

CHAPTER 2

Theoretical Background and Literature Review

Three concepts have been identified for this research – livelihood, property rights and local knowledge. In this research, these concepts were explored within a political ecology approach. The political ecology approach seeks to integrate our understanding of human's economic, political and cultural interaction with the physical environment (for example: land degradation; marginalization; environmental conflict; conservation and control; and environmental identity and social movements). Key political ecology tools include: risk-analysis; behavioral cultural ecology; common property theory; materialism and Marxism; peasant studies; feminist development studies; critical environmental history; postcolonial studies; and theories on science, power and knowledge (Robbins, 2012). In this way, I reviewed the literature relating to these concepts and conducted an in depth examination of the contested issue of rangeland degradation on the Tibetan plateau.

In acknowledging the complexity of this debate, the next section will focus on the political ecology approach as a means of exploring this phenomenon in greater depth.

2.1 Political ecology as a critical perspective

Two major theoretical thrusts that have most influenced the formation of political ecology as a critical perspective are political economy and ecological analysis (Greenberg & Park, 1994). As a geographical term, ecology relates to the role of climate, temperature and altitude on biological systems. Those studying ecological systems are concerned with the mutual interaction between human societies, human productive activity and the environment, as well as seeking to explain the evolution of specific cultural practices and institutions in terms of adaptation to the environment in which they take place. With the development of clinical medicine in the 19th century,

the field of 'medical ecology' developed to respond to rising environmental concerns. Later, the emergence of the term 'political ecology' focused on power at many levels of environmental and ecological analysis correlating with the term 'political economy'. Neumann (1992) stated that there are three fundamental perspectives formulating a political ecology perspective. Firstly, a 'bottom-up' approach focuses on the producers who work on the land and the immediate social forces which influence their everyday practices. Secondly, 'a chain of explanation' relates to the levels of explanations that are found on a regional, national and global scale (for example, land users' behavior is influenced by social structures and processes that extend beyond their immediate environment and even the global level). Thirdly, the importance of historical analysis is important to understanding the development of social relationships and their subsequent links to degradation.

In a later study, Neumann (2005) further argues that the key concern of political ecology is an analysis of the structure of property rights at various scales including how State, community and households influence access to resources and land. Particularly, this study focused on how property rights are defined, negotiated and struggled with among differing groups, using this data to explain patterns of development, environment conservation and degradation. The following three studies highlight the application of the political ecology approach.

Firstly, Neumann's (1992) research focused on wildlife conservation in the Meru area of northeast Tanzania. Through a historical and political economic analysis of the ecological problems existing in the country's national parks, his study found that the extinction of species, illegal commercial hunting activities and ignorance of local people's customary rights and knowledge had led to the reduction of the ecosystem diversity.

Secondly, Tania Murray Li's (2007) historical research into colonial Indonesia applied the concept of 'the will to improve' to argue that the State directed "improvement policies" in the areas of population, landscape and land productivity had detrimentally impacted on the highlanders' landscapes, livelihoods and identities. The legacy of this has continued to the present time as seen in a recent study Li

conducted with her colleagues, Hall and Hirsch, exploring the impacts of market power processes in South East Asia. This research applied the term ‘intimate exclusion’ to analyze accumulation and dispossession issues among kin, friends and neighbors who share common histories and social interaction (Hall, Hirsch & Li, 2011). Using a political ecology analysis, the study highlighted how “the social intimates exclude one another from access to land as part of a strategy to accumulate capital” (ibid, p. 146) leading to conflict between villages over access for scarce resources.

Thirdly, a political ecology analysis is seen in Chusak’s (2008) research on ethnic identity in Northern Thailand. His findings highlight the correlation of natural resource management in this area with the propagation of the modern Thai nation-state and the development of the identity of ‘Thai-ness’, which has been reproduced and reconstructed among the Tai Lue, Lao Puan and Khamu ethnic groups. Identity is a key indicator relating to issues of exclusion and inclusion in terms of who has most privilege to control or access the natural resources in this area.

2.2 Debating Rangeland Degradation

The term ‘development’ is often conceptualized as a solution rather than a causation of backwardness, poverty, conflict and environmental degradation in so-called ‘Third World’ countries. Some political ecologists recently proposed that the Post-World War II project of Third World development should be abandoned as it represents an exercise in domination of the global North over the global South as well as the centralized state over local communities (Neumann, 2005:92). Nowadays, developing countries are facing numerous problems in terms of applying westernized development models in their own contexts. Later on, the concept of ‘Sustainable Development’ (SD) appeared as an alternative development strategy among the developing countries. In according to the International Union for Conservation of Nature (IUCN) (1980), the term SD came into prominence in 1980 when the IUCN presented the World Conservation Strategy (WCS) with the overall aim of achieving sustainable development through the conservation of living resources. However, Lélé (1991) has critically viewed the overall of SD through looking at others’ works.

As Tolba (1984) stated, SD is a new concept in the development paradigm of the 1990s, and most people prefer to use the phrase ‘SD’ interchangeably with ‘ecological sustainable or environmental sustainable sound development’ (cited in Lélé, 1991). Sometimes, SD is interpreted as ‘economic growth’, ‘sustained change’ and ‘successful development’ by many scholars around world. Alternatively, the term SD also simply means “development that can be continued either indefinitely or for the implicit time period of concern” (Redcliff, 2005: 167). Moreover, some scholars note that ‘development is a process of directed change’ and sustainable can also be used instead of ‘successful project’ as seen in the following example from Barbier (1987) cited in Redcliff, (2005:168):

For economic development to be truly ‘sustainable’ requires tailoring the design and implementation of projects to be the needs and capabilities of people who are supposed to benefit from them.The social sustainability defines as the ability to maintain desired social values, traditions, institutions, cultures, or other social characteristics.

Nevertheless, the concept of sustainability “originated in the context of renewable resources such as forests or fisheries, and has subsequently been adopted as a broad slogan by the environmental movement” (Lélé, 1991: 609). Therefore, the ecological sustainability discourse emphasizes the constraints and opportunities that nature prevents to human activities, and ecologists and physical scientists frequently dominate this discussion.

The central topic of focus is the ecological conditions for ecological sustainability that the biophysical laws or patterns that determine environmental responses to human activities and human ability to use the environment. The major contribution of the environmental development debate is that social condition influences ecological sustainability and un-sustainability of people-nature interaction (Lélé, 1991). Most importantly, Lélé explicitly emphasizes that the ‘beneficiary-oriented design’ or ‘grassroots participation’ are a procedural imperative for any development program to be successful, which means that if any development projects are to be successful, then the grassroots participation cannot be ignored in the

development process.

In 1968, Hardin introduced the term ‘tragedy of the commons’ to denote that overpopulation, invisible hand, pollution and property rights make such a tragedy of land degradation. He contended that overpopulation, particularly the relationship between population numbers and natural resources, led to a scarcity of food and increased land degradation. His reference to the ‘invisible hand’ was in context that the above accelerates the tragedy of freedom in common through overconsumption impacting on the carrying capacity. He identified that pollution is a serious consequence of the commons’ tragedy, with the environment being polluted in different ways.

Therefore, a regime of private property can solve the population problem and environmental issues. There are several examples that support Hardin’s theory of the tragedy of commons: pasturelands and national parks, all suffering from increased environmental pollution due to being collectively shared. In relation to pasturelands, the ‘tragedy of commons’ suggests that each herdsman will try to keep as many cattle as possible on the commons. Such an “arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land” (Hardin, 1968: 1245). However, now, due to changes to the environment, Hardin argued that there was a need for coercive legislation whereby the State initiates measures to control population, supporting authoritarian and private property system.

However, later studies challenge Hardin’s theory. Blaikie and Brookfield (1987) note that the dictionary meaning of degradation as a ‘reduction to a lower capacity’ is a perceptual term. When using this term to refer to land, this definition indicates that differing viewpoints can exist. In recent decades, the Chinese State has referred to Hardin’s theory of the ‘tragedy of the commons’ discussed above in attributing land degradation on the Tibetan plateau to be caused by a combination of overstocking of livestock, unscientific livestock management, historical-cultural impediments to adopting modern livestock management concepts, global climate change and soil disturbance from small mammals’ (Li & Duo, 1995 cited in Banks

2001). This ideology has influenced policy to address the problem including resettlement and changes to land tenure.

While there is an element of truth in the reasoning of these policies, a growing number of researchers are recognizing the value of local knowledge in this problem area, stating that there is need to look beyond single scientific measurement to fully evaluate the situation; for example, to consider the impact of rapid changes in social-economic systems and alteration of land tenure arrangements (Harris, 2010; Miller, 2005; Banks, 2001; Clarke, 1996; Li & Duo, 1995; Blaikie & Brookfield, 1987). The local knowledge each of these researchers refer to in their study findings is that of the local herders who earned their livelihoods on the Tibetan plateau for millennia as exemplified in the following statement:

Land value is contained in the natural source of all energy in the ecosystem, the sun's energy and of the stored products of that energy, which include the weathered material and nutrients, which constitute soil ... the land itself has its own means of repair ... new soil is formed, gullies grass over and become graded; nutrient status is restored under rest (Blaikie & Brookfield, 1987: 6-7).

Clarke (1996: 666) states that evidence exists that frequently policies intended to improve land systems actually cause the degradation they are seeking to improve. Li and Duo (1995 cited in Banks, 2001) agree with Clarke when they found that recent State policy changes to land tenure to be more related to land degradation than historical overuse.

Harris (2010) recorded that the State-Environmental Protection Agency estimated that one-third of China's grasslands were degraded in 1999. However, these statistics were derived from undocumented surveys conducted by local-level staff of grassland and livestock bureaus, using criteria originally envisioned for the allocation of pasture land following de-collectivization. These criteria required that all grassland be categorized as non-degraded, or lightly, moderately, or heavily degraded such as reduction of vegetation production of 20-30% for lightly, 20-50% for moderate, and

greater than 50% for heavy degradation. In this context, the non-degraded rangeland is defined as “there is no livestock in grazing area where the standing biomasses were not reduced than grazed area”. Therefore, Harris claimed that these standards and methods for such classification were subjective, with only a single quantitative measure. Additionally, he added that “this quantification was murky, because neither a baseline from which to assess reduction, nor field methods to use in measuring it were provided” (Harris, 2010: 3).

Miller (2005) suggests a different viewpoint to the concept of ‘overstocking’. Rather than being viewed negatively, herders are required to make increases to their livestock as a buffer against the harsh climate of the plateau, which kill large numbers every year. Further, changes in the geo-economic status of the region resulting in lower income require herders to compensate by increasing herd numbers.

The above studies suggest that the causes of land degradation are complex and challenge the simplistic view of overstocking being the sole cause. With the belief that Tibetan traditional livelihood strategies are backward and irrational, Chinese policy makers have propagated that there are no institutions, norms or rules for the common grassland management. However, (Banks 2001) has found that no ‘tragedy of the commons’ existed under common rangeland management system in the case of the three communities of Northern Xinjiang of China: Ak Tubeq, Sarkum and Kom. His findings showed that the community plays a significant role in the protection of community pastures from encroachment, regulation of seasonal movements and disputes among the groups. Particularly, the village leaders are responsible for monitoring and enforcing rules relating to the timing of seasonal movements.

Keeping the literature regarding the land degradation debate on the Tibetan Plateau within a political ecology approach in mind, this review will continue to explore the literature specific to the three research concepts: livelihood as an identity of Tibetan herders, property rights and local knowledge.

2.3 Livelihood as An Identity of Tibetan Herders

In everyday language, the term livelihood refers to a 'means of living'. If we ask someone 'how do you earn your livelihood?' or 'what do you do for a living?' we may get different answers to how they derive their livelihoods. Today, people have different livelihood perspectives in terms of how to secure their natural resources and ensure their rights. For the purposes of this research, the definition focusing on sustainability developed by Chambers and Conway (1992: 15) is useful.

A livelihood comprises the capabilities, assets (including both material and social resources) and activities for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource.

Sen (1987: 43) expands aspects of this definition when she focuses on the term 'capability' as a set of doings and beings of human life and functioning that relate to the evaluation of the quality of life in its capability to function and reflects a person's freedom to choose between different ways of living.

Carr (2013) links the concept of livelihood to identity when he shows that livelihood is not merely defined in terms of material well-being, but is also concerned with a person's self-determination, status and position within households, communities and lineages. The term 'identity' socially embodies an individual's social circumstances and a sense of locality, while reflecting a deeper political and cultural conscious self with multiple visions (Riordan 2001). This concept of identity expresses itself in the manner in which humans interact in their environment and make sense of their experiences through the full range of emotions, assumptions, values, facts, ideas, mores and norms (Collier and Thomas 1988, cited in Riordan 2001).

In his master's research, Ma Jian Zhong (2003) explored the dynamics of Tibetan pastoralism as a practice of identity and knowledge; concluding that their

cultural identity is inextricably linked to their local knowledge, which in turn, is linked to their traditional means of livelihood. In this way, it is seen that herding as a livelihood is not just concerned with economic gain. Rather, the livestock embody cultural, spiritual symbolic meanings in terms of Tibetan herders' identity. However, this interrelated identity is undergoing change resulting from China government's eco-resettlement project.

The mainstream government justification for the eco-resettlement project is the claim that land is astringent and most rangeland areas are not fit for human habitation. Thus, this project was implemented in order to ease the population distribution and the natural ecological carrying capacity; the government insisted that this is a realistic choice of economy and ecological harmony in the Three Rivers Source region as it can help nomads and renew their ideas (Du, 2011).

However, in Xu Jun's research on eco-resettlement project (2009) clarified that the government resettlement project produced harsh living conditions for resettled herders now living in the towns and counties. The local government has provided training related to development of herders' working skills and created job opportunities to them in Yushu and Guoluo Tibetan Autonomous Prefectures. However, these projects were not really successful, because many of them only had interests in money, but not learning skills.

For example, the Norway Foundation gave resettled herders some training about learning Chinese language. This program provided 20 yuan per person each day for these who attended the classes, but a few days after the beginning of the program, trainees came only to take the money and then left. In the end, most of the trainees did not even come there to take money. The Norway Foundation also did another project about sewing training. This training was for seven recommended women, but one month later, only four women were left. In the end, only one middle-aged woman stayed for the entire training because she needed to take care of 11 children while her husband was ill.

The local government also made their best efforts to improve resettled herders' living condition by allowing them to dig for caterpillar fungus and local leaders were encouraged to hire resettled herders to be housekeepers. Other resettled herders trained to be car or motor repairman. However, most of them could not get jobs as they are unable to speak Mandarin Chinese, so in the end, most of these herders preferred to go back to the pasturing areas or request various assistance from their relatives who still remain in the herding life. Indeed, some of the resettled herders became hired labors for their relatives' families as these families needed assistance herding their livestock.

Xu Jun's (2009) five-year investigation shows that most eco-immigrants who resettled in the towns or nearby cities have not been able to make their livelihood without grassland resources. Most importantly, "it has not been helpful to the grassland ecosystem". Thus, his analysis states that the resettlement project that aimed to protect the grassland was not successful since it has many negative outcomes and none of the positive outcomes expected of the program.

Obviously, if herders have not been able to own or use their grassland resources, then they would not be able to maintain their property rights in their home-rangeland.

2.4 Conceptualizing Tibetan herders' Property Rights

The term 'property' consists of a set of everyday practices, social relationships and rules. In many community-based cultures, property is structured based on kin relations and enforcement mechanisms in order to solve disputes (Vandergeest, 1999). In these cultures, property must be communicated, recognized, recorded, and enforced by state agencies. In addition, people can negotiate their property rights with the State through use of their own memory, commutation and storytelling (ibid; Rose 1990).

Property is neither purely state, nor local, but a mix of both and no state ever completely takes over the administration and enforcement of all property relations. (Vandergeest, 1999: 5).

The right of property can be seen as actually excluding someone's right or limiting someone's access into the resources. As a result, people may consider the cooperative management of common property as a second choice in terms of obtaining their property rights (Rose, 1990). Rose (1990) defined the term 'access' as the 'ability' to benefit from things, while property as 'rights' to benefit from things. The key difference is ability and right. 'Right' is acknowledged by law, custom and convention, but 'ability' is the capacity or ability in all-possible means to derive benefits from things. For example, rights-based access can be achieved by both legal and illegal means to gain benefits. The legal access rights are backed by law; the illegal access is not backed by law, but it can be backed by force, threat and control to maintain the access.

On another hand, technology, capital, markets, knowledge, authority, social identities and social relations on access influence the structural and relational mechanisms of access. Therefore, who gains or who loses benefit from natural resources depends on someone's 'ability'; the ability to access what kind of resources based on what kind of bundles of power they have. For example, a fence is a simple technology, which can physically control and exclude some people away from a resource as a symbol to restrict access of others (ibid).

Yeh (2003) remarks that the grassland in northeast Tibet (current Qinghai province) was held as 'common property'; it has greater flexibility in pasture allocation adjustments and has prevented residents from inter-household grassland conflicts. In this context, the concept of 'common property' is that the pastures are to be allocated to the administrative or natural villages under a collective tenure system, or to small groups of often kin-related households under a group tenure system. Collective or group tenure arrangements have persisted across most regions and seasonal pastures. By living and moving together, effective security was provided whereby people were in groups and helped each other (Yan et al. 2005, cited from Dkon mchog dge legs, 2012).

In addition, Yeh (2003) stated that when territory in pre-PRC Amdo (current Qinghai) was not conceived of as abstract mapped space, there was a well-developed

sense of territorial rights embodied in 'tsowa' (tsowa is a clan system) membership. Therefore, inter-household conflicts within 'tsowa' were uncommon. Reasons for this include greater flexibility in pasture allocation adjustments.

Therefore, land property rights in the Tibetan herders' context are related to their cultural practices and identity. However, since the 1980s, the property rights system has changed from common grassland management to private grassland management. Now, herders are facing the inequality of accessing natural resources and therefore have the difficulty of practicing their territorial identity within the private rangeland management system. For example, the private property rights on land has resulted in new conflicts by increasing inequality of access to pasture and decreasing flexibility of the land through government fencing projects in the rangeland.

Even though the land has been divided to the household level by the State, many herders still maintain their loyalties to social-territorial identities and authorities which do not legally exist in the People's Republic of China. In some instances, these conflicts have escalated to physical violence among households, villages, townships, counties and provinces. Secular State officials have less ability to solve these land disputes as they are seen to be outside the cultural system. In these situations, they value the role of Tibetan religious lamas who play a vital role in mediating these disputes, encouraging herders to build the unity, harmony and peace among themselves (Yeh, 2003).

A further consequence of land privatization and sedentarization of the local herders is reduced vegetation available for the herds. Miller (2005) argued that a lack of evaluation practices of the State's property reform policies has resulted in an unclear picture of the progress of their aim to reduce land degradation in this area.

In the situation of the Tibetan herders, the concepts of property have different meanings since property is not a concrete term. In addition, property rights are a kind of 'access', defined as ability, based on the exclusion and inclusion of someone's rights. Today, in the case of the Tibetan herders', these rights are an obvious example of how land tenure systems and local government conservation projects have been

excluding local knowledge in exchange for the inclusion of State knowledge in terms of rangeland protection and livelihood improvement. This exchange of knowledge has forever changed traditional land tenure practices on the Tibetan rangeland areas, requiring local people to adjust to new ways of defining their livelihoods. However, an increasing number of researchers are recognizing the value of local knowledge in issues of land reform, which leads me to a discussion of the third concept of this research.

2.5 Local Knowledge in terms of Rangeland Degradation and Biodiversity

The conceptual understanding of the term ‘local knowledge’ is interchangeable with terms of ‘indigenous knowledge’ and ‘traditional knowledge’ with some intricate differences. Kumar (2010) states that a salient feature of indigenous knowledge is its development by tribal or rural communities living in particular geographic locations. These early tribal groups are generally referred to as aboriginal people.

However, the term indigenous knowledge does not refer only to the knowledge of aboriginal people. Nakata (2002, cited in Kumar, 2010: 7) states that the “indigenous people’s knowledge can be considered a subset of what is more broadly referred to as local knowledge”. As with any other knowledge system, this knowledge is not static and limited only to the particular area where it originated. It can be observed that indigenous knowledge produced in one particular area or country has been transmitted to other areas or countries through travelers and traders. Another important characteristic is that indigenous knowledge is passed down from generation to generation mostly by the word of mouth and to a lesser extent through writing. It is basically an oral tradition.

Traditional knowledge or other synonymous terms such as indigenous knowledge and local knowledge generally refer to the long-standing information, wisdom, traditions and practices of certain indigenous people or local communities. In many cases, traditional knowledge has been orally passed for generations from person to person. Some forms of traditional knowledge are expressed through stories, legends, folklore, rituals, songs, art, and even laws. Importantly, the concept of ‘traditional

knowledge' does not separate "secular" or "rational" knowledge from spiritual knowledge, intuitions and wisdom. It is often embedded in a cosmology as highlighted in the following:

.... [traditional] knowledge cannot be divorced from the natural and cultural context within which it has arisen, including their traditional lands and resources, and their kinship and community relations. It is important to emphasize that traditional knowledge is not, as often perceived, a static phenomenon, but one that is constantly evolving with changes in the internal and external environment of the community concerned (Kumar, 2010: 8).

Knowledge is situated and based upon an intimate understanding and appreciation of local ecosystems; it is developed and passed on from one generation to another in the process within which the people adapted themselves to a particular set of conditions in an ecosystem. Since an ecosystem has endemic plant species, animals, insects and living organisms, the knowledge that has developed within the context of that ecosystem contains special localized characteristics. Localized medicinal plants, healing practices, and food habits are particular to that ecological niche. Indigenous knowledge is the knowledge used by local people to make a living in a changing environment. Knowledge production should be seen as a process of social negotiation involving multiple actors and complex power relations and must therefore be understood in terms of change, adaptation and dynamism (Yos Santasombat, 2003: 43).

There is longstanding agreement among environmental researchers that indigenous communities play an important role in generating knowledge based on their understanding of the environment. Roy's (1928, cited in Kumar, 2010) findings support the stance that these communities have developed an invaluable store of working knowledge based on their observations of seasons, fauna and flora. Several decades later, Warren (1992, cited in Kumar, 2010, pp. 8-9) found that this working knowledge is enabling communities to develop innovative methods to resolve

identified problems in their environment and exchange this knowledge with other societies.

Similarly, Yos (2003: 41) stated that knowledge is based on someone's belief; for example, the belief that nature is alive and has a soul, like human beings, and this soul will die without the constant loving care, nurture and support from human society. Thus, human knowledge is tied to the natural world just as knowledge and land are intimately bound to one another, a belief widely shared among the indigenous peoples.

Mountain deities play a vital role in Tibetan people's daily life. Traditional Tibetan belief is deeply connected to sacred or holy mountains, and these mountains have long cultural, political, and historic backgrounds for Tibetan people, both locally in Amdo and more generally throughout all Tibetan regions. This kind of belief has been passed down for many generations and all its practices are generally related to human well-being in a broader context.

Specifically, each community has one mountain deity and Tibetan people believe that the mountain deity is the 'master of the territory' and 'protector of all living things'. As a result of this belief system, Tibetan people offer valuable food to their deities on special days through organizing the rituals. In the rituals, villagers will invite the lama and monks for chanting the scriptures to open the ritual ceremony. On such days, villagers bring their valuable food and a thankful heart to appreciate the mountain deity's kindness for looking after the community's well-being.

Local people normally offer *rtsam pa*, or the barley flour, along with grain, fruits, sugar and alcohol to the mountain deity and request him to provide a 'good life' for the villagers' and make 'people free of illness, and livestock free from disaster.' This is all a part of the "*bsang*" ritual, where offerings are made to the local deities in order to provide a better life for the villagers and natural environment. Similar rituals are held to honor the water deities of these communities. This clearly illustrates the deity's role as a protector of humans, animals, minerals, and other aspects of the environment.

In recent decades, the mountain deity is a hot topic among Tibetan and non-Tibetan studies' scholars. These scholars view the mountain deity from both the cultural and environment perspectives. For example, in his research, Tsering Bum (n.d) found that the term mountain deity refers to 'a warrior' in Gom ri¹. However, the mountain deity's roles are shifting in terms of social-political, cultural, economic, and environmental conditions of the community. He claimed that the 'role changes of mountain deities from a group ancestor to 'local deity, and then to Dharma protector', these roles connected to the specific social-political and environmental context. At present, mining minerals, hunting wild animals and digging the caterpillar fungus have severely damaged the environment on the Tibetan plateau, but none of these actions existed in the past time.

Therefore, the mountain deity's role in the past might be different according to the local context and now its role is apparently shifting in the face of current environmental degradation. Tsering Bum (n.d) explained that environmental degradation is a result of mining the natural resources and the number of these mining projects has dramatically increased according to the new concept of modern development. This concept has greater market involvement in the herders' life and gives commercial values for their natural resources. This causes a conflict between traditional belief systems and modern development.

For example, when minerals have been mined from holy mountains by 'outsiders', earthquakes have occurred and local people fear this natural disaster is sent by the mountain deities angry with human behavior which is damaging the environment and is disrespectful of the mountain gods. People believe that the punishments sent by the mountain deities are the illness, bad luck and accidents to the individuals or entire family. A commonly perceived punishment is that limbs become paralyzed if a person destroys the environment and kills wild animals.

Therefore, people engaging in such actions have to go to the another area to avoid such kinds of disasters or, if someone has already received such punishment, then he or she is not be able to stay in their village because villagers fear the illness

¹ One of four Tibetan herding villages in Yushu Tibetan Autonomous Prefecture, Qinghai Province of China.

will increase and harm others in the village. Those who harm a particular area must move to another area based on the belief that each mountain deity has his own jurisdiction; therefore, if someone did ‘bad things’ to the environment, then he or she cannot stay under his jurisdiction, but must go to another mountain deity’s jurisdiction. Therefore, traditionally, the mountain deities have played an important role in informing people’s actions related to environmental conservation and restricting people’s deviant behavior on the local ecosystem.

However, under the modern development projects, the way of Tibetan herders’ livelihood is changing and many young generations are no longer connected to the Tibetan traditional culture; gradually, they become ‘urban citizens.’ Outsiders, such as the government workers and Han laborers, also do not value the culture of the mountain deity because they view such cultural practices as superstitious actions. With the loss of the mountain deity culture comes the loss of the fear of punishment from mountain deities; therefore, Tibetans may one day be more concerned about the commercial interests of mining than acting as strong environmental conservationists concerned for the future. However, as the below literature will explore, for the time being, Tibetan herders continue to promote environmental protection by using their local knowledge and belief.

Local knowledge (synonymous with traditional and indigenous knowledge) plays a vital role in terms of how Tibetan herders promote cultural ecosystems on their rangeland areas, as well as building harmony between the nature and humans as explained in Miller’s (2008) seminal work on this topic,

... [Tibetan nomads] have an intimate knowledge of their environment and an amazing ability to handle animals – a skill rare amongst most people today ... Nomads’ lives are finely tuned to the growth of grass, the births of animals and the seasonal movement of their herds ... [they] have developed a close connection to the land and the livestock that nurture them (p. 1).

For millennia, Tibetan herders' unique culture based on their local knowledge has not only sustained their livelihood, but also protected bio-diversities around them. For example, as rangeland degradation in Tibetan plateau has spread, the government has identified the pika as one of the principal causes, leading it to be labeled a pest in need of eradication. While there was an initial rapid reduction of the pika through the use of chemical based poisons, they have again increased in numbers. Ironically, it has been observed that pika numbers are greater in rangeland areas where pika eradication programs have been implemented than in other areas that have not been targeted.



Figure 2.1 Pika

Contrastingly, local herders recognize the pika as a native animal, living on the plateau for thousands of years, and an essential part of the ecosystem, contributing to soil nutrient recycling and enhancement of root biomass. They make burrows and nests for a variety of birds and lizards and are part of



Figure 2.2 A tunnel dug by the pika

the food chain for avian and mammalian predators. Ecologists have conferred with local knowledge to determine that interdependence within the eco system exists between the pika and other rangeland birds and mammals such as the Hume's Ground Jay, Snowfinch and lizards. In opposition to State directed knowledge, Tibetan herders hold the belief that the pika population is contained within a spiritual cosmology; herders are distressed and angry that their local knowledge, gained from millennia of living on the Tibetan Plateau, and their religious beliefs are being seen as of no consequence by State authorities in management of this problem (Dpal Idan chos dbyings, 2011; Pech et al, 2007; Smith & Foggin, 1999).

In my understanding, local knowledge not only refers to the knowledge of aboriginal people. Most importantly, local knowledge is not static and limited only in the particular area where it is originated, but can be transmitted to other areas or countries. Local knowledge is passed down from generation to generation by the word of mouth. Also, local knowledge is experiential resulting in development of a store of working

knowledge including animal, environment and resources. Consequently, local knowledge is defined as how local people and indigenous people use their wisdom to sustain their livelihood, conserve their natural resources and protect their rights in the milieu of environmental, development and human right issues. Unfortunately, pertaining to the Chinese state opinion regarding rangeland degradation, the important local knowledge of the Tibetans has been largely disregarded and ignored.

2.6 Summary

This chapter reviews the literature pertaining to a political ecology paradigm to view this research's concepts of livelihood, property rights and local knowledge. Each concept is linked to the Tibetan herders' life. First of all, the scholars who are following the political ecology paradigm perceive that the term livelihood cannot be separated from someone's identity, and they define the term property rights as a set of everyday practices, social relationships and rules. Specifically the term 'property' must be communicated, recognized, recorded and enforced by state agencies. In this way, individuals and groups of people can negotiate their property rights with the state through the use of their own memory, communication and storytelling. Further, the term local knowledge refers to the long-standing information, wisdom, traditions and practices of certain indigenous people or local communities. Also, local knowledge cannot be divorced from the natural and cultural context.

However, today the Tibetan herders' identities are being lost under the Eco-Resettlement Project. Since many herders have been resettled in the new settlement, they began to lose their traditional culture and are being excluded from their property rights under the power relations. Traditionally, the land property rights in the Tibetan herders' context are related to their cultural practices and identity. However, during the 1980s in China, the property right system changed from common to private land system. Hence, this land reform policy has resulted in herders facing the inequality of accessing natural resources. Power in this policy is distributed disproportionately with new creation of land boundaries resulting in a few herders having large holdings of land, while many are struggling to practice their territorial identity.

The changes of property rights system have resulted in local people hardly able to protect their culture and rights. According to Tibetan culture, mountain deities play an essential role in Tibetan people's daily life. Deities are deemed 'masters of the territory' and 'protector of all living things'. However, mining ventures are severely impacting on local herders' spiritual beliefs and practices.

The following three chapters report the findings of the issues centered around the three research concepts raised in this literature review.



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