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# The Yaks: Heart and soul of the himalayan tribes of Bhutan

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The Himalayan tribes, the *Bjobs* of Western and *Brokpa* of Eastern Bhutan depend on the yaks and consider this bovine species their heart and soul. These animals provide their livelihood and economy. Bounded by harsh geographic and climatic conditions, these tribes' agricultural practices are merely for subsistence, and thus the yaks remain indispensable for the survival of the Himalayan tribes. Looking to the future, it is very uncertain how long these tribes can continue to rely on the yaks for their survival since they are confronting numerous problems: insufficient pastures, prevalent diseases, climate changes, management of herds, and a shrinking market economy. To understand these problems, we have reviewed most reliable papers and analyzed them in depth. We eventually suggest that the government of Bhutan should promote animal husbandry for the sustainable and continual support of the *Brokpa* and *Bjobs*. The governments must also create a better market for these people and encourage them to sell yak products at the regional and national levels. Finally, the government should look into the rangeland problems and offer alternatives to promote the fragile livelihood of these Himalayan tribes.

**Keywords:** Bhutan, yaks, Himalayas, Bjobs, Brokpa, tsamdro

## INTRODUCTION

Like the importance of pigs to the Yali tribe in Papua (Sorokowski et al., 2012), the yaks are the heart and soul of the Himalayan tribes of India, Bhutan, Nepal, and Tibet (Gyamtsho, 2000 as cited in Wangchuk, 2000; Tshering, 2004; Dong et al., 2007; Chettri, 2008; Karchung, 2011; Bam et al., 2012). These tribes reside within the extreme climatic conditions of the Himalayas and have no other alternatives than to rely on the yaks for food, shelter, and income (Chettri, 2008). The practices of agriculture are difficult; however, at the lower altitudes small-scale agriculture is practiced by the tribes of Bhutan (Chand, 2000). Nonetheless, most of the tribes in the Himalayas depend on animal husbandry, with the utmost priority given to raising yaks, sheep, and goats (Sherpa & Kayastha, 2009; Karchung, 2011; National Research Centre on Yaks: NRCY, 2011, p. 1).

The history of yaks is deeply shrouded in the land of the ancient people of Tibet (now China). Even the term yak has a fascinating origination. The Chinese called this bovine species *ya niu* and the Tibetans used *yag* (Wiener et al., 2003, p. 8). The Chinese *ya niu* was constantly modified and eventually became *li niu* and *mao niu* (ibid). According to Wiener et al. (2003, p. 8), Li Shizhen a great Chinese herbalist and acupuncturist made a clear distinction between *li niu* and *mao niu* and stated that *li niu* refers to wild yaks and *mao niu* the domestic yaks (Wiener et al., 2003, p. 8). Records state that the majority of the yaks, approximately 13 million, [92.8%], dwell within the rangeland of China (Haung, 1996, as cited in Dong et al., 2007).

Centuries ago, all yaks were wild until some were domesticated by the Qiang people about 5,000 years ago during the *Longshan* cultural era (Wiener et al., 2003, p. 3; Rhode et al., 2007). Domestication of yaks by the ancient Qiang inhabitants of the Tibetan Plateau dates to the Pleistocene period, and it is believed that the yaks

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were then disseminated to other parts of the world (Wiener et al., 2003, p. 3; Rhode et al., 2007). Qiang, which literally means 'shepherds', (Lattimore, 1940, cited in Rhode et al., 2007) are the true ancestors of the yak-herding tribes in the Himalayas and still possess a very rich yak-herding culture. They are also believed to be the ancestors of the Tibetan tribes Qiang, Naxi, and Yi (Rhode et al., 2007).

The Himalayan tribes of Western and Eastern Bhutan depend heavily on their herds of yaks and sheep (Chand, 2000; Gyamtsho, 2000; Wangchuk, 2000; Dompnier, 2007, pp. 32–37; Chettri, 2008; Karchung, 2011). Eventually, these tribes — popularly categorized as the *nomads* or *semi-nomads* — started to practice subsistence farming to support their livelihood (Chand, 2000; Gyamtsho, 2000; Chettri, 2008). These tribes are known by different names such as *Bjops* in Western Bhutan, *Brokpa* (Wangmo, 1990, Chand, 2000, 2004; Dompnier, 2007, p. 1) or *Brogpa* (Pelgen, 2003) in Central and Eastern Bhutan, *Lakhaps* in West-Central Bhutan, and *Dakpas* in the remote hamlets of Merak (Wangmo, 1990, Chand, 2000, 2004; Dompnier, 2007, p. 1) or *Merag* (Dorji, 2002; Pelgen, 2003; Karchung, 2011) and Sakteng (Gyamtsho, 2000; Tshering, 2004; Chettri, 2008). Among these nomads or semi-nomads, the *Brokpa* and *Dakpas* of the Merak and Sakteng villages are believed to have fled from Tibet during the fifth and sixth centuries and settled within the rugged terrain of Eastern Bhutan about 14<sup>th</sup> and 15<sup>th</sup> Centuries (Dompnier, 2007, pp. 12–15).

Like other tribes in the Himalayas, particularly those of Nepal, Tibet-China, and Northern and North-Eastern India, and tribes around the world who depend on yaks for living, the nomads or semi-nomads of Bhutan are facing numerous issues (Gyamtsho, 2000; Wiener et al., 2003: 62; Chettri, 2008). Some of these issues are (1) insufficient pasture, (2) climate change, (3) occurrence of diseases, (4) management of herds, and (5) shrinking markets for selling yak products (Gyamtsho, 2000). Therefore, in this paper, we will briefly discuss the issues of the yak herders of Bhutan with special emphasis on the *Brokpa* and *Bjops*. In addition, we will discuss the measures deemed necessary to overcome these issues. Finally, we will look into the immediate role that must be played by the government to support the Himalayan tribes of Bhutan.

### Significance of Yaks to the tribes of Bhutan

The *Brokpa* and *Bjops* live 3,000 meters above mean sea level under harsh climatic conditions, so their agricultural practices are primarily for subsistence (Gyamtsho, 2000; Tshering, 2004; Chettri, 2008). Consequently, the yaks are considered essential amongst most Himalayan tribal cultures and are indispensable for the nomads or semi-nomads (Winter & Tshewang, 1989; Chand, 2000; Dorji

et al., 2003, p. 277; Rhode et al., 2007; Dompnier, 2007, p. 32; Sherpa & Kayastha, 2009; Singh, 2009; Karchung, 2011). They depend entirely on yaks for food, clothing, housing (their tents [*bja*] are made of yak hair) and earning cash (Chand, 2000; Gyamtsho, 2000; Dompnier, 2007, p. 32; Chettri, 2008). Many nomads in Tibet and other Himalayan tribes use yak dung as cooking fuel (Rhode et al., 2007). However, the dung of the yaks is seldom used as fuel by the *Bjops* and *Brokpa*; instead, they use it as manure (Dorji et al., 2003, p. 277). Chettri (2008), taking into consideration the numerous roles played by the yaks in supporting and sustaining the lives of these tribes, aptly named this bovine species the “*camel of the snow*” (cf. Gyamtsho, 2000). In addition, the yaks are known by various other splendid names such as *mountain machine*, *the bison of Tibet*, *coconut of animals*, *ship of the plateau*, *beast of burden of tribes*, and the *gold of Tibetans* (NRCY, 2011, p. 1). The tribes use yaks to distinguish between rich and poor. A person having more yaks is considered very rich in a tribal society and vice versa (NRCY, 2011, p. 2).

The fundamentalism of the yaks is seen in the rich cultures of the nomads of Bhutan (Dorji et al., 2003, 277). Therefore, yaks are not just the source of livelihood and economies of these tribes, but they are also an indispensable part of their culture (Chand, 2000; Gyamtsho, 2000; Dompnier, 2007, 47; Chettri, 2008). The myth of *Thoepe Gali* is an astonishing anecdote of how he discovered yaks from three different coloured eggs. Similarly, the *namthar* [biography] (Wangmo, 1990; Pelgen, 2003; Dompnier, 2007, p. 1) of *Thoepe Gali* also notes his amazement and curiosity while looking at yaks. It is said that he managed to catch one of the female yaks [*dri*] born from one of the eggs and then tamed it. Eventually, to his surprise, the *dri* gave birth and the yaks' number increased, thus providing *Thoepe Gali* with sufficient milk, butter, and hair (see Dompnier, 2007, p. 47). The myth of *Thoepe Gali* is told to people through *Chham* [mask dance] popularly called the *Yak Chham*. Through this mask dance, the splendourous pastoral life of the nomads is vividly displayed (Dompnier, 2007, p. 58).

*Bjops*, on the other hand, have a fascinating cultural history related to weaving *bja* [tents of a hundred pegs] out of yaks' hair. Weaving *bja* is not an ordinary task and is not done by everyone. The responsibility of weaving tents is done by *zow* (skilled weavers, Chettri, 2008) upon the recommendation of a *tsib* [astrologer] (Pelgen, 2003). The *tsib* determines the right time and date to commence the weaving of *bja* (ibid). Approximately 6 to 15 days is needed to complete the weaving of a *bja* and it has the durability and strength to last 20–25 years even under harsh climatic conditions (Chettri, 2008). Initially, all *Bjops* were not yak herders. In fact, the *Bjops* put more emphasis on cultivation of buckwheat than rearing yaks (Gyamtsho, 2000). According to Gyamtsho (2000), the *Bjops* bought yaks from those Tibetans fleeing from the Chinese invasion. Furthermore, some of the *Bjops*

from *Lunana* [one of the *Bjops*' villages] also travelled as far as *Sephu* in *Wangdue Phodrang* to buy yaks. (ibid) They also bought from the neighbouring village of *Laya* (Gyamtsho, 2000). Since then, this tribal group concentrated on yaks and is now dependent on them for their livelihood. Yaks are also used for transporting luggage in the rugged topology (Sherpa & Kayastha, 2009; NRCY, 2011, pp. v, 1).

According to literature, yaks are of considerable value to the highlanders. Among these people, almost 90% (Dompnier, 2007, p. 32) rely on yaks for their livelihood. However, the recent developmental activities have made the future of the yaks uncertain. The changing climate is another factor which is affecting the futures of yaks and their herders. There is also a probability that the children of the *Bjops* and *Brokpa* may not continue with the traditional yak herding culture for three reasons: (1) most children are receiving modern education and may try to find jobs away from home; (2) the herders are struggling for sufficient pastureland and, their successors are likely to withdraw from such practices; and (3) with the modern development reshaping Bhutan, many people, particularly the youths from remote villages are drawn towards the urban life. Amongst these three primary reasons, the most significant is the problem of pasturelands. If the traditional yak herding is to be continued, then the problem of pastureland must be resolved immediately.

### Products of Yaks and economy

Most of the tribes in Bhutan occupied the Northern part of the country where the climate is very harsh (Tshering, 2004; Chettri, 2008). As it is not feasible for the tribes to practice extensive agriculture, they therefore rely upon animal husbandry particularly on yaks (Gyamtsho, 2000; Ura, 2002; Wiener et al., 2003, p. 237; Tshering, 2004; Chettri, 2008).

Yaks have multi-dimensional benefits for the inhabitants of cold and extreme climatic regions (Chettri, 2008; NRCY, 2011, p. 1). Yaks provide people with food, clothing, and shelter (Gyamtsho, 2000; Ura, 2002; Wiener et al., 2003, p. 237; Tshering, 2004; Chettri, 2008; Sherpa & Kayastha, 2009; NRCY, 2011, p. 1). Some of the tribes, especially the Tibetans and Mongolians, use the dung as fuel (Rhode et al., 2007). However, the *Bjops* and *Brokpa* rarely use dung as fuel, choosing instead to use it as manure (Dorji et al., 2003, p. 277).

The *Bjops* and *Brokpa* earn cash by selling their yak products and then buy necessities like salt, sugar, rice, and so on (Gyamtsho, 2000). To some extent, even today, some *Bjops* and *Brokpa* practice a barter system like the *Brokpa* of Arunachal Pradesh from the Northeast India (Chand, 2000; Gyamtsho, 2000; Dompnier, 2007, p. 33; Singh, 2009). Milk, hair, and meat are the chief products of yaks (Gyamtsho, 2000; Dorji et al., 2003, p.

277; Sherpa & Kayastha, 2009). A special vessel made of cane called *zum* is used while milking and the milk is churned in a wooden churner (Gyamtsho, 2000). Butter, cheese, and ghee are obtained from the milk. The cheese is further processed into dried cheeses: *chugo* and *hapi ruto*. The *chugo* is made by slicing the hard cheese into sections that are two to three centimeters long and the *hapi ruto* is sliced into eight-centimeter squares about one centimeter thick (Gyamtsho, 2000). *Bjops* sell *chugo* to local people of *Punakha* and *Thimphu* and the *hapi ruto* to the vendors from Indian border towns (Gyamtsho, 2000).

The *Brokpa* of Merak and Sakteng process cheese by compressing it in leather bag and letting it ferment for a year or more (Chand, 2000; Dompnier, 2007, p. 33). The *Brokpa* fermented cheese [called *brokpa yead pa* by local people] is popular in the eastern part of Bhutan and costs 300–400 Ngultrum [Bhutan currency: Nu. which is at par the Indian currency] per kilogram. The *Brokpa* sell their fermented cheese to their *Sharchopas* friends in the lower altitude and sell it in Arunachal Pradesh (Chand, 2000).

Both the *Bjops* and *Brokpa* usually dry the yak meat before selling it. The yak meat is considered an essential part of their diet (Chand, 2000; Gyamtsho, 2000; Bhattarai et al., 2011). When the meat is well dried, they bundle it into a kilo with bones and without bones. The meat bundle with bones is cheaper than without bones. Price of the meat depends on demand; however, on an average, the meat with bones cost Nu 250–350 per kilogram and the one without bones cost more than Nu 400 per kilogram (cf. Dompnier, 2007, p. 33).

The skin and hair of yaks are used for various purposes by the *Bjops* and *Brokpa* of the Himalayan Kingdom of Bhutan. The tribes dry the skin by stretching it with the help of wooden pegs (Gyamtsho, 2000). The skin of the yaks is used as floor mats, glue, and as *kosha* [leather meat] by the *Bjops* (Gyamtsho, 2000), whereas the *Brokpa* make jackets [*paktsa*] and leather bags (Dompnier, 2007, p. 38–39). Generally, the yaks' hair can be put into two categories: hard [*tsipa*] and soft [*khuloo*] (Gyamtsho, 2000; cf. Karchung, 2011). The *tsipa* is used for weaving tents, ropes, bags, and rugs, and the *khuloo* is used for weaving dresses and blankets (Gyamtsho, 2000; Dompnier, 2007, p. 29).

These yak products are likely to gain considerable attention in the future owing to its intrinsic value and uniqueness (Gyamtsho, 2000). Today, only certain products like meat, cheeses [*chugo* and *hapi ruto* and fermented cheese], and butter are available in a few local markets. To enhance the sale of yak products, it is essential that the government should create markets from them. Also, it is necessary that the yaks are cross-breed for more milk production. To do this, the government could get better-quality bulls from other countries like India and Tibet [China].

### ***Bjops* and *Brokpa*: how are they different?**

Although these two typical tribal people depend on yaks for survival, they are different in many ways. *Bjops* are those tribes residing in the Western part of Bhutan. Most of them have settled in Laya, Lunana, Lingzhi [*shi*], Soe, and Naro, with a few in Wangdue Phodrang (Gyamtsho, 2000; Dorji et al., 2003, p. 277). The *Bjops* speak a dialect similar to the national language of Bhutan [*Dzongkha*]. The *Bjops* men wear *gho* [national dress of Bhutan], and women wear a very unique dress woven out of yak hair and put on a conical hat woven using cane (Tshering, 2004). Polyandry/polygamy is not practiced by the *Bjops*, neither is the system of love marriage (Gyamtsho, 2000; Tshering, 2004).

*Brokpa* dwell in the Eastern part of Bhutan in the villages of Merak and Sakteng (Chand, 2000; Tshering, 2004; Dompnier, 2007, pp. 6–11). Unlike *Bjops*, the *Brokpa* speak the Tibetan-Burmese language (Tshering, 2004). The men wear jackets called *chuba* [usually red and black] and the *rtsidpa zhomo* [spider-web-like hats made of yak's hair] (Wangmo, 1990; Chand, 2000; Tshering, 2004; Dompnier, 2007, pp. 38, 41; Karchung, 2011). The women wear a pink woolen cloth with white stripes called *shingka*, *medkhyem*, and varieties of *toedungs* [thin coats] (ibid). The women also put on *rtsipa zhomo* (Wangmo, 1990; Chand, 2000; Tshering, 2004; Dompnier, 2007, pp. 40–41; Karchung, 2011).

There are also some common features between the *Bjops* and *Brokpa* besides rearing yaks. Both the tribes wear leather boots popularly called *pulham* [men] and *tshemlham* [women] by the *Brokpa* (Wangmo, 1990; Dompnier, 2007, pp. 38–41; Karchung, 2011). Both tribal groups practice a barter system and go for *drukhor* [a tradition of exchanging yak product with grains particularly with people from lower altitudes] especially in winter (Chand, 2000; Gyamtsho, 2000; Dompnier, 2007, pp. 35–37). Also, they are very polite and hospitable to strangers (Dompnier, 2007, p. 10).

### **Problems faced by the Yaks and the Tribes**

The problems of yaks and their herders are increasing every year. The challenges of the herders are insufficient pastures, impact of climate change, fighting against diseases, managing herds, and finding markets for selling yak products. Amongst these problems, insufficient pasture is severe, particularly at the high-altitude habitats of the semi-nomads. Literature says that the government has implemented measures to solve these problems and promote the livelihood and economy of the tribes; however, the problems are persistent.

### **Insufficient pasturelands and overgrazing**

Bhutan has a total rangeland of 0.34% (Miller et al., 1997,

cited in Ura, 2002); nevertheless, according to Ura (2002), the figure seems highly underestimated and is not accurate. Even if the figure is above 0.34%, it is still less than what is required. The National Land Commission Record [NLCR] has estimated the pastureland as about 1,236,017.8 acres and animals, both domestic and wild, graze on it throughout the year (Gyeltshen et al., 2010).

The need for sufficient pastureland and overgrazing are the major concerns of the Himalayan tribes because they cause fodder shortages in winter (Gyamtsho, 2000; Behnke, 2003; Kerven, 2003; Kerven et al., 2008 as cited in Cerny, 2010; Chettri, 2008). Gyamtsho (2000) has mentioned that the overgrazing is not caused by the yaks only, as blue sheep, domestic sheep, and horses graze over the same pastureland throughout the year (see Tshering, 2004). Yaks need large areas to graze, and so sufficient pasture is crucial for their survival (Gyamtsho, 2000; Ura, 2002; Wiener et al., 2003, p. 193; Chettri, 2008; Zangmo, 2012, p. 21).

Pasture is known by different names in Bhutan. The semi-nomads of Eastern and Central Bhutan call their pasturelands as *tsadrok* [*rtsa drog*] and *tsabrok* [*rtsa brog*], while the tribe people of Western Bhutan call their pasturelands as *tsamjo* [*rtsa mjo*] (Gyamtsho, 2000; Ura, 2002; Chettri, 2008). All these names still mean one common thing: pasturelands, which have been a problem in Bhutan for a long time. Tshering (2004) mentioned that the land act of 1980 provides only the grazing rights to the people under the prescribed *Tsadrok* [*rtsa brog*]; however, the pastureland still belongs to the state. This was misunderstood by the people and they considered the *Tsadrok* [*rtsa brog*] with their registered name as their own and this misinterpretation has led to conflicting ownership rights and mismanagement of pasturelands today (Tshering, 2004).

Pastureland is a necessary resource for the survival of the yaks as these animals provide continual support to the semi-nomads of the higher Himalayas (Gyamtsho, 2000; Ura, 2002; Chettri, 2008). Many yaks die of starvation in winter due to insufficient grass (Gyamtsho, 2000). In the studies conducted by NRCY (2011, p. 3), it is shown that, on an average the yaks lose approximately 25%–30% of their total body weight in winter, putting them at risk. For instance, the dire shortage of fodder in winter takes a toll of two to seven yaks every year at *Soe* in *Thimphu* (Zangmo, 2012, p. 21). The study by Gyamtsho (2000) also revealed that at *Laya* 6 [20%] yaks die from an average herd of 30 animals, and at *Lunana* 4 [50%] yaks die from an average herd of 8 animals. High mortality rate of yaks is associated with the 1994 flood that destroyed the pastureland of *Bjops* (Gyamtsho, 2000).

According to Ura (2002), the grazing lands in Bhutan are categorized as follows: (1) privately owned pastureland [*sger dbang gyi rtsa brog*], (2) Group pastureland [*mThoem Mong gyi rtsa brog*], (3) Community pastureland [*dmang spyirup gyi rtsa brog*],

the Royal family's pastureland [*sKu Khor gyi rtsa brog*], (4) Monastic communities pastureland [*sDra tshang mgon sde gyi rtsa brog*], and (5) Summer and Winter pasturelands [*dGun brog dbyar brog*] (cf. Tshering, 2004). The pasturelands on which the yaks graze belong mostly to the government with a few exceptional cases (Dorji et al., 2003, p. 282). In addition, the ban on traditional methods of controlling shrubs and bushes by the government worsened the condition and area of pasturelands (Gyamtsho, 2000; cf. Ura, 2002; Dorji et al., 2003, p. 283; Tshering, 2004).

Literature shows that the issue of insufficient pasturelands aggravated after they were declared as the state property and, to some extent, converted into community forests. There is an immediate need for the government to revisit the land act of 2007 and conducted research to find the pros and cons of this land act. Also, the concerned ministry has to take into consideration some of the feedback and recommendations put forward by researchers (e.g., Gyamtsho, 2000; Dorji et al., 2003, p. 284; Tshering, 2004, and Gyeltshen et al., 2010) for the welfare of herders.

### Climate change

Climate change is posing a significant problem for the Himalayan herders (Chettri, 2008; NRCY, 2011, p. v). As Khadka (2007; cited in Sherpa & Kayastha, 2009) stated, the mountain ecology is very fragile and so climate change would pose a hindrance on it easily. Eventually, the changing climate would alter the migration cycle of the herds; pose a threat to plant and animal species, and change the breeding and development patterns (Sherpa & Kayastha, 2009). Yaks normally thrive better in Alpine climate and the climatic conditions have an immense role, especially in terms of milk production (Gyamtsho, 2000; Dong et al., 2007). According to Dong et al. (2007), yaks yield more milk under cold climatic condition and relatively less milk yield at high temperatures. Therefore, climate has an essential role in the yak milk production system.

According to Sherpa and Kayastha (2009), the impact of changing climatic patterns resulting from global warming would be immense on the indigenous yak breeds. With changing climatic patterns, there is a paramount risk of disease occurrence, water shortages, insufficient fodder, and multiplication of pests; all disrupting the habitats of the yaks and putting them into stress (Gyamtsho, 2000; Sherpa & Kayastha, 2009). The Glacial Lake Outburst Flood [GLOF] of 1994 along the *Pho Chu* [*Pho* – male; *Chu* – river] destroyed the pastures of the *Bjops* (Gyamtsho, 2000).

Climate change is the most threatening factor for the yak herders living in the rugged mountainous terrains of Bhutan. Climate is also related to the prevalence of various diseases and the growth of grasses on which the

yaks feed (Gyamtsho, 2000; Sherpa & Kayastha, 2009). The climate also has impact on the milk production of the yaks as stated by Dong et al. (2007). Therefore, the government should examine the problems of the herders in the context of climate change.

### Diseases

Occurrence of diseases has become very prominent along with the changing climate (Sherpa & Kayastha, 2009; NRCY, 2011, p. 3). Some diseases like the Foot and Mouth Diseases [FMD], Brucellosis, Infectious Bovine Rhinotracheitis [IBR], Hemorrhagic Septicemia [HS], Chlamydiosis, Salmonellosis, Gid, and Tick-born diseases are causing death of yaks and minimizing yak productivity (Gyamtsho, 2000; NRCY, 2011, p. 3). According to Gyamtsho (2000), gid and tick-born diseases are very common in Bhutan, which kill yaks when they are very weak in spring (see Dorji et al., 2003, p. 281). The government of Bhutan provides free veterinary services, but owing to long distance between yak herds and veterinary hospitals, it is very difficult for herders to access the facilities (Dorji et al., 2003, p. 281).

### Management of herds

Yak herd management is a cumbersome task as they wander into a large and distant area (Gyamtsho, 2000; Dompnier, 2007, p. 37). *Bjops* and *Brokpa* usually follow two patterns of migration: summer and winter. In summer, they take their herds to higher elevations in the mountains and stay there for a few months and then climb downhill for winter pasture (Gyamtsho, 2000; Tshering, 2004; Dompnier, 2007, p. 37). *Bjops* and *Brokpa* have similar techniques for naming the animals and the names are mostly based on the color and coats of the animals (Gyamtsho, 2000; Dompnier, 2007, p. 32). The male yaks are commonly called by names like *Nado*, *Dawa*, *Chung-due*, *Jukar*, *Zekar*, *Khampa*, and so on. Similarly, the female yaks are *Yangchen*, *Nalem*, *Jugchen*, *Dongtham*, *Zangjen*, and so on (Gyamtsho, 2000; Dompnier, 2007, p. 32).

According to Dompnier (2007, p. 32), the male yaks are free to graze throughout day and night. They are brought together during the time of salt feeding. Female yaks are rounded up towards evening for milking and are then set free to graze. The herders often watch over the yaks to keep them safe mainly from predators (Dompnier, 2007, p. 32). More attention and care are provided to the young calves (Gyamtsho, 2000). Calves are tied up near the huts to protect them from predators (Gyamtsho, 2000).

With the government declaring the pastureland as state property and the prohibition of setting fire to regenerate grass, the herders are facing the problem of

pastoral inadequacy (Gyamtsho, 2000; Gyeltshen et al., 2010). Conversion of some pasturelands into community forests has stirred up conflict between the herders and the community forest members (Wangdi, 2012a, p. 9). With this development, the herders have to either round up the yaks throughout day and night or keep them within fences.

### Markets for selling products

Although yak herders produce an ample supply of yak products each year, they are not able to make them easily accessible to people. *Bjops* and *Brokpa* produce yak products like cheese, butter, *chugo*, *hapi ruto*, ropes, bags, meats, and fermented cheese (Gyamtsho, 2000; Dompnier, 2007, p. 33). Both the *Bjops* and *Brokpa* are unable to sell their products to people in far-off places, so they sell mainly to local people or barter with them (Gyamtsho, 2000). According to Dompnier (2007, p. 33), the herders of Merak and Sakteng barter 70% of their products and sell only 30%.

Yak products could earn more income and sustain the product supply, and so the government should find good markets where the herders can store and sell their products (Gyamtsho, 2000). Especially during summer, the herders find it difficult to preserve butter and meat (Dompnier, 2007, p. 35). This could be one of the reasons on why not much of meat is sold during summer.

Since there is small market in the country, *Brokpa* have started selling their products in Tawang [Arunachal Pradesh]. They get better prices there. Therefore, the Ministry of Agriculture and Forests has to create markets for these tribes and encourage them to sell the products without hindrances. In addition, it would be better if the herders are taught on how to preserve the products for a longer period of time, especially in summer. It is also essential to teach new techniques and measures for storing yak products since these tribes take more than two days to reach the nearby markets. Such initiatives from the government would be a boon to the economy of the herders in the long run.

### DISCUSSION

Yaks are fundamentally associated with the social, religion, and cultural aspects of the herders (Dorji et al., 2003, p. 277; Wiener et al., 2003, p. 12). Above all, this bovine species is the source of life and the economy of the tribes living in the high altitude regions of the world – particularly that of the Himalayan region (Winter & Tshewang, 1989; Chand, 2000; Gyamtsho, 2000; Dorji et al., 2003, p. 277; Rhode et al., 2007; Dompnier, 2007, p. 32; Sherpa & Kayastha, 2009; Singh, 2009). The problems that are impinging upon these tribes' that depend on yaks are likely to evoke changes in the yak-

herding culture (Gyamtsho, 2000; Wiener et al., 2003; Dorji et al., 2003, p. 284).

As Chettri (2000) stated, it is essential to realize and know "why people do what they do." Therefore, it is appropriate for the government to conduct thorough studies before implementing development the policies including the isolated tribes into the mainstream. For instance, the *Rangeland to Grassland* policy in China has resulted in many social and ecological issues, although the intension of the policy was to reviving the lost pastures. Consequently, the practice of traditional-seasonal migrations of herds declined, which is a crucial component of the Tibetan pastoralism (Forggin, 2008).

Similarly, with the amendment of the Land Act in 2007, numerous problems were countered by the yak herders of the Western and Eastern Bhutan (Wangdi, 2012b, p. 2). According to Wangdi (2012a, pp. 1–2), as reported in the Bhutan newspaper [*Kuense*] dated November 6, 2012, the herders of Merak-Sakteng are in conflict everyday over *tsamdrol* (cf. Gyeltshen et al., 2010). On November 8, 2012, another problem, yet not a new issue, broke out between the herders of Merak and the localities of *Phongmed* at *Cheberling* (Wangdi, 2012a, p. 9). *Cheberling* is a winter pastureland and the herders stay there for almost eight months (Dompnier, 2007, pp. 32–33; Wangdi, 2012a, p. 9). Herders say that there were about 1,000 acres of pastureland at *Cheberling* in the past, but most of the area has been converted into community forest eventually reducing the *tsamdrol* size (Wangdi, 2012a, p. 9). The shortage of pasture is also a significant problem in the Western Bhutan: *Soe* and *Naro* villages (Zangmo, 2012, p. 21). The need is urgent whereby the government has to look into the pros and cons of the Land Act of Bhutan and resolve the issue of pastures for the benefit of the highlanders.

The ban on the traditional method of burning bushes was another controversial issue between the government and yak herders. The semi-nomads practiced traditional bush burning to control the growth of shrubs like rhododendron and junipers and regenerate pastures (Gyamtsho, 2000; Ura, 2002; Dorji et al., 2003, p. 283; Tshering, 2004; Gyeltshen et al., 2010). Although the aim of the government to protect the environment has tremendously increased the mountain vegetation, the consequences are devastating challenge faced by many yak herders (Gyamtsho, 2000; Gyeltshen et al., 2010). However, to a certain extent, the government has authorized the herders to set fires on provided rangelands under cautious supervision (Gyeltshen et al., 2010). Therefore, it is perhaps worth a try to respect the traditional practices and cultures of the highlanders in managing the pasturelands for better.

The economies of the *Bjops* and *Brokpa* depend entirely on the yak products (Chand, 2000; Gyamtsho, 2000; Chettri, 2000; Dorji et al., 2003, p. 277) since their rangelands are not agriculturally friendly. Therefore, to promote yak products in the markets, the yak herders

must be supported with market facilities at regional and national levels. Also, new techniques of food storage are necessary for preservation of yak products, especially the cheese, butter, and meat (Chand, 2000; Gyamtsho, 2000).

It is necessary to improve the yak genetic resources to enhance and advance the living standards of the highlanders (NRCY, 2011, p. 5). The change in climate has put massive pressure and challenges on the survival of the yaks and herders (Sherpa & Kayastha, 2009; NRCY, 2011, p. v). The occurrence of diseases has increased the problems of the by the Himalayas tribes (Gyamtsho, 2000; Sherpa & Kayastha, 2009; NRCY, 2011, p. 3). Therefore, the government should encourage cross-breeding of yaks and improve animal husbandry facilities to sustain the livelihood and enhance the economic benefits of yak herders. Without such interventions from the government, the culture and tradition of yak herding may be lost forever (Chand, 2000; Chettri, 2000; Gyamtsho, 2000; Dorji et al., 2003, p. 284; Gyeltshen et al., 2010).

## CONCLUSION

Yaks are the main sources of livelihood for those tribes residing in the harsh climatic conditions where agricultural practices are unsustainable. The *Bjops* and *Brokpa* are the two distinctive tribal groups who rely on yaks. Yaks are their heart and soul. Without yaks, there will not be any *Bjops* or *Brokpa*. These tribes have a very rich traditional culture that adds to the unique culture of Bhutan.

The lifestyle of the *Bjops* and *Brokpa* is very complicated as they continue to live in isolation on the rugged Himalayan topography. The Royal Government of Bhutan has already started to engage these tribal people into the mainstream developmental activities of the nation. The herders continue to face the shortage of pasturelands and the risk losing yaks every year. Both the government policies and climate are increasing the vulnerabilities of the yaks and yak herding culture making their future uncertain.

The sustainability of the traditional tribal culture of yaks relies on how well the government's policies are implemented. Consequently, prior to implementing any developmental work within the periphery of the semi-nomads, the government has to thoroughly research the impacts of such activity on the future of the yak herders. Considering the current situation of the yaks and their herders, the risk of abandoning the tradition of the semi-nomadic lifestyle by the tribes of the Bhutan Himalayas, especially by the educated youths is imminent. Therefore, a holistic approach to sustaining the traditional culture of yak herding should be explored by the government.

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