, Surkhet, and Kailali* districts for winter grazing (Baral, 2015; McVeigh, 1994), were adversely affected once the CFUGs in those districts imposed high grazing fees. In the hills of Nepal (Gorkha and Lamjung districts), such a tax-paying system is not in practice. However, they provide sheep for the entire community using their lands and forests, to which the villagers offered sheep during local ritual worship called *Bhume-pooja* (Worshipping land as a god). Despite such a healthy relationship between the herder groups and the local community, fewer shepherders in the lower hilly area (winter migration destination) of the Gorkha district suggests that the number of shepherders in this area is also declining. Is this decline due to the community forest program similar to the Western part of Nepal or are there other factors behind it? Hence, the specific objectives of the study is to explore how disintegrating relationship between livestock keeping practices and agriculture is leading to the decline of transhumance pastoralism (sheep herding) in the study area.

## **2. Materials and Methods**

To explore how transhumance pastoralism (sheep herding) is declining, three villages (*Sirdibas, Barpak and Ghyachok*) of Gorkha district were selected as a study area. These villages were selected as a study areas because of availability of sheep herding practices from many years. Another rationale for selecting these villages is the availability of herders whose primary income is still the sheep herding profession. An exploratory research design is implemented to collect different views in terms of declining transhumance pastoralism.

As the number of herders was limited in the study area, the herders were selected using a non-probability sampling method. A total of 12 herders, two ex-herders, the president of community forest user group (CFUG), two teachers, and two local citizen

were selected on the purposive sampling method. The selected participants were interviewed during the field visits. Based on the information provided by the respondents, a narrative analysis is implemented to understand the relationship between agriculture, livestock keeping, and the decreasing phenomenon of transhumance pastoralism.

### 3. Results and Discussion

#### 3.1 Community Forests and Ecosystem of Transhumance Pastoralism

Since the mid-20th century, the government of Nepal has started intervening rigorously in local forests and resource use policy. During the Panchayat system, the central government started nationalizing local forests so that, the village Panchayat would have good control over the forest resources. Teacher\_1 from *Barpak* reported, “*Panchayats were supreme in supervising the local forests. The local people were restricted from using the forests for forage and fuel wood. Despite such rules, people started exploiting the forests by other means*” (Personal communication, February 15, 2020). The development of such a situation forced the state to establish a community forests so that locals would have both the resources and responsibility. Further, Teacher\_2 from *Ghyachok* argues,

*This is due to the increasing number of households and the population in the area. Previously, there were only 86 households in this village, but as people started migrating to this village from other villages, the number of households increased, and this led to consumption of more forest resources. The locals manipulated forests multiple times, and to stop this, the state brought new rules, regulations, and the system.* (Personal communication, February 15, 2020).

Nevertheless, the changing scenario in the community forests also depends on the changes in the social structure of another society. The society that comes under continuous interaction with other societies will change faster. The lower hilly society has come under regular contact with other developed societies. This situation led to a change in the social structure of hilly society, leading to an increasing number of community forests in the hilly regions. Because of that, herding practices started to decline in high altitude villages, whose livelihood is solely based upon transhumance pastoralism (sheep-herding).

Herder\_2 from *Sirdibas* says “*there are various impacts on transhumance herders like us after imposing restrictions on forests and grazing lands. The first and foremost impact is in the transhumance cycle. This restriction has directly impacted the sheep herding ecosystem*” (Personal communication, January 20, 2020). Transhumance pastoralism ecosystem means the balanced cycle where transhumance pastoralism revolves in such a way that the system is sustainable and friendly regarding its lifestyle and environment. The pastoral system would have vanished long before if this was not meant for these communities and the environment. So, in that sense, it can be claimed that the transhumance herding system is a sustainable livelihood for mountain people.

Starting from the high altitude rangeland, before the herders bring their sheep to lower hilly areas (*Byasi*), the sheep herd is camped in their village to collect manure for their farmland. At the same time, Herder\_6 and Herder\_7 from Barpak say “*we shear the sheep wool just before the move toward the lower hilly area. We also sell our sheep on a demand basis at this point*” (Personal communication, February 16, 2020). Later, while wandering around lower hilly areas, the herders again sell their sheep on the local demand. Importantly, sheep reproduction continues along with the transhumance cycle at any point.

Further, while ascending toward the mountain, Herder\_3 and Herder\_4 from Sirdibas say “*we sell our sheep while going up to the mountain and we sell only the selected sheep at this time. Those sheep, which are old, weak, and injured from the travel, are sold at fair prices to the locals*” (Personal communication, January 22, 2020). Such selectiveness is essential for them to avoid delay in movement or further losses. After reaching close to their village, they again shear the sheep wool which they process and send to the bordering area of China or other local areas according to the demand. As such, their herding business goes around all the year. However, such potential for business has declined with the rise of community forest programs in Nepal. Some local youth and herders are found to be engaged in stall-fed commercial sheep farming at certain locations (Barpak) due to the possible hassles with community forest user groups. As said by Herder\_8 from Barpak, “*The community forest has limited free movement of our sheep herds and due to which some youth have opted stall-fed (commercialized) sheep herding businesses*” (Personal communication, January 15, 2020). This has limited the movement of herders and connection with other locals and destroyed the possibility of the natural growth of sheep and free trade plus profits.

### **3.2 Disintegration, Declining Indigenous Knowledge, and Sheep Herding Practices**

It is not only the herder groups that are affected by the community forest program but also the locals in lower hilly areas who are equally affected in various aspects. In this regard, President of CFUG from Ghyachok says, “*As per the rule, the locals cannot use the forest for firewood and forage collection for their animals. Due to this, livestock animal rearing practice is slowly decreasing in lower hilly areas*” (Personal communication, January 13, 2020). The connection between agriculture and livestock keeping practice is very close. The locals have been using animals for meat, dairy products, hides, plowing fields, and most importantly for manure essential for agriculture. However, the beginning of the forests keeping based scientific community forestry program has disintegrated the close knot between agriculture and livestock keeping in the lower hilly areas.

Herder\_9 from Ghyachok also admits that “*the decrease in livestock-keeping practices has a direct impact on local agricultural production and productivity*” (Personal communication, February 17, 2020). As shown in given Figure-1, the entry of the



community forestry program in the lower hilly areas has restricted the villagers from using the forests and forage. Without sufficient forage, livestock-keeping practices have gradually declined, so the collection of manure has also decreased ultimately affecting the agricultural products. Similarly, the introduction of hand tractors in the lower hilly areas has also devalued the use of certain types of livestock such as ox, which is reared specially for plowing purposes. Such practices have also reduced the collection of animal manure that affecting the whole agricultural process. With less farming lands, the locals have no option but to ignore the mobile herders from the north. This has ultimately reduced the number of sheep herding practices in northern villages.

With the decline in sheep production, the traditional culture and equipment are slowly vanishing. As informed by Herder\_10 from *Ghyachok*, “one of the traditional wear, *Bakhu* is also gradually vanishing among transhumance herders and people in the lower hilly areas. Now, such *Bakhu* is replaced by shiny jackets available in the nearest markets” (Personal communication, February 17, 2020). This also indicates how modernization and marketization are slowly becoming a part of the life of locals and transhumance pastoralists (herders) in the study area, peripheralizing indigenous wear and products. With declining agricultural practices in the lower hilly areas, its effect has also started to bubble up in local production and knowledge, such as declining the use of straw mats (*Gundri*) and its weaving practices, milk collection, and preparing skimmed milk (*Mohi*), butter, and ghee, etc. These indigenous materials are now replaced by readymade materials such as plastic chairs and foam mats instead of *Gundri*, cold drinks, readymade juices, etc. instead of skimmed milk (*Mohi*).

Likewise, the traditional raincoat (*Ghum*) made up of *Bhorla* plant leaves, has also disappeared due to limited access to the forests. Villagers use *Ghum* while working in their fields during the rainy season, but as there are fewer farming activities, the use of *Ghum* has completely vanished from this area. Instead, plastic raincoats have slowly replaced and peripheralized these traditional *Ghum*. A 68 years old local senior citizen from *Barpak* expressed difficulty in making *Ghum* today and according to him, “we need *Choya* (thin bamboo) from the mountain area to make durable *Ghum*. However, as it is difficult to travel up to that place and due to limited access to the community forest for *Bhorla* leaf, this practice has disappeared from our location” (Personal communication, February 15, 2020).

Due to the disintegration of agricultural and livestock keeping practices, several indigenous food grains have also disappeared from the study area. 58 years old local female citizen from *Kaltu Byasi* says, “Due to the modern lifestyle and increasing dependency upon market products, locals have long stopped producing *Khahnu*, *Sama*, and *Ghyaiya*. The new generations need to familiarize themselves with these food grains” (Personal communication, February 17, 2020). These shreds of evidence showcase how the entry of community forests and market systems has replaced several indigenous practices and products in the lower hilly area of the study area.

Nonetheless, in this whole process, the transhumance ecosystem is affected mostly due to the emergence of community forests and restrictions imposed on traditional grazing areas. Most importantly, with decreasing agriculture and increasing fallow land, the villagers have started boycotting the herders from the north. The villagers know that welcoming sheep is for manure, but since there are fewer agricultural farms due to the disintegration process between livestock and agriculture and the out-migration process, the herders do not fall under the lower hilly community's priority. Along with the decline in sheep production, the trading frequency of sheep has also declined. With this, indigenous knowledge of sheep rearing (on a transhumance basis) is also gradually dissolving. Most importantly, with declining transhumance, religious, cultural values, and beliefs have also deviated from their original forms to others. In gist, the community forests, its rule, and the market system in the rural areas have remained daunting for both the villagers and herders.

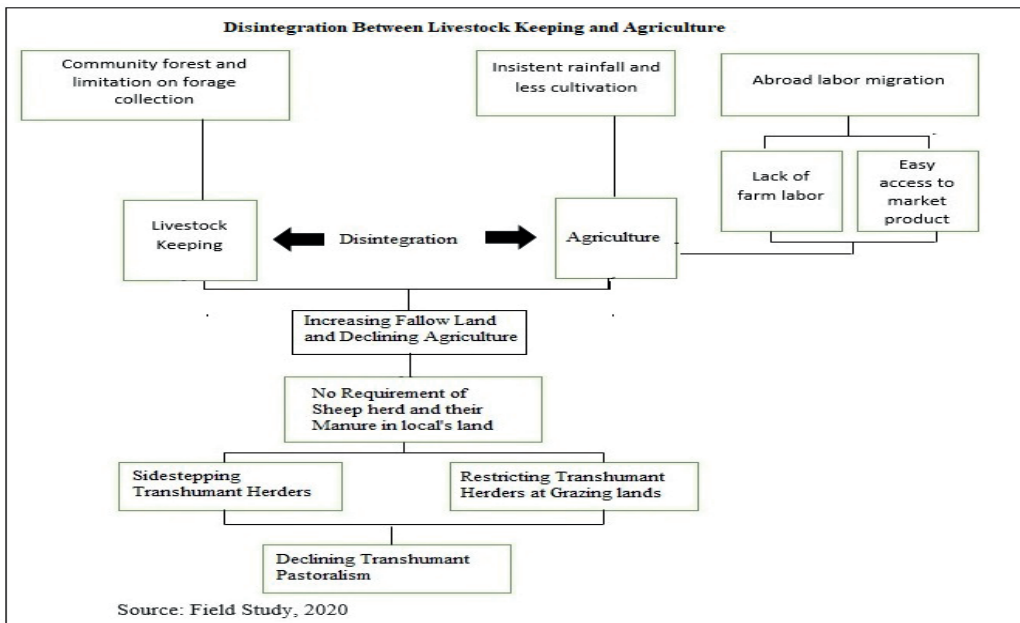


Figure 1. Disintegration between Livestock Keeping and Agriculture at Lower Hilly Area  
Source: Field Study, 2020.

### 3.3 Changing Social Structures

Social structure is the building block of every society. The social institutions, such as marriage, family, education, economy, culture, etc., are social structures. According to Bernardi & Requena (2006), social structure is institutional or cultural, and its essential elements are norms, beliefs, and values that regulate social action. These norms, beliefs, and value systems are the common understanding and consensus of all members of the society. So, different societies bear different norms, beliefs, and

value systems. These social pillars change according to the times and changes across other societies. However, some value systems stall for extended periods as they are embedded in human life and belief.

Social change depends upon its social structure. If these social pillars start changing, society will gradually shift its orbit. According to structural functionalism, social change is an adaptive response to tension within the social system. So, the change in norms, beliefs, and values is a change in social structure, which leads to social change. However, from a conflict perspective, the social structures (social values, beliefs, and norms) change when conflict arises between two parties and thus leads to social change.

From the field interview and observation, the norms, beliefs, and values of the pastoralists in Northern Gorkha are gradually altering. A market system encroaching upon their villages affects their norms, beliefs, and values. Globalization and the market are changing the beliefs and value systems of highlanders and the lower hilly communities. Moreover, due to the global market, a whim among youth to travel abroad for labor migration has become a common trend in rural settings. Ex-herder\_1 from *Barpak* explains,

I used to upkeep sheep when I was young. However, you can see that the population is increasing here, and new technology, transportation, and other facilities have added to our lives, which has increased the importance of labor in other fields as well. Some traveled to other countries for labor work, and some to urban cities. The forests and grazing lands for sheep has also decreased so that I left my sheep herding and started a teaching job in my town. (Personal communication, February 16, 2020)

This revealed that macro changes within the country and abroad are engulfing the values of transhumance pastoralists of the study area. Due to such changes in values and belief systems, transhumance pastoralism practices and its cycle are drifting from its traditional path. Globalization and market expansion have hit social and cultural pillars of rural societies forcing them to alter their livelihood, way of living, and many more. Other social changes in their societies are also due to their exposure to the growing market systems and outer societies. For instance, stall-fed commercial farming is one of the hybrid practices for sheep herding in *Barpak* which has emerged due to market demand. This indicates that globalization and the market system have become both the curse and door of opportunity for transhumance pastoralists in the study area.

On the other hand, highlander pastoralists from *Sirdibas* have two factors behind declining transhumance pastoralism in their areas. The first is similar to what the school teacher from *Barpak* has mentioned, but another reason is closely connected with the conflict approach. Their central conflict is with community forest user groups on the migrating route and the destination area. Herder\_5 from *Barpak* says, “We have



*to struggle with different groups on the way down to the hill. This is a worse profession. We always have to quarrel with them for small things”* (Personal communication, January 28, 2020). Increasing conflict with different groups on the way to the downhill including lower hilly communities sidestepping them from using their land (this used to be manure versus grazing land earlier) have become the main reasons for the transhumance pastoralist to leave sheep herding profession and opting for a new profession. On the other hand, such decline is not limited to the transhumance profession. However, it significantly impacts their indigenous knowledge, family structure, relationships, culture, religion, value system, and beliefs.

### 3.4 Changing Family Structure and Relationship

The social structure is the pattern set by and practiced by the people of that society. For instance, marriage, family, education, economy, culture, etc., are all social structures. Such structures are the building blocks of every society. Due to changes in the social structure of the transhumance system, its profound impact can be observed on their household, family, and relationships. First of all, it is observed that most of the youth from the family stay away from transhumance pastoralism. Due to their youth's engagement in different professions, income sources have been diversified. Notably, the number of family sizes is declining in all villages of the study area. Upon the researcher's query regarding changing family structure and relationship, Herder\_12 from *Ghyachok* says,

*There used to be around eight family members in each family a few decades earlier. However, the family size has declined now, which may be because of the villager's awareness of family size that the government has suggested. I also have just three children. Two daughters are studying in Pokhara, and one son is Chitwan. So, there is no one to support me so I am running after the sheep herd. I will continue this tiring job if there is family support. If not, I will sell all my sheep next year and move to Chitwan with my wife.* (Personal communication, February 16, 2020).

As per Herder\_12, it is evident that they are planning to quit and move to their son due to the lack of human resources required for sheep herding. Their farmland used to remain large in earlier periods, and they needed farm labor to work on it. However, as stated previously, the fragmentation of land to a smaller size of land directly shaped the family structure. On the other hand, as said by Herder\_12, it is also true that the family planning program launched across the country is another factor that shaped the family structure. Herder\_1 from *Sirdibas* says “*Due to a lack of human resources and support from family members, especially their son and daughter, the old couple plans to quit the herding profession forever*” (Personal communication, January 20, 2020).

From another perspective, the herder's family (including non-herders as well) is seriously affected by the globalization process. The flow of their members toward urban areas for work and study or traveling abroad for other work is a serious concern

regarding the continuation of the transhumance herding system. Herder\_11 from *Ghyachok* expresses,

*The market provides opportunities but also tore the family structure apart. We are a family of four brothers and two sisters, and I am the second son of our parents. We used to stay together and work together even after our marriage. The ancestral property was not separated. However, two of my younger brothers have been engaged in market-related jobs since the market was established in our village. Their family is now asking to divide ancestral property. If we are separated, I will get no support in this profession as my two sons are also in Kathmandu for higher studies.* (Personal communication, February 15, 2020).

The long practice of joint family structure is slowly breaking into small nuclear families. Though this is happening in every society, its impact is higher in rural settings, especially in transhumance pastoral communities where the benefit of joint family is higher. On the one hand, globalization and the market provide numerous opportunities to each individual; however, due to the same, transhumance pastoralism is crumbling down with the divided family and lack of human resources required for sheep herding. Similar, transformations can be observed in other herding communities. In this regard, Ex-herder\_2 from *Ghyachok* had a similar story to share and says, "...my only son is living in Pokhara with his wife and children. He barely visits the village. I feel happy when grandchildren visit us once a while" (Personal communication, January 16, 2020).

The market seems so powerful in both cases. It holds the power to uplift the living conditions of every individual. However, it has equal power to divide the family, dividing joint families into nuclear families. If this continues, i.e., disintegration between families and disintegration from the traditional family profession, there is a slim chance of reversing such traditional transhumance practice in the study area. Lastly, it is all about human resources and their commitment to keeping transhumance pastoralism practices alive for the year. Globalization and the market system have brought such change in the rural sector.

According to different interviews, comparing the average family size in three study areas, it used to be eight among transhumance pastoralist households of *Ghyachok* in earlier periods, but this number has dropped to an average of six. A similar dropping rate is seen in the Barpak and Sirdibas areas. It can be gauged that higher family numbers were required for labor power for agriculture, household work, and sheep herding in the earlier period. However, the average family size has decreased, and its effect is affecting the number of transhumance systems in northern Gorkha.

Table 1

*Average family size of transhumance pastoralists among three villages*

Average Family Size of Transhumance Pastoralists	<i>Ghyachok</i>	<i>Barpak</i>	<i>Sirdibas</i>
During 1990s	8.21	6.01	7.3
In 2020	6.6	5.12	6.34

Source: Field Study, 2020

Further, family sizes have also decreased in lower hilly areas. As per local female citizen from *Kaltu Byasi*, “my parents have five sisters and one brother, and altogether, there were eight family members in my family. However, my generation has only three children and five household members” (Personal communication, February 17, 2020). Similar, even lesser family size can be observed in this area. Small family size has a direct connection with the farming system. The local female citizen further added, “I left several farmlands fallow due to a lack of farm labor. My daughter is married in another district, and my only son lives in *Chitwan*. Me and my husband are now unable to work in the field” (Personal communication, February 17, 2020). This situation is similar in *Barpak* as well. As per 68 years old local senior citizen from *Barpak*, “for the farm work, we hire farm labor, but the wages are relatively high. But these farm workers are more attracted to market-based work as they receives higher wages in market-based labor in compared to the farm labor” (Personal communication, February 15, 2020). With all these factors, fallow land is increasing in the hill of the study area and their connection and relationship with transhumance herders is also slowly fading away.

#### 4. Conclusion

The transhumance pastoralism (sheep herding practice) is declining in the study area. Although there are various reasons behind its decline, the structural changes in the lower hilly villages remains the main reason. Certain changes in lower hilly areas such as increasing labor migration, changing family structure, encroachment of the market system, increasing consumerism, and importantly the introduction of community forests have induced to disintegrate the close nexus between agriculture and livestock keeping practices at the lower valley. The increasing fallow lands after such disintegration and lack of farm workers due to out migration and attraction toward market-based wage labor, the locals of lower hilly villages sidestepped the sheep herders from the high altitude, leading to gradual decline of sheep herders at the high altitude.

The decline of transhumance pastoralism is a worrying situation for pastoralists, but its decline should be of high concern to the state, environmentalists, and many other stakeholders. This dilemma is due to the need for proper policy documents to develop transhumance pastoralism at high altitudes. The decline of sheep herding

practices can impact the local economy as well as the local biodiversity. The numerous experiences and knowledge on sheep herding and indigenous knowledge associated with bio-diversity, are equally disappearing. From the perspective of indigenous people, imposing restrictions to transhumance pastoralists to use those forests and grazing areas is just a criminalization of their tradition as their communities have relied on these forests and grazing areas for generations.

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