

Perspectives from the Roof of the World:
Tibetan Nomadic Perspectives on Climate Change

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Dedication

May we heed the warnings of the Tibetan nomads,

And rejoice in their resilience.

May we confess our ignorance and ecological misconduct,

And bring wisdom onto the path of reconciliation.

May we Praise our Mother Earth,

And offer protection to her waters,

The source of ALL life.

***MAT** or Ma'at is the Egyptian goddess who emblemizes the norm for nature and society, she is known to maintain truth, justice, morality, law and balance (regulating the seasons and the stars)

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My deepest gratitude is for His Eminence Garchen Rinpoche, who gave me the invaluable opportunity to join his community in Tibet. I am filled with thanks for the boundless compassion of my teacher, the spirits, the Earth and the nomads. The slice of Universe that I describe in the following pages has touched me on the deepest level of Being, I do hope that this work brings benefit to the sacred space.

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It is without saying that I would not be here without my family. My mother and father blessed me with a love for nature, travel and the determination to live my dreams. I feel blessed by the support from my family and community, especially my husband Gabriel, dharma sister Kellie, sister Mary, and best friend, Sengey.

Thank you to the *lu*, who instead of taking my life, taught me to stop- and listen.

Abstract

This dissertation is a collection of stories and experiences from the Tibetan nomads surrounding the *DzaChu* (*Mekong* River) of *Kham*, in *Qinghai* Province. The *DzaChu* is a sacred area that is threatened by climate change. The author uses mindful inquiry as the basis of this ethnographic study. Long term participatory observation and over thirty focus groups within the *DzaChu* Watershed point to the thesis: Climate Change is one of the greatest threats to the Tibetan nomadic culture and to Asia's magnificent *Mekong* River. It is the aim of this dissertation to demonstrate the impact of climate change on the Tibetan nomads and the critical need for respectful global relations with this precious water source that provides life to millions of humans throughout Asia. Readers are encouraged to click on the hyperlinks to the photo narrative on Instagram [@thepurelandproject](#) and follow the accompanying website www.purelandperspectives.org. The Pureland Project organization is a part of the action research component of this work, which will move forward from this research to try to implement some of the ideas expressed by the participants, such as protecting the region as a UNESCO cultural or ecological heritage site.

Keywords: *Mekong, Tibet, Kham, Climate Change, Nomads, water spirits, Yushu.*

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Chapter 1. Introduction: The Third Pole is melting

*“In our tradition, religion, our science and medicine
are all really connected to each other.”
~(Tibetan Doctor in Kham, Nangchen, Winter, 2013)*

1.1 Research Focus and Questions

This research is supporting the argument that climate change is the largest current threat to the Tibetan nomadic culture. It explores how the Tibetan nomads based at the source of the *Mekong* River, the *DzaChu*, perceive the changes in the environment and explores if these Tibetans see a solution to the issues that they are facing. This work is intended to transcend the political discussion of the Tibetan situation and focus on the global implications of the local experience of ecological degradation. I conducted field research from 2012-2015 in Eastern Tibet, using methods of participatory observation, focus groups and video ethnography. The research focused itself on the human/nature/spirit relations that are seen as the basis for what scientists term “climate change”.

I set out to answer distinct question: How is the *DzaChu* (the source of the *Mekong* River) viewed and understood by Tibetans? How do the stories told by Tibetans nomads of the *DzaChu* basin reflect their perspectives on climate change? How do the Tibetan perceptions of water compare and interact with Chinese environmental policy and findings in the region? With the subsidiary questions: Are Eastern Tibetan Nomads experiencing ecological changes? If so, what changes are being experienced, how do

they perceive the ecological changes in terms of the causes, the effects and the vision of the future? What are these changes exactly: for example the rains have been extremely heavy the past few years, is it just the rain and the amount, or is the timing of the rain also an issue? Who is concerned? And who is most affected? There are numerous reasons Tibetan nomads are declining in number, and why the Tibetan nomadic culture is considered endangered. The focus of this dissertation will be on the environmental reasons that the nomads are finding other livelihoods.

After being confronted by the spirits that the participants in the research were speaking of while in the field, I also formed questions for the earth and the waters themselves. Inspired by indigenous methodology, I participated in ceremonies with the nomads and on my own throughout the process of producing this paper, relating with the local spirits. These questions for the elements regarding their wellbeing were in the form of deep energetic sensations that have shaped this work more than any of the spoken interviews. It was while listening deeply during ceremony or following prayer, that signs appeared to guide and inspire questions, interpretation and writing.

1.2 Research Intentions

It is my hope that the benefit of this study will be to demonstrate to Tibetan nomads that their experience is unique and extremely valuable. When I asked people in the community if I could record their stories, I recognized in them a sense of pride. The nomads were especially happy to receive cameras and be a part of the research team. When doing research, those not involved in the interview process actually became jealous of those surveyed. I did not want to exclude participants; rather I intended to gather perspectives from a number of different nomadic communities.

My intention of publishing the nomads' stories is to increase global understanding around the ecological crisis and support the argument for necessary changes proposed by the nomads. I hope that this work promotes more dialogue regarding the ecological zones of Tibet and the need for culturally appropriate protection of the land. Chapter 6 includes recommendations from the nomads, by the nomads for their land.

While some of the regions that I refer to in this work are already protected zones, there are many ways to improve upon the implementation of the laws. It is important that lawmakers collaborate with nomads to create policies that are grounded in both local and scientific understanding of the situation. There are numerous examples of failed environmental protection zones due to misunderstandings between policy makers and the residents of the protected zones. The finding included in chapter 5 may be helpful to policy makers and environmental law enforcement.

1.3 [Perspective](#): Describing the Researcher

My passion for political advocacy has declined tremendously in the past 13 years of living between Tibetan communities. After becoming absorbed in Buddhist practices, my main concern became the wellness of all beings on a much deeper level. In 2005, I moved to *Kham* to live in [Garchen Rinpoche's monastery](#), called *Gargon*. My Teacher, Garchen Rinpoche had requested that I take care of his schools. In many ways I opposed formal education and wanted nothing to do with schools, yet for the nomads, having local schools were the only way that family units could remain united. Chinese policy mandates that all children attend school in the town centers, which are often many days away from their home, the village schools have been allowed as a compromise between the government and the communities. Over the past decade, China has been successful

in providing education for millions of its rural inhabitants, by bringing the youth to the city centers. An unfortunate side effect of improved infrastructure in the rural regions is that it is threatening the culture. By removing youth from their homeland, the place-based informal learning is halted and the human-nature relations are changed.

I have reluctantly watched eight years' worth of my students move to middle schools located as far away as *Beijing*. The students return home for the summer and the parents consider them useless. The students have lost their nomadic skills, many of them unable to herd or cook. Many students do not even make it home to harvest *yartsegumbu*, a medicinal grass which provides 80% of the monetary income for the region.

The contrast between formal and informal education was my original dissertation topic that I enrolled at Prescott College's PhD Program in Sustainability Education to explore. I run a [non-profit](#) organization that supports Tibetan local school programs and I constantly work with locals and government officials to find the middle ground for effective education in the region.

Interestingly, a few weeks before attending orientation for the Doctoral program in sustainability education in August 2011, I visited Gargon School where I used to teach. Two days prior to my arrival the [school had collapsed](#), its foundation washed away by heavy rains, previously unknown to the region. While I had always heard the nomads talking about changing weather patterns, I thought that they were being overly sensitive. Seeing our beautiful school in ruins made me face the reality of the situation. Seven homes were also destroyed, but that destruction was actually from the severe cracks that occurred after being scorched by the sun directly following the flood.

Listening to the accounts of destruction I began to think about the importance of broadcasting these stories. While global warming seems far away to many of my gas-guzzling, car driving, plastic consuming American friends and students, my Tibetan friends and students are feeling the impact!

I was inspired to change my dissertation research to highlight Buddhist concepts of interdependence and their relevance to the climate change discourse, but I have found that the worldview held by the nomads in Tibet is not necessarily from the heady Buddhist philosophical view I first understood. Instead, the view of interdependence and karma is based in the truths as an experience of the nature of nature. Most nomads recognize and value the relations between all phenomena, which may just be the key to truly viable climate policy. Each interview has further inspired a practice of listening to the elements; it is in this deep listening that nature has exposed interdependence in an unexpectedly profound way.

The people of *Gargon* had named this project long before it became my dissertation, years before I had heard of Action Research and five years before I established the project as a 501c3. The pureland project, which is the name of my nonprofit, is based on a Buddhist practice of envisioning perfection. In the Buddhist pureland practice, one envisions all surroundings as a Buddha field, with pure air, water and beautiful landscapes. I shared with my Tibetan friends that I didn't need much imagination in my pureland practice once moving to their village. The three types of mountains (snowy, grassy, and forested), flowing rivers, wild animals, and brilliant views of the stars left me breathless (the altitude of 4,200m. helped too, of course!). The main issues were lots of litter and lack of education around new materials coming into the community such as plastic and

artificial foods. We began a weekly cleanup to address the issue of litter in the community and expanded the program by educating nuns and monks on keeping “the pureland” pure. The program evolved from [picking up trash](#) to creating [traditional medicine internships](#) and educating locals about plastics and new foods. The next steps of the project are to be informed by this study.

While my hope is to serve as a megaphone for the Tibetans and share their stories, I am also aware that the translation is through my lens and that Action Research is extremely difficult. The research being conducted for my dissertation is simply one step in a longer-term project. I conducted this research with the goal of ensuring this region is appropriately and adequately protected. This may mean working with policy makers and setting up centers for sustainability. While there are many unknown directions that this work may take me, the foundational intention is to be of benefit to these people, the place and its spirits who have taught me the most important lessons of my life.

I am driven to tell this story given to me by the Nomads of *Yushu* because these people and their way of life is a precious gift to this earth, and they are endangered. After spending over a decade with nomadic people in different capacities- as a student, [a teacher](#), a neighbor, a dharma sibling, a lover, and an advocate, I am not blind to the faults of Tibetan society. I see many issues with the nomadic societies that I have lived in and work within. I am not about to indulge in a romanticized story about Tibet. What I have observed and recorded is full of wisdom and hierocracy, pristine pure faith and destructive ignorance. These pages do not tell a simple story, they share the complexities of a culture in transition, faced by the lure of modern life and the faithfulness to the earth. It has not been an easy story to share; it is full of contradictions. The one certainty

that the research has exposed, the one experience that every nomad agreed upon is: [The third pole is melting](#).

1.3.1 Defining Sustainability and Connecting My work with Sustainability

Ecologists, Economists, World leaders, and Spiritual teachers are coming to similar conclusions: our current system is unsustainable. Eco-economy indicators such as population growth, water-use and biodiversity are showing decline is alarming, since our actual limit to any particular resource remains a mystery. Sustainability exists on many levels, with many definitions. The leading field in which we speak about sustainability is within science. Over my studies I have come to define sustainability broadly as: *Life in balance*. Life has become a very inclusive term, involving the elemental system, of the earth, water, space, fire and wind. I have learned from the nomads that when humans and the elements are living in harmony, we can enjoy sustainability. Unfortunately nomads, scientists, and economists agree, we are currently living unsustainably.

Scientists have identified ways in which they believe humans can live in balance with the earth by respecting planetary boundaries. The idea is that by understanding the limits to earth's resources, new technologies will allow for continued growth. Indicators of the ecological emergency include: climate change, biodiversity loss, phosphorus levels, oceanic acidification, chemical pollution, land system change, atmospheric aerosol loading, global freshwater use, nitrogen cycle, stratospheric ozone pollution (Rockstrom, 2009). The nomads have identified three simple guidelines of living in harmony with the earth and its spirits: Do not pollute, Do not cut trees, and Do not dig. Indicators that most nomads identified as natural imbalance were: extreme weather, black earth (no

grass), less water, high population of rodents & bugs, low wild animal and fungus population, animal (including human) illness.

Nomads do not debate climate change; yet it is an experienced reality. This dissertation will not only translate and disseminate the nomadic experience of climate change, it will also expose the nomadic relationship with Earth and its waters.

1.3.2 Challenges in Conducting Research using sustainable methods

It is ironic that I used so much non-renewable energy in the creation of something I hope to inspire sustainability through! I collected data on electronic systems to tell these stories, although I was collecting that data in locations that had no electricity. While solar energy has become quite common, all of my audio recordings, geographic mapping devices, notes, and pictures were collected over my iPhone. I even wrote this introduction on my phone!

I crossed into Nepal to write this thesis in a semi-retreat, where I also experienced daily planned power outages. The lack of working electronics made me look at my own hypocrisy: telling a story about the earth, but gleaning its resources to do so. I would be less of a hypocrite if I were able to defend an unwritten, orally told dissertation, which would be more honest to the subjects. In writing this dissertation I have not only flown around the globe three times, but also halfway across the USA 6 times. I have used countless watts of electricity creating, transferring and editing digital files and communicating with classmates and mentors. I am in no way living my advice, which I present here which makes me just another hypocritical scholar. Unfortunately, even the most liberal and eco-justice focused University such as Prescott College has requested this out of doctoral students.

It is my hope that this work is worthwhile and that these used resources will not be wasted, and that instead they were a necessary means to share some of the experience of an endangered space and culture.

Before beginning I ask for forgiveness from the earth, from which I have selfishly taken in order to produce this thesis. May my work somehow repay the boundless generosity Mother Earth has blessed upon me during these four years of doctoral studies.

In the following pages, I hope that I have not misrepresented the Tibetan nomads, the spirits. I have offered my best efforts to share these stories that have for too long been unheard, but I apologize for mixing the voices with any of my own ignorance. May this be of benefit to all beings.

1.4 Significance of the Study

Tibet and its people are often victimized. Many Tibetans themselves identify as victims. The story of endangered Tibet is not a new one, but this story will not have those political undertones, nor will this story focus on victimhood or blame. This is a report of the situation, an unfortunate situation that all of us have contributed to and all of us will be impacted by, because climate change is a global issue.

This research is significant because it may bridge the scientific and spiritual understandings of one of the most spiritually and ecologically rich areas on earth (Eastwood, 2011). Tibet is known as a sacred spiritual center, but its ecological importance is barely recognized by the rest of the world. Very few people know that Tibet's glaciers hold the source of Asia's water lifelines. Those who acknowledge this fact call the region "the roof of the world," the "Third Pole" and "Asia's Water Tower." Global warm-

ing is deeply impacting Tibet's glaciers, their runoff rivers and the nomads living around them. Bio-cultural diversity is threatened due to the changing weather patterns.

Although the Traditional Ecological Knowledge (TEK) of the nomads has protected these waters for centuries, the TEK of the region has not yet entered the global discourse regarding climate change. It is the experience of living in harmony with the earth that produces a perspective different from the mainstream. This different perspective may lead to a more holistic answer to our global ecological crisis. This research is an opportunity to share the ecological perspectives from the roof of the world. As the gatekeepers to Asia's water, it is time that the voice of the Tibetans is heard. The Mekong River is named because it is thought to be the mother ("Me") of Asia. The source of the Mekong River is located in Qinghai Province, where it is called the *DzaChu*. This research followed the river from its source southward, deep into *Kham* (Southern Tibet). Learning took place in the Tibetan nomadic communities that live alongside the rivers, by collecting stories and perceptions regarding the changes of this powerful resource. While scientists have been assessing the "third pole" through longitudinal biological and geological studies, the stories included in chapter 5 fill in a gap in the literature.

After some preliminary research I found that the Tibetans communicate with their water through the *lu*, the water spirits who protect the waters. It is the dialogue with these spirits that is of utmost importance in attempting to understand the Tibetan nomads' relationship with this river. The nomadic relations with these spirits are largely unspoken. While there are prayers spoken in offering to the *lu*, the silent acts of hanging prayer flags, burning incense and living with mindfulness of the resource are the main parts of the dialogue.

Without understanding the perspectives of the nomads how will we ever understand their situation in this larger environmental crisis? Understanding the impacts that are being felt in Tibet will help us to better prepare for the issues that may be faced by those downstream and at lower altitudes. Because indigenous knowledge is a multi-generational history it was important for people of all ages to be engaged in this knowledge collection. Community memory of weather patterns is extremely useful in order to understand climate change. The nomads themselves use this intergenerational knowledge to define acceptable variability in climate. Indigenous records of climate change are often expressed as social changes; this gives a much more qualitative perspective on the issue which is unavailable to the popular quantitative scientific surveys on the topic.

A significant contribution of the research here is contained in the hyperlinks, this links the reader directly with the nomads. Photos taken by the nomads are held on the website: www.purelandperspectives.org, and an interactive conversation held on instagram @thepurelandproject. The details regarding the photo narratives are described further in chapter three. The reader is invited through links scattered throughout the dissertation to experience the perspectives of the nomads without a translator. By viewing the nomads' videos and photographs the reader can engage with this place-based research in a more direct way.

I hope that in focusing on the nomads' experiences of living near the source of the river, some light will be shed on what can be expected downstream in the years to come. Translating the perspective of the nomads and bringing it into the international dialogue on global warming has been difficult, but hopefully of much benefit.

1.5 Scope of the Research

As I sit at the base of [*Ja Nak SamDo*](#), the place where the *Karchu* and *Nakchu* unite (see map in page 313) to create the *DzaCchu*, it's clear why Tibetans and Chinese name two different sources for the beginning of the *Mekong*. The silty dark *Nakchu* comes around a jagged red rock mountain to meet the clear flowing waters of the *Karchu*, together they form a great river- The *Daz Chu*, or *Mekong*. The two rivers come from different directions to form the great source of water for millions across Asia. Both feeder rivers come with the same power and character, neither one seemingly claims or overpowers the other, and they each have their own character and beauty.

Everything can be argued about, and dissertations are generally a place for making an argument. But I wish to be clear in my purpose and intentions in writing this. Water and global warming are contentious current issues and Tibet itself is a highly politicized space. Yet since connecting with the space on a spiritual level, I have abandoned politics and divisive ways of being. I am not interested in debating about the source of the *Mekong* nor the existence or nonexistence of global warming. Rather I have chosen this subject because I respect the nomadic lifestyle of simplicity and admire their respect for nature. I am interested in presenting the nomadic perceptions from this region in order to build bridges. The goal of this work is to expose the changes as they are felt and experienced by the inhabitants of the region and find the common ground between nomads, scientists and governments and then to eventually work on a culturally appropriate plan of protection for this sacred place.

As ties between mining and natural disasters are better understood, focus on these headwater regions should follow. With millions dying each year in natural disasters

around the globe, it is time to understand the deeper cause and meaning of these disasters. They are not simply bad luck, although those who misunderstand the laws of karma may mistakenly say that it is. Rather these natural disasters may all be tied to disrespect. Tibetans have understood this concept for centuries, and perhaps the ethics of this down-to-earth culture could be a key to protecting us from some of the avoidable natural disasters that we are bound to experience in the coming years.

I hope that this serves as a bridge between scientific, political and local communities, because in order to save this water, all parties will need to work together. This work will demonstrate how the nomads are looking forward to collaborating with government, scientists and anyone who will help protect the land and its water. There is no hesitancy on the part of the nomads: “Because in our tradition, religion, our science, and medicine are all really connected to each other (Participant in focus group, personal communication, December, 2013).”

1.6 Dissertation Design

I have chosen to work in the *DzaChu*/Mekong watershed region because that is where my spiritual roots are from and where many of my spiritual siblings abide. I am also aware that there is extensive body of literature regarding this important river. I begin by exploring the intersections in literature regarding Tibetan Buddhism, Bon, Animism, Shamanism and even Biophilia, trying to find the closest terms to systems of belief that I have found and those I have embraced throughout the course of this research. The views of Buddhism, Bon and belief systems that impact the Nomads of the *DzaChu* become central to this research as I look at the phenomenology of this place, held sacred through these spiritual traditions.

Chapter 2. Literature Review

“This center of heaven,
This core of the earth,
The heart of the world,
Fenced with Snow Mountains,
The headland of all rivers,
Where the mountains are high,
And the land is pure.”
-8th century Tibetan Poem

This chapter will review some of the existing literature on the topics related to this study, including the region, its bio-cultural history, the people of this place and their belief systems. The research that has been done on these topics comes from a variety of authors and disciplines. Using this multidisciplinary background to the research demonstrates the complexity of climate change and its impact on Tibetan nomads.

While literature on Tibet is no longer hard to find, the source of the *Mekong* River is a very remote region rarely visited and spoken of. The literature review takes all the surrounding subjects of climate change, human-nature connection, *Bon* and Buddhist background to lay a foundation for the study, which may be the first of its kind.

The review of literature begins with the place, this is a place-based study and the region of *Kham* is a particular bio-cultural zone that deserves a through briefing. The biological and cultural history of Tibet is offered in both Tibetan and Scientific terms, both holding their own truths regarding the origins of the land and the people. It is from the very origin story that the dichotomy between Tibetan nomadic and scientific views of the region begins! The following section on Bon and Buddhist philosophies elevates yet another dichotomy into the discussion. The historical animist based worldview held

by many Tibetan nomads would be classified as Bon, while most Tibetans who participated in this study refer to themselves as Buddhists. It is important to understand through this review that the philosophical teachings of Buddhism that have reached America and are being discussed even in Tibetan exile communities are not necessarily what is understood or practiced as Tibetan Buddhist by many nomads in Tibet. In most regions of Tibet the distinction between Bon and Buddhist is rarely made, yet for this study it is important for readers to understand that the human/nature relations are not necessarily part of the Tibetan Buddhist traditions that have been translated or carried away from their home with the Tibetan nomads. Yet the relation that these nomads have with the earth and its spirits are well described by Bon scholars, who are often not even recognized by the Tibetans themselves. Bon and Animism are discussed in separate sections, as that is the way in which it is often studied. While I would classify Bon as an animist belief system, my friends and co-researchers, had identified Bon more closely with Buddhist than anything else, therefore I review Animism to offer a background on the Tibetan nomadic worldview. Animism is a term given by anthropologists to a belief system of indigenous people. Similarly to the way the term Hinduism is used for India's beautifully diverse belief systems, the term Animist is a blanket definition of a worldview that is native to so many populations worldwide. World views are distinct to each human and shared between groups of people, in these regions of Tibet where great expanses of uninhabitable earth separate the people, it seems unethical to offer a term to their way of life that they themselves have not chosen. By the nature of my position as an American researcher, this is etic research, while I used an emic approach, choosing methods for Tibetans to participate deeply, offering their own narrative.

Question	Topic	Authors
How is the DzaChu (the source of the Mekong River) viewed and understood by Tibetans?	-The region-Tibet-Kham-Nangchen-DzaChu. -bio-cultural history -Spirits of the region and the elements	Beal, Laird, Kaza, Karmay, Ingold, Inglis, He, Harvey, Hanh, Wangyal
How do the stories told by Tibetans nomads of the Dza-do River basin reflect their perspectives on climate change?	-human-nature relations -Tibetan ecology -biocultural diversity	Maffi, Norberg-Hodge, Foggin
How do the Tibetan perceptions of water compare and interact with Chinese Environmental policy and scientific findings in the region?	-Socio-Economic impact on Ecology. -Current Environmental Policy	Qinghai Provincial Government report, Ojendal, Nan, Myers, Ma, Lui, Ives, Hayes, Harris, Gunerante, Grumbine, Gao, Eastwood, Yeh, Xu, Xie

The Literature review table above offers a brief outline of the themes of this dissertation, which are associated with the three main questions of the thesis.

2.1 [Bio-cultural History](#) of Tibet

Many Tibetans and scientists agree that Tibet was underwater for much of geological history. 40 million years ago, when what is now considered India collided with Eurasia, a part of India slid underneath Tibet and lifted it to become the highest plateau in the world. The [Himalayan range](#) is a testament to the power of the collision of the plates (Powers, 1995). Some scientists claim that nomads came to Tibet thousands of years ago as a Navajo tribe that crossed the land bridge. Other scientific evidence hints that Tibetans are a mix of Central and East Asian peoples.

Tibetans have their own belief that they originated from the mating of the rock ogress *Ma Drag Senmo* and the monkey *Pa Trelgen Sangchup Sympa* just after Tibet rose from the ocean (Beall, 1990). The monkey is said to be an emanation of the lord of compassion, *Chenrezig*. The Tibetan origination story in itself demonstrates the expansive understanding Tibetans have regarding life and personhood. Tibetans claim that their non-virtuous qualities such as lust and stubbornness are inherited from the ogress, while the peaceful and compassionate qualities that are often illuminated by Western accounts of Tibetans come from their Monkey Father (*Chenrezig*) (Powers, 1995). The Tibetan creation story, while spiritual in nature, overlaps with the scientific geographical and evolutionary stories.

China has a long and complicated history, which includes Tibetan history in some of its accounts. In order to understand the bio-cultural history of Tibet, I will briefly mention some of China's history that has influenced Tibetan bio-cultural history. The Qing, Daoists, and Buddhists of China all held an eco-centric approach that emphasized

a balance with nature, which influenced Chinese policy at different points (Shapiro, 2011).

Within Tibet it is the Buddhist and Animist (which will be discussed in the following section) respect for all beings that is a foundation for the bio-centric practices. China has been experiencing a Buddhist revival, yet it doesn't seem to be tied to the ecological movement as of yet, as meat-eating and environmental destruction increase in the fast growing nation (Shapiro, 2011).

In China, there was a tradition of mutual care between humans and nature. Ancient texts prescribe harmony between man, society and nature rather than subjugating one for the benefit of the other (Shapiro, 2011). In many cases, resource management was left up to spiritual understandings. The spirits inhabiting the forests and water would undoubtedly be upset by the misuse of resources. Forests and waterways are believed to be filled with spirits that can be very harmful, therefore living in harmony with the environment is sometimes done out of reverence and even fear.

For instance, nomads in *Nangchen* depend on the annual harvest of [yartsegumbu \(cordyceps\)](#) for their income. Although they depend on the harvest for their livelihood, there are sacred mountains that the nomads will never harvest from. In 2005 it was reported to me that a greedy woman climbed one of the sacred mountains to harvest *yartsegumbu* and was struck dead by lightning. There are reports like that one all over the region, it is these oral reports that are passed along and the stigma held within the culture that keeps people from exploiting certain resources and certain regions. In Tibet, Animism is less of a religion and more of a worldview. Ecologist, Subba described it as an “interactive relationship with their physical environment and with the world of gods,

goddesses, spirits and ghosts whose response to the deeds and intents of the people is almost instant” (Subba, 2010, p. 117).

When [Padmasambava](#) came to Tibet in the eighth century, he found groups of nomads that are described in the stories as barbarians (or backwards ogres). *Padmasambhava* tamed these barbarians along with the spirits of the plateau and Tibetan Buddhism was born. Although Buddhism spread throughout all of Tibet, the religion never fully erased the animist aspects of the culture. This study demonstrates the ways in which Bon ceremony allows the Tibetan nomads to communicate with the earth, and is offered as many elders as the only solution to the ecological crisis.

Shapiro (2011) suggested that the suppression of tradition and freedom brings ecological crisis. When the Peoples Liberation Army (PLA) came to new areas to spread their agricultural practices in the 1950’s, the local people were deeply upset. The locals believed that the spirits in the land and the water would be offended by the practices that were taught by the soldiers. The soldiers took spiritual leaders that perpetuated these ideas out of power and replaced them with leaders who could re-educate the people with propaganda against animist belief systems (Shapiro, 2011). One soldier recounted: “We didn’t learn from local people. Instead, we thought that they were backward, and we destroyed many good things. Now I know that many of their practices are very advanced. The things they emphasized are what we [environmentalists] are emphasizing now about the man and nature relationship” (Shapiro, 2011, p. 173). This piece regarding the severing of the human-nature relationship is echoed in most of the communications I had with Tibetan elders. The elders are aware not only of what they experienced during the Cultural Revolution (1966-1976), but also deeply conscious about the relations that they

have kept for generations with the land and water spirits of their region. As more students are taken to school in the city and more families relocate into town, the monasteries become a focal point for keeping the Tibetan culture. In Yushu the monasteries are all Buddhist, not Bon. The history and practices of Bon and Buddhism are intertwined especially around environmental ethics. Buddhist leaders often encourage environmentalism, and Bon lay practices of communicating with the local spirits hold the people close to the needs of nature. But the Bon practices are often lost when nomads move away from the tents and into town. When nomads arrive in towns they become participants in the larger Buddhist temples, which are more likely to promote a “pure” Buddhist ethic. Many of my *Khenpo* (Buddhist philosophy professors) look down upon Bon much like other colonial religious orders have done in order to fully suppress their predecessors.

While I used the Buddhist basis of mindful inquiry to conduct research, mindfulness brought me to what others would describe as a *Bon* thesis. While I began this research half-expecting to come out with a Socially Engaged Buddhist action research project, I have ended up with something that I must admit I am somewhat afraid of presenting in academia. My research has brought me to recognition of the spirit world that the *Bonpo* have described and embraced. As someone who was almost laughed out of the Ivy League as a “practicing Buddhist”, I am now having a harder challenge presenting this work as *Bon* influenced. As again, my Tibetan friends, co-researchers and participants would never call themselves *Bonpo*. Thus I try to present a brief [Cultural History of Bon and Buddhism](#) below, offering the reader some insight into the stigma, or the blurry lines regarding the *Bon* designation.

2.1.1 [Socioeconomic Historical Impact on Ecology](#)

For centuries Han, Mongols, and Tibetans clashed over land and power. As discussed above, Buddhism forever shifted Tibetan culture, just as modern Han culture has more recently influenced Tibetans and the Tibetan Plateau.

In 1949, the Red Guard began entering Kham. The Cultural Revolution attempted to dissuade Tibetans from their Buddhist views, and many new agricultural and pastoral laws were put into place. During the “Take Grain as the Key Link” phase of the revolution, 670,000 hectares of Qinghai Province’s grassland was converted to cropland (Shapiro, 2011). Nomads became farmers overnight as the state policy demanded. Millions of animals died due to lack of grassland and inappropriate land use. Nomads of the Qinghai Mountains knew that they would not be able to grow the prescribed amounts of rice that were calculated by the government. Hail destroyed the crop annually. The people had a tradition of growing more hardy crops such as turnips, barley, rapeseed, sugar beets, and mustard. Although people knew what they could grow and how to grow it, their traditions were looked upon as backwards and inefficient. They were forced to follow policy and in turn lost their resources and balance with the earth. A nomad from Sichuan, Aba was quoted “no one dared say it was wrong, no one dared to speak the truth” (Shapiro, 2011, p. 113). While some people knew that using the land according to Mao’s “If the mountain is high” would cause strife, others didn’t understand the impacts of their forced labor until later. Even today there is still some misunderstanding about the dangers of mono cropping.

The three decades between 1950 and 1980 saw the degradation of Chinese forests by policies under the Cultural Revolution and the Gang of Four (Ives, 1994). Defor-

estation caused major erosion, sedimentation and desertification. During the great leap forward many of China's best assets, such as its forests, were destroyed beyond recovery (Shapiro, 2011). Due to directives to terrace the mountains and plant grain in the "take grain as the key link," millions of trees were cut. It was only after Mao's passing that people were allowed to reforest (Shapiro, 2011). In the push to be self-reliant through grain production, Mao never stopped to question the sustainability of his plan, and those scientists who did challenge the leaders programs were prosecuted.

Reforestation and [forest protection](#) are now major pieces to China's environmental policy. Villages have been used to maintain and develop these initiatives since the 1990's. Yet the illegal cutting and trafficking of timber are still an issue (Ives, 1994). The policies regarding the mining of minerals are in place, yet the practice is going unchecked, according to many nomads' reports.

Many Tibetan elders share the sentiment that Beal (1990) captured in the quote "It is not possible to try to control and alter the *Changtang* (Tibetan Plateau). We do not try- instead we use our knowledge to adjust to it (p. 57)." This mindset is changing as nomadic and farming youth go to school instead of learning the ways of the land.

As formal education becomes mandatory, the literacy rate is rapidly increasing. Instead of tending the livestock, Tibetan children are sent away to school to learn Chinese, Tibetan, English, and math. Even the nomads and farmers who remain in remote areas face choices as to what parts of culture they will keep and what they forget. New "luxury" items are flooding the globe and even the most remote nomads of Tibet are being hooked into materialism. Rapid changes are occurring as a result of these new materials. For example, [Motorcycles replace horses](#), solar panels replace fire, gas stoves

replace the hearth, and plastic tents [replace woven wool tents](#). Many youth are shifting away from the nomadic and farming lifestyles and losing the connection to the elements and spirits. In many ways the Tibetans are losing the *Bon* worldview.

2.2.1 [Tibetan Nomadic Cosmology](#): **Buddhism and Animism**

Cosmology is what the Tibetans believe controls life, a persons' place in society and the environment. Tibetans have been informed by generations of oral history, and Buddhist scripture (Salick, 2012). Shamanism and Buddhism have formed much of the Tibetan Cosmology. While Tibetan Buddhist cosmology may be greatly influenced by scripture, the nomadic view is understood more from experience of the natural world and the oral histories shared by community members. Tibetan nomads see the world as having a dimension of spirits. It is partially through ritual that these spirits are able to communicate with the humans. The greatest concern of the nomadic Tibetans is still the relation with the earth bound deities. Land gods (*yul lha*), water gods (*klu*), mountain gods (*sa dak*), local deities (*gdhi bdag*) and earth gods (*sa bdag*). The relationships the nomads have with these gods create much of the environmental moral code.

Local gods play an interesting role in Tibetan political history. Most Tibetans believe that gods can be “created” or undergo ontological change when a place is captured,. In this way, there is space for shifts in power (Salick, 2012). For instance *Padmasambhava* subdued many of the malevolent spirits that originally obstructed his efforts to introduce Buddhism to the region. These spirits are now revered as the [protectors of Buddhism in Tibet](#).

These deities are understood to often be vengeful and sometimes benevolent. They create a fear-based relationship; therefore, communication with them is crucial for

Tibetans. Animal sacrifice was stopped after Tibetans adopted Buddhism, but there were still various ritual communications with spirits. Tibetans communicate to the spirits through incense burning, [flying prayer flags](#), walking or prostrating [khora \(circumambulation\)](#) of sacred sites, building temples, creating [mani piles](#), constructing *stupas*, [turning prayer wheels](#), and following ecological laws (Salick, 2012).

[Tibetan cosmology is modernizing](#) with the impact of scientific research in the area. Scientific explanations of the causes of global warming may indeed be impacting the views of the Tibetans, yet the foundation of their relation to the earth is based in Buddhism and Animism.

2.2.1 [Bon](#)

Bon is as difficult to define as Animism. The more I relate and learn about *Bon*, the more difficult it becomes to describe. *Bon* refuses to fit neatly within one definition. *Bon* has often been referred to as a religion, though many scholars would contest that the system is a holistic worldview that does not keep the boundaries of a religion (Martin, 2001).

The identity of *Bon* and its followers, *Bonpos*, has been challenged by others because of the lack of texts recounting its origin and history. While heavily an oral tradition, there are also many *terma* (hidden treasure tradition), however, which is one of the many *Bon* traditions that have been adopted by Buddhism. The founder of *Bon* was said to have been born seven thousand years ago and named *Tonpa Shenrap Miwoche*. While there are life stories of a human saint by that name, His spirit being is also understood to be Mount *Kailash*, a holy mountain in Western Tibet. Thus the mountain is a sacred site

of pilgrimage for *Bonpos*. The site also holds religious importance for Hindus, Jains and Buddhists.

Not only are sacred sites similar to [Buddhist sites](#) but also the Bon scripture is so similar to Buddhist scripture that *Bonpos* have been accused of plagiarism (Kvaerne, 2005). Many of the deities, texts and rituals are practically identical. It is difficult to say how Buddhism influenced *Bon*, as there was very little record of the system that existed pre-8th century Tibet.

Bon, many times described as the animist religion that was the predecessor to Tibetan Buddhism, is still a major part of the Tibetan worldview. The Tibetan government in exile understands *Bon* as the sixth sect of Tibetan Buddhism, yet observations and reports of Tibetan perspectives and practices, one may see Tibetan Buddhism (as practiced by Tibetans in Tibet) to be an offshoot of *Bon* (Karmay, 2000).

Bon has been persecuted for centuries, although it may have been the underlying truth for the Tibetan cultural traditions and rituals. (Pvearne, 2000) Just as nature based belief systems were looked down upon for centuries, even by leading anthropologists like Tylor, the Tibetan people themselves are dismissive of Bon although the majority of their practices are *Bonpo*. The Tibetan people often recognize Buddhism as more sophisticated and even of having more truth; hence, the Buddhist temple would be placed respectfully on top of the Bon temple in *Rebkong*.

The basis of *Bon* are the five elemental spirits of space (*theurang*). They are: air, fire (*mi*), water (*lu*), and earth (*SaDag*), the four seasons, and the natural spirits of the Earth. Part of Earth spirits are the plants, trees, mountains, lakes, rivers and sky etc. When people disturb the *SaDag* by climbing mountains without supplication or digging

the earth without mindfulness, the spirits may retaliate. The same follows when the *theurand*, *mi*, and *Lu* are disturbed by people, be it through pollution or exploitation (Wangyal, 2010).

Bon understandings are based on the conditions of these elements. When the elements are disturbed, the human body is also disturbed. Like most animist traditions, respect must be held for the natural world in order for people to be well and healthy. *Bon* healers work on disturbances to the physical body (*nad*) and the spirit/mind (*don*, often used with the same definition the term *sym*, translated often as mind and sometimes as heart or soul or spirit- that sentience which reincarnates) by recognizing the elements, which are out of balance. The [Bonpo healers](#) are often called shamans, as they use divination (*mo*) or astrology (*tse*) to diagnose and deal with issues that are occurring within a person or even in a space.

The founder of *Bon*, *Shenrap Miwoche* gave teachings on three distinct paths to enlightenment: the Sutra (*Chi Gyu Tsen Nyi Thek Pa*); the tantra (*Ngang San Wa Ngak Kyi Thek Pa*); and the *Dzogchen*, self-liberating path (*Sang Wa Sem Chok la Na Me Oei Thek Pa*). Within the tantric teachings, there are Nine vehicles in the *Bon* tradition, which are closely related to the Nine *Yanas* teachings of the *Nyingma* from the old school Buddhist tradition. The nine vehicles are split into causal ways and the shaman's path: The way of Prediction (*Chashen*); The Way of the Visible World (*Nangshen*); The Way of the 'Magical' Illusion (*Trulshen*); and The way of Existence (*Sichen*).

Chashen is the diagnosis that uses techniques like *mo* (divination) and *tse* (astrological reading) to recognize imbalance and human-spirit disharmony. The use of a shamanic diagnosis can tell a person if the experiences they are having is due to spirit pos-

session or an energetic imbalance. While the Dalai Lama frequently dismisses these practices for the general lay people, he himself has a shaman named the *Nechung Oracle* who provides predictions for him. The *Nechung* is highly regarded within Tibetan society both inside Tibet and in Exile.

Nangshen is the second way of the Bonpo's tradition. Practitioners use this to work within the visual world by making offerings to please the spirits. Many Tibetans who claim to be Buddhist perform daily ritual offerings that are derived from *Nangshen*. In order to bring prosperity into the home, dispel bad spirits and to purify, many households offer foods and drinks upon their altars or their rooftop and sometimes into a fire. Offerings are also used in the case of spirit possession and shamans are able to ward off the malignant spirits with the use of [tsampa \(barley flour\) effigies](#).

Trulshen, the third way, is for the Shamans to conquer spirits that are giving humans a difficult time. The Shamans use written script practices ([sadhana](#)) to communicate. Within each *sadhana* there are different words (*mantra*), gestures (*mudra*), and meditations/ visualizations (*samadhi*).

Sichen, the fourth way deals with the ideas of the soul (*la*), the mind (*yid*) and thinking mind (*sem*). The *La* is also known as the *alaya (skt.)* consciousness, which is explained in the Buddhist influenced texts to be the holder of karmic imprints. The *Sem* gives off the emotions and the feelings experienced by the *Yid* (Wangyal, 2010).

These Bon practices, while very similar to Buddhist meditations and practices have a different taste, one that is more intertwined with the elemental and spirit world, interacting with it constantly offering respect.

Bon history is equally as blurry as its definition. Chinese history has record of the Tibetan people in the Western plateau as early as the second century (Kirkland, 2008). Kvaerne (2000) described *Bon* in two different ways. One *Bon* is defined as the religion that existed in Tibet prior to Buddhism spreading throughout the plateau in the eighth century. The second way in which the term *Bon* is used is to define the religion that appeared at the same time the second wave of Buddhism appeared in Tibet, around the eleventh century and also believed to have come from India (Kvaerne, 1995).

Researchers have had a difficult time distinguishing the two types of *Bon*. Some experts have had difficulty distinguishing *Bon* from Buddhism and have even called *Bon* a sort of unorthodox version of Buddhism. It is important to note that Tibetans within Tibet and in exile who consider themselves *Bonpos* (followers of *Bon*) believe that it is a distinct religion completely separate from Buddhism. Unfortunately this view is rarely held by Western scholars who often accuse *Bonpos* of plagiarism due to the dual-use of the term *Bon* (Kvaerne, 1995).

Bon is believed to have begun some 17,000 years ago by a King named *Shenrap Miwo* (Wangyal, 2000). He lived in Western Tibet, a place called *Tazik*. It is said that he was perhaps born in the region that is now Afghanistan or Pakistan, as this area was thought of as a mystical region, where the Buddhist master *Padmasambhava* was also believed to originate from (Kvaerne, 1995). *Shenrap Miwo* is considered to be an enlightened being who shared his teachings with the world much like Buddhism's *Sakyamuni* Buddha, though their life stories are quite different. Followers of *Shenrap Miwo* were called *Shen*. He had a group of six disciples who translated and dispersed his teach-

ings. Throughout the years many of the main disciples and transmitters of this doctrine were females (Kvaerme, 1995).

One reason given for *Bon* to resemble *Buddhism* was the period of persecution that *Bonpos* faced in Tibet. It was after *Bon* emerged from “exile” around 1140 that *Bon* texts began to resemble Buddhist ones. During the time of *Trison Dettson* in the eighth century (755 – 797), the *Bonpo* priests were banished (Kvearme, 2001). The *Bonpos* who remained and followed the most traditional teachings were “more often ignored than explicitly tolerated” (Kvearme, 1995). The *Bonpos* who held on to the traditions and teachings consider themselves the upholders of Tibet’s true religious heritage.

The *Bon* tradition was again challenged in more recent history, which actually brought the Tibetan *Bonpos* and Buddhists together. Just as the Tibetan Buddhists were destroyed by the Cultural Revolution in the 1950’s, the *Bonpos* faced the same destruction. Similar to the flight of Tibetan Buddhists, the Tibetan *Bonpos* have become rather successful in spreading their teachings from refuge or in exile in India and Nepal. The *Bon* monasteries in Nepal are flourishing, even sending masters around the world to disseminate the *Bon* teachings. The *Bon* masters are not as well published as the prolific Tibetan Buddhist masters traveling westward, yet the books by *Tenzin Wangyal* have disseminated the *Bon* traditions, which are mixed with the Buddhist philosophy. The *Dalai Lama* and the Tibetan government in exile have welcomed the *Bon* order into the community that is overwhelmingly understood to be Buddhist. There are actually many Buddhist practices such as *Mo* (divination) that the *Dalai Lama* discourages (although he uses divination himself). The Tibetans in exile are generally more educated regarding

the distinction between *Bon* and Buddhism, while the Tibetans inside of Tibet interweave the practices without distinction.

[2.2.2 Buddhism as practiced in Tibet](#)

When the Buddhist saint/shaman *Padmasambhava* entered Tibet, he faced many obstacles. It is said that the gods and goddesses of the elements tried to kill him with lightning, attempted to crush him between mountains and tried to smash him with boulders. This skillful master is renowned because he was able to “tame” the elements and convince them to be patrons of the *dharma*, Buddha’s teachings (Tsogyal, 2004). From these stories, Tibetans see the spirits of the earth, water, air, fire and space to be followers of the Buddha, as they see themselves.

While the stories of the Buddha do speak of him wandering different realms, the *sutras* say very little about beings that are not sentient (having mind). The current (14th) *Dalai Lama* often speaks of the human tendency towards anthropomorphism, and our lack of recognition of the sentient nature of nature. The spiritual leader frequently mentions the benefit of spreading our compassion and care to plants and other dis-embodied beings.

The *Dalai Lama* is perceived as a *bodhisattva*, a follower of the Buddha’s teachings who has taken the following vow:

“As long as space endures,

And for as long as living beings remain,

Until then may I, too, abide

To dispel the misery of the world.” (Kaza, 2000)

The *Bodhisattvas*' vow is taken by all Tibetan Buddhists. They perceive "living beings" as inclusive of the earth, and the spirit realms. While ultimately Buddhist philosophy negates the existence of spirits, Tibetan Buddhism has included beings of all status into the foundation of their belief system.

2.2 [Human Nature Connection: Animism](#), Shamanism, Indiginism & Biophilia

The human nature relationship has been explored deeply in research on animism. Harvey (2010), a leading expert on animism, has distinguished between an old academic understanding of animism and a new animism. In "New Animism," he defined animists as "people who recognize that the world is full of persons, only some of whom are human, and that life is always lived in relationship with others" (p. 16). This understanding of relations and interconnectedness leads to a culture of deep respect for other persons, in whatever form they may take.

One of the first authors to publish using the term animism was Tylor (1871). Tylor's anthropological study of the animist culture led him to believe that "Animism began and continues as a way to make sense of the world, it is a mythopoeic mode of discourse that explains life and events to those not yet fully acculturated to the practice of rational science" (Harvey, 2010, p. 18). The first understandings of Animism was not that it was the foundation for religion, rather it was viewed as a confused belief system concerned with spirits, souls, or life-energies. Taylor's writings on Animism dismissed the system as mistaken view, and thus the perception of Animism followed. To this day many scholars continue to view Animism as primitive and mistaken, rather than the foundation and core upon which the world's major religions are built upon (Harvey, 2010).

Scholars such as Harvey and Ingold are attempting to redefine Animism within Academia. While Buddhism has become well respected and even called by some a science of the mind, Animism is still regarded by many as a primitive thought system.

While anthropologists use the term animism as a blanket statement for a belief system closely related to nature, psychologists are terming this type of human-nature connection as Biophilia.

Today, some social scientists are using theories such as biophilia to explain the animist system. The system clearly proves human tendencies of biophilia as the emotional connection between human beings and other living organisms. The social structure, especially the ceremonies around food display the respect for the interdependent web of being. Between the prayers said while hunting and eating or the mindfulness that is used while harvesting, animists honor the relationships between beings (Harvey, 2010). Biophilia allows for eco-centric perspectives that are now being used in the deep ecology movement. The natural biophilic ways of the Animists demonstrate the strong [human connection](#), which naturally occurs with the environment (Harvey, 2010).

Animists are well known for listening, and science is famous for speaking for the natural world.

The aspect of listening is something that displays the level of respect given to all beings. Across indigenous cultures, this respect is displayed in various ways. Harvey (2010) argues that the dualistic, anthropocentric modern worldview is not only colonialist, but also sexist. He calls for the “emancipation of all kinds of life” by humans recognizing the personhood of all beings, understanding our interdependence and offering our due respects. He defines new animism in terms of a way of life by saying, “a person is

responsible for the wellbeing of those whom they are in touch” and there is nothing in existence which is separate from us- therefore our responsibilities are vast, our community endless (Harvey, 2010).

The Animist system, which is tied closely with nature, allows Animists to be resilient and reflexive to environmental changes (Ingold, 2011). The world is ever changing, especially with the effects of global warming, our cultures will need to be flexible and responsive to the earth’s changes. It is in understanding our interdependence with the earth that we are able to listen to its changes and move in accordance with them, instead of against them.

Ingold (2011) emphasized the differences between scientific knowing and the listening and understanding that is used by many Animist peoples. He emphasized the quality of knowing rather than the quantity of what is known. It is important that we know what is occurring in this world that we inhabit, this takes a deep sensitivity and a particular sense of listening. In developing these skills, people may develop instinctive knowledge on how to respond to certain natural circumstances.

Ingold (2011) also makes an observation, similar to Harvey’s, that scientific methods and Animist ways of knowing are very distinct. Anthropological methods and other scientific ways of acquiring knowledge can share greater wisdom with others by *studying with* rather than making a *study of*. The [art of listening](#) is a technique that Ingold stresses. It is one that I try to employ through Mindful Inquiry throughout this study. In an attempt to respect the participants and their indigenous belief system, I studied indigenous methods, as the Bon system is indigenous to Tibet.

Just as Buddhism and Bon are intermingled, the terms Indigenism and animism are also often heaped together. While the Bon system may be labeled as animist, the system itself is indigenous and very much helping me distinguish this work as place-based research. Although I had never discussed Tibetans as indigenous peoples, the thought systems and the techniques that I trusted to complete this research were indeed indigenous.

Both the old and new Animism have been used to refer to a worldview held by indigenous peoples. But, Animists are not necessarily indigenous people. The term “old Animism” is used by researchers to describe indigenous belief systems defined by a person's belief in the spirit world. Modern researchers like Harvey (2000) use the term new animism to describe the practices of respecting beings and recognizing the interdependent web of life that we all are a part of. Many indigenous and animist peoples think in relational terms rather than thinking in a linear thought pattern. Everything including the seasons is seen to be a matter of intention (Harvey, 2010). It is this systems and place based worldview that places the Tibetan nomads as an indigenous people.

The nomads that I work with in this region of *Kham* never spoke to me about [Shamanism](#). They often go for healing from local lamas, but they do not use a term other than the Buddhist designation for reincarnated or enlightened beings “*Rinpoche*” “*Tulku*” or “*Lama*”. In the northern area of Rebkong, where there are Bon shamans, they use the term shaman, and even have a shamans festival each year!

Just as the term Animism denotes different meanings, Shamanism has also been used to express a number of different belief systems and practices. Shamanism is thought by some to be the world's oldest religion, and Animism is thought to be the

foundation of religious thought. The term shamanic has been used to describe hundreds of cultures worldwide, though the original religion is said to be of the Siberian Tungus people (Vitebsky, 2000). Morrison (2000) tried to distinguish the shamanistic rituals that may be viewed as dogmatic as a way to understand the human and other-than-human interactions. Since persons often go unseen, observers who study shamans often misunderstand the rituals that are grounded in the understanding of interdependence, which is the basis of Animism.

While the term ‘Shaman’ comes from Siberia, it has been applied to most indigenous, animist cultures. The intersections between the three terms are often debated, as many North American tribes deny the title “shaman.” The term was used for centuries to denote witches, mediums and oracles, none of whom were much respected by those using the name. Harvey (2000) wrote about the definitions of Shamans and Animists used in the scholarly realm. Even today, there is debate regarding the definitions of the terms. Harvey also calls to attention the perpetual lack of respect given to these ways of practices. My intention is always to offer the highest respect to these practitioners.

Shamans appear everywhere, not just among Animists, though among animists, shamans are given a place. In many modern societies shamans are said to be mentally ill, and upon the first anthropological studies of indigenous people, many reports of mental illness may be found (Vitebsky, 2000). In this research, those who connect with nature, and communicate with the spirits are listened to without judgment.

The distinction between Shamanism and Animism may be made by understanding Animism as a way of respectfully living with life, while Shamanic practice is the use of technology to participate in this living spirit world. Shamans are often the communi-

cators in Animist traditions. The Shamans open themselves to a different level of listening in order to bring out the voices of other persons, be they human or nonhuman (Vitebsky, 2000). The accident during my research in the winter of 2013 demanded my respect for the spirits of the earth and its elements. I began to wholeheartedly adopt the Bon practices that I was studying, and that I had originally deemed unintellectual ceremonies of blind faith. While now, I may not fit with my Tibetan Buddhist academic colleagues, I feel closer to Tibet and the nature of nature, which is in itself the Buddha's teaching. I will never be a Tibetan Buddhist. Being an American, I recognize where my practice delineates from someone who is a Tibetan born, Tibetan Buddhist practitioner. Yet this research and my years working and becoming closer with the nomads has brought me to celebrate the animist nature of Tibetan Buddhism. In the beginning I admit that I scoffed at the incongruity of the ceremony of spirit world with the recognition of emptiness.

2.2.1 [Buddhist and Animist Ecology](#) Both Animism and Buddhism are based upon philosophies of interdependence.

Kaza (2000) emphasized interdependence (*pratitya-samutpada skt. Ten Drel tib.*) as something that leads the ecological ethic for Buddhist cultures. The concept that everything is connected in a web of existence is the foundation of the Buddha's teachings. From this foundation comes the understanding of *karma (skt)*, and/or cause and effect (*Lay gym dre tib.*). Kaza, in her book *Dharma Rain* includes teachings from the Buddhist world that elucidate the philosophy of interdependence as an ecological principal. Tucker (1997) also sees this principle of interdependence as an "exportable" philosophy

for the environmental movement. Buddhist masters emphasize environmental responsibility for the wellbeing of all beings (Kaza, 2000).

Today, in Buddhist traditions across the world, as awareness increases regarding the state of the ecological crisis, many teachings, practices and even vows are being created in an attempt to address the issues (Kaza, 2000). Thich Nhat Hanh (2008) teaches mindfulness as a way of [practicing out of one's own understanding of interdependence](#). Mindfulness of our human impact on the world and upon each other is a part of taking the Bodhisattva vow. The Bodhisattva vow is a Mahayana Buddhist principle that one will strive to free all living beings from suffering. With a rising awareness of ecological suffering, the *Bodhisattva* vow has been brought to the forefront of the Buddhist environmental movement by leaders such as Hanh (2008).

The Dalai Lama, the spiritual leader of Tibet, has taken Gandhi's lead on using the philosophy of *ahimsa* (skt.) or nonviolence, which is both a Hindu and Buddhist practice, as an ecological philosophy. In 1989, when H.H. the Dalai Lama won the Nobel Peace Prize, he called for Tibet to be established as a "Zone of Peace." In this plan, the leader set out guidelines on the ecological protection of the region. The Tibetan Biosphere would follow international ecological conservation standards in order to preserve its bio-cultural diversity (Edwards, 2010). The use of Buddhist theories of interdependence may work hand in hand with the animist culture that is a part of Tibetan Buddhist culture. In using the philosophy of interdependence, the international community may be able to develop ecological protection for the precious region (Tucker, 1997).

The relationships between the human and the earth and its resources are not simple. In examining the language of the culture one is able to dissect pieces of the relation-

ships. Harvey (2006) found many words that gave inanimate objects (to the scientific view) animate names. The belief system that all objects have life has been translated as an ecological worldview. In Tibet, although most of the population calls themselves Buddhist, there remain many Animist practices, belief systems and cultural values of the Bonpo (Kvame, 2010). The *Bon* belief system is an animist system that existed before Buddhism spread to Tibet in the eighth century. Many *Bon* traditions were simply folded into the Buddhist system as Tibetans accepted the religion.

2.2.2 Traditional Ecological Knowledge

Traditional Ecological Knowledge (TEK) is currently a hot topic among academics and within academia. As ecologists scramble to protect from and reverse the patterns of global warming, anthropologists race to record the cultures that are disappearing along with the earth's plants and animals. Richard O'Connor said: "As quaint customs and exotic hill tribes are celebrated in museums, the media and tourism, the populace- or perhaps only the urban middle class-comes to know itself by what they once were and who they are not." (O'Connor from Scott, 2009, p. 324)

Culture is degraded when the environment is degraded and vice versa (Guneratne, 2006). While Traditional Ecological Knowledge is always important, it may not always hold the position of conservation (Guneratne, 2006).

The research site for this dissertation is within the KunLun Mountain range, but the whole Tibetan Plateau is often considered to be within the Himalayan region. The Himalayan region contains twelve nations and 3.133 billion people, which accounts for 45.5% of the world's population when it was taken in 2010 (Jasparro, 2013). There has

been much research in this region, especially on the subject of TEK, which has provided as a basis for the work contained here.

Ingold writes about the interdependence of culture and the environment. “We need not assume that culture is a coherent, integrated whole; rather cultures are relational and positional, and depending on the scale, exhibit or are marked by varying degrees of discursive unity (Guneratne, 2006, p. 5).”

The belief that indigenous people are simply the victims and cannot solve the environmental crisis that they face is one of the most erroneous views that came out of the 1970s THED scare. THED had been based off of Western scientific snapshot studies of the region, and little voice was given to the actual Himalayan people (Guneratne, 2006).

Traditional Ecological Knowledge is now being recognized as a key solution to our ecological issues, therefore it may be even more important to hear the symptoms of the issue actually described and diagnosed by the people living it, rather than diagnosing the earth with an illness that scientists took a snapshot of.

The issue of traditional knowledge loss has been mounting as formal education becomes the norm the traditional knowledge that has been transferred informally for generations is now being lost. Many cultures teach children in the home that preserving plant life is just as important as preserving human life. This reverence for the animate and inanimate is rarely taught within the formal educational systems (Guneratne, 2006).

Cultures transform according to our environments, and our environments change according to our cultures. The impacts of environmental change as reported by the nomads will be detailed in Chapter 6. What has been already published on the topic and the

results of this survey are similar. One very important overlaying theme is that changes seem to be occurring more suddenly recently, with more severe weather and cultural transformation.

The following report from Subba is becoming exceedingly common in the Himalayas:

“The physical environment of the eastern Himalaya has been steadily degraded in every respect. The forests have vanished, wells and streams are running dry during the winter, and the soil has suffered erosion. The herbs that the Limbus used for treating diarrhea, headache, nausea, skin diseases, etc. are no longer available nor do they easily get the plants that they used for their rituals. Their crops frequently fail and are subject to the depredation of wild birds and animals. Landslides are frequent and sometimes hazardous to humans and cattle” (Subba, 2010, p. 120).

It is in this way that the loss of ecological resources causes the loss of ethnic identity, as the loss of place can shift the spiritual basis of a person.

Besides changes in medicine, [herding patterns and food access](#), a major impact of climate change on TEK is the change in language. Education mainly happens orally, and experientially, in many indigenous cultures. Due to the interdependence of language and knowledge, when a plant disappears the word disappears slowly a whole history disappears. Tibetan is on the endangered language list; the list does not even consider the dramatically individual dialects that have been cultivated in these secluded mountainous regions, which are in even more rapid decline.

Tibetans speak the Tibetan language, which is in its own language group called Tibetan-Burmese. Although the written script was derived with help of a Sanskrit scholar to allow for Buddhist monastic studies, the language was in existence far before the use of script. In *Kham*, Tibetans speak *Kham kay*, which is a dialect different from *Lhasa-kay* of the central region, *Golok kay* of the Northern region of *Kham* and Southern *Amdo* and *Amdo-kay* of *Amdo*. Within each of those dialects are further subdivisions of dialects. When I moved to *Nangchen* I was almost fluent in *Lhasa-kay*, on the road to be a dharma translator. I was shocked when I could only communicate with three people from the village- the 3 literate adults- *Amnye Ngodrup* (who I call Grandpa, who looked after the *ngakpa* monastery where I lived), *Tsewang Trigyal* (the headmaster of the school), and *Dhundrup Phurbu* (The local doctor). After I refused to study Chinese, some villagers reluctantly began teaching me their language, which they promised would be useless.

In learning the local *Nangchen-kay*, I learned the [distinction between flowers, wild-life](#) and domesticated animals. I also learned distinctions in yogurt, butter and meat. The different expressions for sensations, such as a burning, aching and chills helped expand my view of feelings in the body. These are just a few of the elements that English does not have words for that I learned about in *Nangchen-kay* and will remain in my mind through that language. When I live in the United States I speak to my Tibetan dog in this language, and we keep trying to keep these ideas alive. However, when I am far removed from the grasses, herbs, and food, the words slip from my mind. I imagine this phenomenon happening for all of my Tibetan friends and students who leave their villages to go to the cities and even abroad. When we are removed from an environment,

items disappear from our life and the language to speak of those things disappears as well. This phenomenon has influenced my work because I see the need for cultural and environmental preservation equally.

When language undergoes change culture changes. Relations and concepts transform and practices are replaced. Changes in *Lhasa-kay* are already clear. The change of [Nam-shi](#) (sky-character) as the only term used for weather, rather than seasonal terms including *char-du* (rain-time), and the adaptation of forecasting terms, are only one example of the modernizing language. One distinction between the new language and the traditional language is the relation between humans and nature. The traditional view holds that nature is observed qualitatively while the modern language is associating with western science and using a quantitative system of relating to nature (Mihiyo, 1978).

2.2.3 [Human Spirit Relations](#)

Inherent within *Bon* and animist traditions are the human-spirit-nature connections. For most Tibetans nomads, whether they identify as Buddhist or *Bon*, the relation with the earth and its raw resources are crucial for survival. The interpreters in this human-nature relationship are the spirits of the resources, the distinction between the actual physical form of the resource versus the spirit is sometimes difficult to decipher, but the following review of literature is intended to offer a brief background for this topic.

Lu

Water Spirits are called *Lu* in Tibetan, in Nepal and India they are referred to as *Lu*. *Lu* are understood in a variety of ways. Some describe the beings as serpents, others as spirit translators for the waters. The [hooded serpent](#) was a sacred creature in ancient India, which was closely related to sun worship, as they are believed to be descendants

of the sun and ancestors to the human race. It was illegal to kill serpents in India, since they were understood as protectors of the continent (Oldham, 1905). In Buddhist India the *Lu* were thought to control the waters, be that in the ground or from the sky, these deities were in control of droughts, floods and the balance of water.

Lu are part of most Hindu and some Buddhist cultures. Indian, Nepalese, Bhutanese, Balinese and Tibetans all have stories of *Lu*. The beings are sometimes believed to take form as snakes, frogs and alligators (and sometimes even transform into humans). Most *Lu* are unseen forces that protect the springs, rivers, wells and other water sources. Tibetan belief systems around *Lu* are carried in two main forms: orally in stories and in the literature of Buddhist Hagiographies.

For example, the Pakistani Master *Padmasambhava* who brought Buddhism to Tibet was eventually assisted by the *Lu* and mountain spirits(after taming them) in bringing Buddhism to Tibet. The story of *Padmasambhava* conquering the wild territory of Tibet tells of the challenges, subjugation and finally, the camaraderie between the Buddhist prophet and the rulers of the water and earth. The tales from this eighth century conquest are not the only records of the *lu*. The stories of missionaries and explorers such as Heinrich Harrier also document the sometimes wrathfully protectors of Tibet.

It is said that 104,000 years ago, serpents offered teachings on two different landmasses, which then sunk to the bottom of the oceans. It is thought that these sacred teachings would be slowly transmitted for the enlightenment of human beings.

Reverence for serpents and dragons are a cross-cultural tradition. In ancient artwork from all corners of the world we see images of these majestic creatures often symbolizing wisdom, at the same time also instilling fear. While Christianity demonized

serpents, other traditions have held their strong associations with the sacred creatures (Pinkham, 1997). This symbolism of snake like beings is still quite meaningful in Tibet.

As a symbol, snakes have numerous significant attributes. Its ever-transforming body, with the ability to forever shed its skin is seen as being immortal, and as having the ability to be reborn. Its androgynous nature also lifts it beyond the bounds of gender. And the coiling of its body demonstrates its spiritual connection to the higher frequency (Pinkham, 1997).

In Asia, many cultures believe that not only did the human race evolve from these serpents, but that they have also contributed to the establishment of yoga and Buddhism and other philosophies that lead to the enlightenment of the human race. The semi-mythical stories of Indian lands ruled by *Lu* are filled with historical facts, such as the establishment of the capital *Srinagar* of *Kashmir*, (meaning great serpent), and other cities along the great waterways, such as the Ganges. The greatest of all *Lu* is said to be Lord Shiva. There are many *Siddhas* (spiritual adepts), and *Mahasiddhas*, who are considered as human forms of *lu*. *Shakti*, *Shiva*'s consort was at times in the form of a serpent. Hindu's believe that it is from this union of *Shiva* (emptiness in male form) and *Shakti* (wisdom in female serpent form) that the universe was manifest. Besides mythical beings such as *Shiva* and *Shakti*, historical leaders like *Patajali*, the revered author of the *Yoga Sutras*, has also been deemed as a *mahanaga*, an incarnate of the primordial seven-headed serpent *Shesha* (Pinkham, 1997). It is said that the greatest of the *MahaLu* is *Gautama Buddha*, the awakened one (Pinkham, 1997). *Gautama's* Royal *Shakya* family descended from the *Shakya Lu* (Pinkham, 1997).

The legends surrounding *Gautama* are filled with stories of the Buddha interacting with the *lu*. During his quest for freedom, *Gautama* was protected by numerous *Lu* and is often depicted as sitting under the Bodhi Tree in *Bodhgaya* India with a crown of serpents. Immediately after his enlightenment, he met with a *Naga* queen who was first to recognize his spiritual attainment and built him a throne. During Buddha's teachings in *Saranath* a *Naga* king was so touched by the dharma that he decided to convert his kingdom. After sometime all Indian *Naga* kingdoms were Buddhist. The *Lu* protected Buddhism in India until the fall of the *Naga* Empire. Another historical figure, *Nagarjuna*, a Buddhist *mahasiddha* from the 2nd century was one of the main philosophical protectors of Buddhism developed Buddhist *tantra* with the help of *lu*. Not only is his name of the *Lu*, but much of his revelation, such as the famous mantra *Om Mani Padme Hung* come from the water spirits. Some stories say that *Nagarjuna* lived for six hundred years, his long life attributed to being a *Naga* (Pinkham, 1997).

Lu were not only popular in India. In China, the *Lu* were symbolized as dragons. Throughout Daoist texts and art there are numerous references to these mythical protectors. The Tibetans have the symbolism of both the dragons, on the roof of each and every monastery as well as in the brocades and art traded with Chinese via the Silk Road, while also inheriting the Indian Buddhist stories of the *lu*. But Tibetans had beliefs in *Lu* before contact with Indian Buddhism or Chinese cultural influence. Water spirits are one of the eight classes of beings that are recognized by Tibetans in the pre-Buddhist animist tradition of Bon. The Bon tradition honors the spirits of the environment that seem to be celebrated in all prehistoric cultures.

2.3 The Third Pole

China holds 20% of the world's international water basins, 53 in number. 39% of Asia's land is within those 53 basins (Jasparro, 2013). The major rivers of the Himalayas include the Yangtze & Yellow Rivers, serving China; the Mekong, serving China, Laos, Myanmar, Thailand, Cambodia, and Vietnam; the Brahmaputra (*Yarlung Tsangpo-Tib*), serving China, India, Nepal, Bangladesh and Bhutan; the Indus, serving China, India, Pakistan and Afghanistan; and the Amu Darya, serving Afghanistan, Tajikistan, Turkmenistan, Uzbekistan. The Ganges (Ganga-Hin, Padma-Tib) serves India, Nepal and Bangladesh. The Salween (Nu-chi) serves China, Myanmar and Thailand. The Syr Darya serves Kyrgyzstan, Tajikistan, Uzbekistan, Kazakhstan. The Irrawaddy serves Myanmar.

The Yellow River (Machu-Tib. Huang Hu-chi) is the third largest river in the world. The majestic river changes colors as it flows 5,464 kilometers on the edge of the Qinghai- Tibet Plateau, through the Loess Plateau, and beyond into the sea (Shapiro, 2011). The Yellow River has tributaries to the Yangtze in Qinghai and is called "China's Water Tower" (Jasparro, 2013p.115). The river is famous for the amount of sediment that it carries, sometimes up to 40 percent silt (Shapiro, 2011). Called "China's Sorrow" for its tendency to flood, it is also honored as the birthplace of Chinese civilization. Since China's industrialization, flooding has only become more commonplace. Before 1949 there were only 23 large to medium sized dams in China, now there are over 80,000 (Shapiro, 2011).

Mao's saying "man must conquer nature" was a driving force for the damming of China's sacred rivers. The development of the land was also a sort of competition that

Mao had with the Soviet Union. The two were racing towards development (Shapiro, 2011). The push for development strained the resources to such an extreme that China faced the largest man-created famine in history during “the great leap forward” (Shapiro, 2011:75). Although many Chinese people understood the following floods and droughts as nature punishing them, speaking out against the orders of the government was prosecuted with such veracity that no one dared to speak out- even for the rights of the sacred earth.

One of the most crucial ecological regions today is called the Sanjian (three rivers) plain, and the Heilongjiang, known as the Great Northern Wilderness. Not only does the area contain the Amur, Songhua and Ussuri rivers but before 1949 the region had five million hectares of wetlands, today there are only two million hectares remaining. During the 60s and 70s, over a million educated Chinese youth were sent to the region to prepare for war with the Soviet Union. It was during this time that the area was destroyed (Jasparro, 2013).

For the population-dense nations of Nepal and India, the situation of the Brahmaputra is crucial. The Chinese dams on the Brahmaputra are said to increase the risk for flash floods in India. In 1954, Nehru signed the (Panchsheel) Five Principles Treaty with Beijing agreeing that India gave China the “internationally sanctioned right of prior appropriation- a legal free hand in other words when it came to Tibetan waters” (Jasparro, 2013, p. 123).

Some scientists point to damming of the rivers as being the largest ecological mistake China continues to make. The biggest of these controversial dam projects is the Three Gorges dam project (Sanxia), an enormous undertaking. China holds the source of

so many nations' water that nations may begin to look towards an agreement much like Teesta Dependent Area (TDA) proposed between Bangladesh and India. TDA has a formula to calculate the water entitled to each nation based on satellite images of the waterways.

As China's population and economy grows, the need for resources expands, making it unlikely for China to agree to anything like the TDA. China not only uses the water for drinking, washing, etc, but it is also a major source of electricity. China has over 22,000 hydroelectric dams (Jasparro, 2013). China plans for 28 dams on the Brahmaputra, the waterway is held as sacred to both Nepalese and Indians. Reaching a bilateral agreement regarding this river is important for numerous reasons. The Tibetan Autonomous Region contains the root of both the Indus and the Yarlung Tsangpo-Brahmaputra, these two rivers are thought to have the largest potential for current and future water energy for anywhere in the world. The rivers continue out of Tibet into Nepal, India, and Pakistan from the Himalayan and Pamir Mountains. While the conservation of the area is clearly needed, the political situation makes the decisions difficult. Choosing between conservancy and damming is a complicated decision (Ives, 2004). Not only does the river provide water and energy, but it is also a major economic resource. In his decade of travel throughout China, Grumbine (2010) noticed that water was being turned from a commons into a commodity. By building dams, Yunnan alone plans to double its GMS trade to be 60 billion USD within five years.

Scientists studying the hydro-climatic changes in the Hindu Kush region point to a lack of data on the northern region's glacier melt, precipitation, and river discharge (Miller, 2012). Miller's longitudinal research has shown that climate change is utterly

unpredictable. There are five options in sight: water levels remain the same, rains may increase, while glacier melt decreases, rains may decrease, while glacier melt increases, both increase, or both decrease. Different scientists have different hypotheses, but this study is beyond the scope of this dissertation, which focuses on the Tibetan nomads. While being the most affected by what appears to be climate change, the nomads are the least stressed by the situation, understanding it to be karma.

Highland- Lowland hydrological relations are dynamic and change depending on political and physical climate. The relationships are unpredictable and completely unstable. It has been made clear that the populations in the lowlands are vulnerable, yet the people of the highlands must also be considered, as the damming of rivers often means relocation of villages, unknown water pathways and even water shortages. The scientists writing “International Conflict over Water resources in Himalayan Asia” argue that Asia is facing an acute freshwater crisis. The authors are also promoters of collaboration and conflict resolution over this precious resource, saying: “water is so important, nations cannot afford to fight over it. Instead water fuels greater interdependence” (Jasparro, 2013, p. 8).

The importance of this third pole has been proven by numerous scientists who have estimated the dangers of glacial melt, ruining this well stored source of fresh water.

2.3.1 Glacial Melt

Glaciers play an important role in preserving potable water. While we currently fight wars over oil, it is suspected that the next wars will be fought over fresh water as it becomes increasingly scarce. 97.5% of the world’s water is salt water. Two thirds of the 2.5% of freshwater is found in icecaps and glaciers.

The Himalayas literally translate to the abode of snows, they are integral for the great amount of fresh water they provide. The outer Himalayas run 2,500 meters from Kashmir to Assam (Jasparro, 2013). Himalayan glaciers are still shrouded in mystery due to the inability to reach many of them due to geographical and political restraints. Glaciers act as water storage systems that regulate the dry and wet periods in the plains. There are between 12,000-15,000 glaciers in the Himalayas, covering a total of 33,000 square kilometers. Over 750 million people (only 250 million of whom are Chinese) live in basins fed by these glaciers. “Melt water contribution from snow, glacial ice and permafrost contribute to ten percent of the 8,500 km³ of the water Himalayan Rivers provide annually (Jasparro, 2013, p. 22).” The glaciers contained in Tibet are said to be disappearing at an alarming rate due to global warming. But even scientists specializing in the field admit that predicting the precise effects of future climate change is difficult because of population shifts, changing technology and changes in other systems (Jasparro, 2013).

The continuation of atmospheric carbon dioxide increase is strongly correlated to the fate of the Himalayan Glaciers. Although in agreement that global warming is destructive, Ives himself now calls the myths of the 1970s just as destructive (Ives, 1994). Aside from typical glacial melt, there are also dangers of the release of water from below the glaciers- Sherpas call this *tshoscrup*. This can be particularly devastating because it is difficult to predict and follow (Ives, 1994).

Within the Chinese Himalaya lay thousands of glacial lakes. Lui and Sharma were some of the first to catalog the changes in the lakes and begin investigation (Shiyin, 2012). While sometimes the reports from the nomads seem conflicting- the ex-

cess of monsoons are expanding the rivers, while at the same time the severe drought has created large gaps in the ground.

While the data may be confusing, the scientists claim that these different rates of change that correlate with the different elevation of the glaciers may be a result of climate change. While it is unscientific to point a finger at a cause that we clearly have no grasp of, many Nomads have made their own observations and do not seem in a rush to find the cause.

2.3.2 Grassland degradation

Scientists view the Qinghai Tibet Plateau (QTP) Grasslands as being over 90% degraded. Scientists from Beijing used MSS images from 1970 up until 2004 to determine that the QTP has steadily been in decline. By 2008, Lui published that 58% of the QTP available grasslands- 0.12 hundred million hm² are either moderate or severely degraded grassland (Liu, 2008).

Scientists and the government argue over the cause of grassland degradation, some point to climate change and others to anthropogenic forces. There has been some tension on this issue due to some of the blame that has been placed onto the Tibetan nomads for the destruction. Overgrazing, excessive wild medicine harvesting and fuel collection have all been sourced as reasons for the decline of the environment around the Three Rivers Headwaters Region (TRH). The TRH includes the Mekong, Yellow and Yangtse River heads in Qinghai province. This region has been discussed in many academic journals due to its ecological importance, yet studies are yet to focus on just the headwaters of the Mekong.

Technologies, including remote sensing systems (RSS) and geographic information systems (GIS), are used by scientists to determine the health of the grasslands. Some of the scientists reporting on the subject of the state of QTP's ecology have never actually felt the intensity of the sun or felt the Tibetan grasses beneath their feet. RSS generates information through NASA's satellites. RSS was able to discover ground temperatures all over the globe and has provided much of the scientific evidence of climate change since the 1970s. GIS systems are another way of gathering regional data. RSS can be used within GIS, as GIS employs numerous different technologies to answer questions about a place (Akiyama, 2007). Scientists have been able to access data in "real time" in order to constantly keep watch over the region.

The above stated technologies have been used in most of the scientific data on the region. Scientists began observing the grasslands of the TRH region in the mid 1970s. The continual study of the region has provided some excellent longitudinal data. It has demonstrated that the degradation has been continuous, "In humid and semi-humid meadow region, grassland firstly fragmentized, then vegetation coverage decreased continuously, and finally 'black-soil-patch' degraded grassland was formed. But in semi-arid and arid steppe region, the vegetation coverage decreased continuously, and finally desertification was formed. Because grassland degradation had obviously regional differences in the TRH region, it could be regionalized into seven zones, and each zone had different characteristics in type, grade, and scale and time process of grassland degradation... according to investigation analysis, moderate of serious degraded grassland area accounted to 0.12 hundred million hm², accounting for 58% of the available grassland area. Yield per unit area declined 30%-50%, high quality forage decreased

15%-25%, and grass height of forage decreased 30%-50%, compared with that in the 1950s (Liu, 2008).” The rate of the degradation is also found to be hastening. (Liu, 2008) the desertification process is far advanced in many regions, characterized by a decrease in vegetation, sandification and salification (Zhang, 2006). As the nomads will describe in the following chapter, in the later part of this process, in the severely degraded grasslands, there is a point in the fact that nomads call it black soil and scientists use the term black soil patch.

I failed to find scientific studies that mention the views of the nomads who are watching the grass every day in person in real time. Yet these ways of measurement have offered widely accepted answers regarding the decrease in plant diversity, increase in ground temperature, and decline of glacial mass.

Grassland degradation is understood as having a negative impact on the Tibetan nomads, the government’s numerous efforts to raise the standard of living in the region has failed due to these ecological obstacles. The scientists agree that healthy grasses result in healthy and wealthier nomads, but they also relate human impact with grassland degradation. Sustainable development in the region is not yet in sight despite efforts of the government and international organizations. The nomads in *Dzado* are now able to supplement their incomes with *yartsegumbu*, which were discussed in detail earlier. Otherwise if wholly dependent on their livestock as they used to be, the nomads would be facing extreme hardship. They have suffered from a decrease in herd size forced upon them by the lack of grasses. Unfortunately, scientists also foresee a decrease in fungi and have correlated the issue with the loss of biomass, both above and below ground (Yu, 2011).

The ecosystem in the Tibetan region is extremely fragile, the soil is considered to be thin, and making it difficult for vegetation to regenerate once having been destroyed (Zhang, 1998). There is wide spread desertification and soil erosion which not only impacts the grasses, and the nomads lives, but such erosion will also have a negative impact on the rivers flowing from this region.

2.4 International Water Management

Trans boundary water management is a complicated larger issue that is beyond the scope of this dissertation. The issues of the headwaters impact millions of Asians downstream and those downstream are in the hearts and minds of the Tibetans protecting the headwaters, therefore this section will briefly outline the Chinese government's international water management policies in order to offer a back ground on what policies are in place compared with what the nomads are calling for.

The Mekong River Commission (MRC) is an organization that includes Thailand, Cambodia, Laos, and Vietnam. China and Burma only participate with the MRC as dialogue partners, maintaining the right to refuse any international agreements made within the MRC. While Thailand in particular has encouraged their upland water source to join the commission, China has refused, but continues to offer updates on hydropower projects, dam releases and other Mekong related issues that impact the neighboring nations (Joakim, 2011).

The MRC is an intergovernmental agency managing sustainable development and resource sharing of the Mekong River. The stakeholders speak clearly about needs and benefits, particularly around hydropower projects they share:

Benefit sharing is an important tool to balance development opportunities and risks related to hydropower at all scales of development in the Mekong, from regional to local scales. Local benefit sharing mechanisms allow communities affected by hydropower or “hosting” hydropower projects in their locale to implement local actions which they see as vital to balance their own local development opportunities and risks arising from project. (MRC, 2011 p. 113)

Both India and Nepal make reparations to the local communities located by hydropower projects by taking some of the revenue from the power and contributing that to the local community development of impacted areas (MRC, 2011). While I was writing this chapter in Kathmandu, my computer was running on a battery because the power was cut for load shedding four hours a day throughout the region.

The Hydropower produced in Nepal is not staying in Nepal. These reparations are not what are needed. While water and earth are not to be possessed by humans, the hydropower produced inside of a nation’s borders would ideally be providing power for the people of that region. While resource sharing is necessary, it seems to miss the larger issue. The larger issue is environmental degradation of this important water source. China does not share its hydroelectric power. Nor does it cooperate in the following MRC programs:

1. Equitable sharing of project services: where local populations as target beneficiaries receive equitable access to the water and energy services produced by dam projects to support their development and welfare opportunities.

2. Non-monetary forms of benefit sharing: where target beneficiaries receive entitlements enabling them access to other natural resources, or support to pursue other

forms of livelihood and welfare improvement, which offset permanent loss or reduction of land or water resource access caused by the dam, and

3. Revenue sharing: where target beneficiaries share part of the monetary benefits the project generates, typically expressed as a portion of revenue from bulk electricity sales or bulk water sales on an annual basis.

4. Indirect forms of benefit sharing and additional benefits: where investments in project-related infrastructure such as roads and public facilities, demands for local services and jobs add to the local area economy and regional economy. (MRC, 2011 p.110)

The MRC guidelines would be beneficial for China to follow, but the larger point of environmental degradation and the permanent damage that is caused by damming a river is not addressed by benefit sharing. Sharing of the services, access of the resources, revenue and other monetary or development investments are almost like bandaid over an unwanted and unwarranted vasectomy. The local people of Tibetan water projects are not blind to the impacts of diverting rivers and blocking the natural flow of the water. They see and feel the impacts immediately. It is not an issue for the Tibetans if the government builds them a whole new village, when the old one is flooded, it is not an acceptable reparation. Tibetans in regions of the Chinese dam projects have expressed to me their dismay over the projects. The government does hold talks with the villagers regarding the value of the land and what they will offer in return for flooding their village, but no matter how high the offer, the Tibetans rarely agree. The villagers love their homelands and are disturbed when they are transplanted and cannot farm or herd in the same area. The landscape will forever be changed.

In the summer of 2014 after completing research in the DzaChu area I visited a village in Rebkong that was being pushed to relocate. The villagers had refused all offers that the government had made, but in the end it was not a choice. After having refused the highest offer, the government gave them three months notice to move into the new village and was no longer going to even provide them the highest offer.

In Tibet, solar power is a much more sustainable form of energy. The intensity of the sun provides most Tibetans with enough power to light their homes or tents and their butter churn, TV or whatever electronic devices they use. The Photo Voltaic (PV) panels are being produced quite affordably in China, and most Tibetans can afford sufficient quantities of this technology to enable them to power phones, lights, TV's and radios.

There are drawbacks to PV power, however. The larger systems are quite costly if one needs to run a freezer or multiple computers with printers the systems become large, difficult to transport and difficult to maintain and repair (burnout from the strong sun is common). The environmental cost of PV panel production, and its disposal is also a concern. PV production is dependent on a large amount of water and oil, the production process outputs carbon dioxide and other acidic byproducts. China is seeing some international pressures to better manage its waste management and resource consumption around PV production- of which it is the world's leader, manufacturing sixty percent of the worlds' PV (Ramzy, 2012). Unfortunately, in the production of PV, the resources needed are sometimes even mined. But the degradation created in hydropower projects is said to far outweigh the costs of the PV production. The projected devastation of the Chinese Hydropower projects are debated by Chinese and International Environ-

mental advocates, but the divergence of the Yellow River project is estimated to be one of the most environmentally costly projects undertaken.

The MRC does have certain clauses that protect certain areas from hydroelectric projects, yet the Commission still seems to focus a disproportionate amount of energy on “development” rather than “sustainability.” Below are some of the guidelines that they follow:

- *Identifying sub-basins with high ecological value to be protected and those where hydro power can be developed with limited social and environmental impacts;*

- *Evaluating hydropower projects from a multi-purpose perspective to increase overall economic benefits and decrease adverse effects on other water uses;*

- *Mitigating negative impacts of hydropower, such as through: re-regulation reservoirs downstream of peaking projects; multi-level water intakes or aeration facilities to manage water quality/temperature; fish passage; and minimizing sediment entrapment; Developing management plans for environmental hotspots impacted by changed flow regimes; and*

- *Evaluating benefit-sharing options, such as watershed development and management benefiting hydropower generation and funded from hydropower revenues. (MRC, 2011, p. 113)*

2.5 China’s Policies for Tibetan Regions

Since 1959 Beijing has made decisions for the Tibetan region. The current environmental policies are ordered from Beijing, and supposed to be put into place by the

local government. In this research when referring to the government, this is referring to the Chinese government who has control over the region. The government controls all policy at the central level, while the local level is left to implement the policy, often in an unsupervised manner, in provinces like Qinghai (where this research is situated), which is very low income and has a wide array of social, political and economic issues.

The government of China mainly consists of Han Chinese. The Han leaders are even posted in far remote government seats in *Dzado* and *Nangchen*. In 2012, the government built government headquarters in each village Tibetan government officials generally do not sit in very high positions, through throughout Qinghai there are many government offices held by Tibetan people. The government officials generally speak in Chinese language, leaving those Chinese officials in power with little to no ability to communicate with the nomads. When I lived in Gargon I met many government officials. They would be amused with my inability to speak Chinese and my ability to speak Tibetan. Without having dialogue with nomads, it is difficult for the officials to understand the issues that the nomads face. Another issue that is discussed in the education chapter is the fact that nomads are not respected members of the society, so both Tibetan and Chinese officials rarely seek information from the nomads whom they see as uneducated, and unscientific poor people.

2.5.1 Protected Areas

China has attempted to make some environmental protected zones. 15% of China's landmass is actually designated park area, with over 2,500 parks. Most of these parks are in Tibetan regions, and fit under the International Union for Conservation of Nature Category VI, allowing locals to maintain their lives within the park. The parks

are supposedly divided into strictly protected, research, experimental and buffer zones that allow regulated commercial and subsistence usage. Core protected zones prohibit cutting trees, grazing livestock, collecting medicinal plants, and cultivating crops according to the UN's Biosphere model. Unfortunately, these parks risk taking away everything that nomads need to live. But fortunately, and somewhat unfortunately, Yeh (2013) found that at least a third of these parks were "paper parks" with no funding, staff or actual protection. Local leaders who did want funding, either from the government or through tourism applied for national park status. Unfortunately, the status change rarely changed conservation habits and locals are reported to receive less than three percent of the revenue from the national park (Yeh, 2013).

2.5.2 Grazing and Fencing Policies

Around the turn of this century, the government of Qinghai divided the province into parcels for each nomadic family, with leases of 30-50 years. Each parcel was to belong to the family and used for grazing the livestock, livestock was to be fenced into this range for grazing (Miller, 1999). The amount of land granted was determined by the number of people in each household. Scientists such as Yu (2011) point to poor range-land rotational ability as a cause for much of the environmental degradation occurring on the plateau. In no way does Yu assert that the fault is of the nomads, instead the author praises the Traditional Ecological Knowledge that has allowed the Tibetan nomads to resist and adapt to the already challenging environment (Stewart, 2009).

The timeline below demonstrates the gradual movement of policy towards the settlement of nomadic people. It is important to remember that the Tibetan nomadic re-settlement policy is not much different than the policy China has been creating for all of

its nomadic peoples: Tibetans, Mongolians, and Tajiks. They are all subject to these types of policies, which change their culture and also their natural environment.

Foggin (2008) described this phenomenon of change:

Following a long term, multigenerational trend from tribal feudalism to collectivism to quasi-privatization of land and livestock from the 1950's to the mid 1980's, this approach to poverty alleviation introduced, possibly inadvertently, the next major step in a fairly rapid transition from the rural "nomadic" lifestyle toward the increased settlement of a people. This has led to a decrease in seasonal mobility and flexibility within livestock management practices, both of which have been essential components of Tibetan nomadic pastoralism for centuries.

Such quasi-privatization of land, along with increased settlement, may not result in positive long-term resource management outcomes. (p. 28)

The Tibetologist voiced his concern for these policies, citing that these programs were similar to those used by the U.S. government with the Native American peoples who, to this day face extreme poverty, and the unfortunate side effects that poverty pairs with. Socio-cultural transformation is occurring at a rapid pace, much like that of the Native Americans, this change being done in the name of "development" could have far reaching impacts on the entire globe as we struggle to maintain bio-cultural diversity.

Although the nomads in *Dzado* seemed to appreciate the fences, those of *Nangchen* county have silently showed their disapproval of the policy by not erecting the fences! Due to this fact, I personally have not witnessed any issues arising due to the fencing policies. But Yeh (2010) reported there being a direct correlation between community violence and the fencing policy.

1958-1981

- Commune grassland management
- All property belonged to the communist state during this period. Livestock and grasslands were looked after in a collective fashion. The Communist Party encouraged breeding of livestock which left many places overgrazed. But many herds were suffering in areas where the red guard killed many of the herds and herders and also areas people fled from.

1981-1991

- Household grassland management
- The Livestock Household Contract Responsibility System was the de-collectivization of livestock. Livestock was distributed according to the number of members in each family. During this time Community-based Grassland management (CBGM) was also adopted. CBGM divided grasslands into village property and these parcels were then managed by the villagers collectively.

1991-present

- Household grassland management
- The Household Contract responsibility System (HCRS) and the Grassland Household Responsibility System (GHCRS) policies gave individual households management responsibility of the grasslands that were allocated to them. While the land is managed and "owned" by families, according to the number of members in the household, the state remains the official owner of the land.
- The nineties also brought the "four way scheme" 1) subsidized houses built for nomads replacing traditional tents. 2) subsidized shelters for livestock (for protection from harsh climate) 3) fencing to make herding more "efficient" 4) growing of additional fodder for livestock.

2.5.3 Resettlement Campaigns

Many of the government policies demonstrate this pejorative view of nomads. The nomad resettlement campaigns have been very strong in *Amdo*, yet the nomads of *Dzado* and *Nangchen* seem to have rejected many offers to sell their herds and abandon the nomadic lifestyle. Of course there are many who accepted government offers. The government also offered subsidies to nomads to transition from large scale to smaller scale semi-nomadic herding practices. They were able to convince some villagers to accept new homes in each village if they gave up part of their herd. In 2011, the government offered the *Gargon* and *Tajuk* villages seven houses each for the poorest of the residents. The people of *Gargon* and *Tajuk* fought over the land on which the houses were to be built upon. The two communities ended up agreeing to destroy the government house in the undetermined territory in order to resolve the argument.

Due to the government restrictions on grassland usage, nomads have been asked to relocate into government-supplied houses. *Nangchen* is full of these villages. It is easy to recognize the resettlement villages, as they are simple houses built in rows, a Tibetan version of the U.S. “project” housing from the 1980’s. The houses that I have visited do not have toilets and had one outdoor well per block of houses. While the ex-nomads that I visited enjoyed living closer to town, they did not have any sort of savings or plan for how they were going to put food on the table without a herd to provide them with their milk and meat. In 2007, 61,899 nomads from 13,305 households were resettled under the “ecological migration” policy. Just as Yeh (2010) reported the fencing policy of causing social upheaval, increasing violence between clans and even families

due to disputed territories, the concentration of nomads was also an unnatural social situation that Foggin (2008) reported relocation centers being called “theft schools” due to the high concentration of poverty and unemployment.

2.5.4 Pika Eradication Programs

Abras, or the plateau pika (*Ochotona curzoniae*), is an adorable little mammal belonging to the rabbit family. The tennis ball sized shy creatures burrow tunnels under the ground which has been blamed with much of the grassland degradation (Liu, 2013). The nomads themselves point to *abras* as being one of the major causes of grassland degradation, their accounts of relations with this animal are detailed further in the chapter of nomadic perceptions.

Scientists do not agree whether *abras* are a cause or a result of grassland degradation. What is scientifically clear and experienced by the nomads is that the increase in burrows has decreased the quality of the regions grass. A team of Chinese scientists observed the Carbon levels of the Mekong, Yellow, and Yangzi region in order to understand the impact of the indigenous mammal. They scientifically demonstrated a causal relation between the increase in Pika burrows with the decrease of plant life and soil moisture and an increase in soil temperature.

The Chinese government agrees with the nomads, that the burrowing mammals that they call rodents are causing degradation, which needs to be stopped. The government began a series of “rodent” eradication programs in the 1950’s and continues to spread the Botulinum C toxin to kill these little creatures. The most recently recorded effort to eradicate these “pests” was from 2006-2007, when the government covered more than 320,000km² of the Qinghai Tibet Plateau with poison. Botulinum is said to be

the most poisonous naturally occurring toxin (Nigam, 2010). The toxin is what causes the neurological disease botulism. Medical studies have shown that Botulinum C does not impact humans, yet the poison may be killing the various predators of the pika.

The government pest eradication program may actually be contradicting the wildlife conservation program. The pika provides food for many of Tibet's wildlife. Bears, Snow leopards, Raptors and fox all prey on the smaller mammal and depend on it for sustenance. There are allegations that the cause of the rise in Pika population is due to the hunting of its predators, while others say that the poisoning of the pika caused the decline in the other mammals, due to spreading of the toxins. The cause in the dramatic increase of these burrowing animals is unclear, as the extermination programs came to Qinghai the same time as Chinese hunters and soldiers came through the region killing many of the now endangered predators. It is quite possible that the pikas have developed some immunity to the poison and will continue to increase in number until its natural predators are able to bring balance again.

The melting of glaciers, changing of weather and degradation of the grasslands along the TRH could lead to catastrophic destruction (Gao, 2006). The Chinese government has depended on scientific knowledge which depends on scientific technologies to evaluate, monitor and plan for the ecological sustainability of the THWR which is crucial for China and 14 neighboring countries survival. Comprehensive and profound knowledge is considered to be sourced from these technologies (Gao, 2006). GIS and RSS are exceptional tools, yet the following chapter will demonstrate a different perspective on grassland degradation, presented by those who were born and raised in union with the grass, soil and water. When given the opportunity to use the simple technology

of digital cameras, the nomads captured incredibly insightful data. If given the opportunity to partner with scientists utilizing GIS, I can only imagine the immense depth of knowledge that would come from such collaborative work.

It is only when those impacted by policies share their stories that we are able to measure the impact. Science is able to fill in information from a distanced perspective, yet when we are able to hear a variety of perspectives we see the issues in a more holistic way and are able to design more holistic solutions.

2.5.5 [Protected Areas](#)

In order to compare the nomadic perspectives with the Chinese environmental policy and scientific concerns, I will outline some of the larger issues of resource exploitation and protection areas. China is one of the world's main producers and consumers of products. The nations' rapid growth over the past thirty years has led to significant environmental degradation. China's importance to the global market often puts the nation under the microscope, with investigations into labor and environmental practices. Over the past decade China has been increasingly proactive with its environmental protection and awareness programs. According to the 2009 report of China's Environmental Protection Administration, China had established [2,538 nature reserves](#) covering 1,489,430 km². The report stated that the reserves protect "85% of the terrestrial ecosystem types, 85% of the wild-animal species groups, more than 300 endangered wild-animal species, and major distribution regions for more than 130 valuable tree species in China" (Xie, 2011, p. 780). Conservation is being called for by all parties involved (the Tibetans in Tibet, in exile, and the Chinese leaders), but these different groups each have a separate agenda which is important to be aware of. Due to these agendas, China has

been accused of creating “paper parks,” or conservation areas that are less about sustainable conservation, and more about being on the map.

Some of the well-known conservation programs include Key Shelterbelt Construction Program, Beijing- Tianjin Sandstorm Control Program, Wildlife Conservation and Nature Reserve Development Program, Forest Eco-Compensation Program, the Natural Forest Conservation Program, and the Grain to Green Program (Wang, 2010).

The Shanshui NGO has played a big part in working with the Chinese government around conservation issues. One of their major projects is the Sanjiangyuan Nature Reserve, created in the year 2000. The area is considered the “Water Tower of Asia” because it contains the headwaters of the continents major rivers, the Yangtze, Yellow, and Mekong, which provide over 60 billion cubic meters of water downstream each year (Shen, 2012). Within its 152,300 km², the reserve is said to have the most biodiversity of the world’s high altitude regions. The area not only protects the waters, but also the many endangered species, including the snow leopard (*Uncia uncia*), wild yak (*Bos grunniens*), Tibetan wild ass (*Equus kiang*), and Tibetan antelopes (*Pantholops hodgsonii*) (Shen, 2012).

While some organizations like Shan Shui find that the Tibetan people can successfully manage their own land, other scientists believe that it is the nomads and their lifestyles that are degrading the precious region. Many scientists have documented severe soil erosion due to overgrazing in the region, classifying 58% of Sanjiangyuan rangelands either moderately or severely degraded. Soil erosion has affected 26.5% of the area, leading the government to form an Ecological Migration Program (EMP)

(Wang, 2010). The program has relocated 100,000 nomads from the SanJianYuan region from 2005-2008.

These types of programs are highly criticized by international organizations and the Tibetan government in exile. The protection programs are seen as incompatible with Tibetan nomadic culture. It is said that less than 6% of China's protected areas actually used feedback from local people to implement programs (Xie, 2011). While government officials were unable to clearly define an EMP in the DzaChu headwaters region, it is important to understand government efforts in similar areas.

There are others who sing the praises of these types of programs. Wang (year) enumerates the "successes" of such EMP programs:

(1) By the end of 2007, 86 migration communities have been established, 61,889 people and 13,305 households moved into cities and towns for their livelihood (Bureau, 2008).

(2) Each voluntary EMP household was provided with a free 80 m² house. Locations of the EMP villages were carefully selected together by the herdsmen and local governments. Cities and towns with better infrastructure were the herdsmen's favorite choices.

(3) Subsistence allowance of 8,000, 6,000, or 3,000 yuan per year was paid for each household, based on migration distance and living conditions (Zhang, 2007).

(4) Job opportunities were offered. The local government helped migrants engage in crop production, business, labor service transfer, etc. Governments offered preferential policies such as quick and duty-free processing when ecologi-

cal migrants applied for business permission (Development and Reform Committee, Qinghai Provincial Government, 2007).

(5) Reemployment trainings such as machine repair, construction, cooking, handicraft making, and vegetable growing were widely implemented. The government offered more than 800 yuan per person for the vocational education and training of the people relocated (Ga, 2008).

(6) During migration, efforts were made to retain Tibetan folk customs and cultures. Folkways, customs, and cultural symbols of Tibetan ethnic groups were considered and respected. For example, bright colors and neat lines that characterize the Tibetan style were used to decorate the newly built houses. Meanwhile, many buildings for celebrations and religious activities of Tibetan ethnic groups were built in migration communities (Qiang, 2008).

(7) According to the results of field and remote sensing investigation, implementations of ecological migration and grazing bans have resulted in great increase in grassland coverage and biodiversity (Jiang and Dai 2009). (Wang, 2010)

While the program may have painted colorful stripes onto the small concrete boxes they moved the nomads into, never have I heard about the success of this program from Tibetans. Many Tibetan people did take the offer to relocate and were excited to move into a town with running water, cellular towers and many products in the market. The families began facing hardships after a year when their dried meat, cheese, and yogurt was exhausted. Many families are left without livelihoods, and have no connection to the new setting. They are often far away from their monastery, mountains and rivers

that they would normally spend their days with. Without livestock to care for, I have seen many young people who suddenly are without a future.

Wang does admit to the following challenges of the EMP:

1. A big gap was estimated (at least 500 million yuan per year) to exist between the demands for migrants' livelihood and the subsidies the EMP provided. The originally planned duration of subsidies was too short for degraded ecosystems to recover fully or for migrants to acquire other livelihood skills. Reports have indicated that if subsidies end, some migrated herdsman will go back to grazing because no other jobs are available (Lu & Wang, 2007).

It will be necessary to extend the duration of subsidies and diversify funding. So far, the EMP has been largely financed by the central government and has caused financial hardships for some local governments. Market-oriented mechanisms should be explored with assistance and support from the central government and other stakeholders. The EMP has many beneficiaries who could contribute to the payments, including hydropower plants, insurance companies for flood and drought disasters, people and business in the middle and lower reaches of the three big river basins, and even other countries (e.g., Burma, Laos, Thailand, and Vietnam, through which the Mekong River flows) that benefit from the ameliorated water source environments.

2. The EMP changed the income structure of numerous former herdsman by making them shift from grazing to other activities or unemployment. This program has generated a large number of surplus laborers. If not enough suitable jobs are supplied, it could lead to a new migration phenomenon, that is, re-migration. More attention should be given to training in job skills and development of replacement industries, so as to

guarantee long-term sources of income for migrated people. Free education, unemployment insurance, medical insurance, and endowment insurance should be implemented as soon as possible to ensure social stability (Wang & Jiao, 2008).

3. The mismatch between traditional production and lifestyles of migrated Tibetan herdsmen and the fast paced modern society will become apparent in the long run. Moving from alpine cold meadows and steppe landscapes measuring >4,000 m to modern cities measuring >2,000 m changed the herdsmen's lifestyle through the centuries. Some migrants returned to grazing because they could not adapt to the urban lifestyle (Xu, 2008). A new way of life that blends traditional customs and modern urban society needs to be found.

4. After the construction of the Qinghai-Tibet Railway that goes through the TRH region (Peng et al., 2007), convenient transportation has brought cheap goods as well as the popular culture and consumerism of big cities, which produce garbage in large quantities. New migrants learned modern consumption style, but not the modern management style, modern consciousness, or technology for garbage disposal (Lu & Wang, 2007). More effective measures should be taken to conserve the environment of the EMP communities. To carry this out, more investment, increasing environmental awareness, and comprehensive monitoring should be considered first (Wang, 2010).

While there may be overgrazing in areas, it is mainly due to the uneven distribution of land between *rawa's* (herds groups). Historically Tibetan nomadic groups have feuded over lands, yet in the past 50 years since the government has divided land, issues like overgrazing have occurred due to the legal designations. The grazing of the animals

actually allows for the pollination and generation of many species of plants. Some report more fights between villagers since the division of land (Yeh, 2003).

Shanshui (2012) worked to translate the scientific and cultural needs of the region, so that the area can be managed locally through traditional systems in order to meet the government laws. The organization uses a three-bridge route to conservation: connect locals with policy makers, connect local Tibetan communities with the scientific community, and connect the local community with outside society. Through these localized efforts the organization has had much success.

While Shanshui has had some success, the quantity, rather than quality, of China's nature preserves has been the target. Issues such as lack of funding, poor community engagement, and inadequate and ineffective planning and implementation are reflections of that issue (Xie, 2011). While China is cautious about the support that it accepts from outside, the Himalayan ecological crisis has drawn in a substantial amount of international attention. In smaller countries like Nepal and Bangladesh, international and bilateral development aid has been helpful (Ives, 2004). The farmers and nomads- the locals that live directly with the land must be recognized as an important part of the solution, rather than part of the problem.

2.6 Summary

Since this study became more ecologically focused, my methods, contacts and literature changed. There are plenty more studies on climate change and scientific data on the flora and fauna of the Himalayan region, yet the specific region of this study has no published data that I could find. The reason for my commitment to this work is to fill in that gap with the locals' knowledge. There are vast bodies of knowledge regarding

climate change held by the elders in these nomadic communities. Traditional Ecological Knowledge (TEK) is a growing topic, spreading beyond the world of social sciences and into the scientific world, the recognition of TEK is growing.

Though most Tibetan nomads do not refer to climate change as climate change, they are severely concerned regarding increased rains, decreased grass quality, decreased medicinal herb growth and the extinction of many of their native animals.

While many human rights activists raise awareness regarding China's destruction of Tibetan culture, it is the entire world's (particularly the global north) misuse of resources that is causing great harm to the bio-cultural diversity of this crucial region (Edwards, 2010). It is with the Global North that I hope to share these stories, pictures and videos.

It is challenging to evaluate China's policies of protection for the DzaChu region from books or websites. As discussed in the previous chapter, there is a difference between what people say and what people do. China has recently begun to battle corruption within its borders, yet Tibet is one of the border regions and corruption still runs rampant. What has been described above are the published policies China holds for the region. Below in Chapter six, the nomadic understandings and experiences of these protection policies are explained. In chapter ten, looking forward, I will outline some of the nomads recommendations for policy regarding the protection of their homeland.

The findings chapter was absolutely heartbreaking for me to write. It is the central thesis of my work. Tibetan nomads of the *DzaChu* region perceive extreme ecological changes in their homeland, which threaten not only their livelihoods as nomads, but also the lives of all beings downstream.

When I entered this research, even after three year of [having lived in the region](#), I did not hypothesize the extreme ecological situation, nor did I have any idea that the nomads would have a concept of the millions of people whom they share water with. When I first arrived in Gar Village many people asked me how many days I had to drive to America. There was no concept of the ocean between our homelands or that one could actually fly in a circle around the globe. The day I taught students that the world was round I had many adult visitors to my bedroom after school. Luckily, I had a world map on hand and showed where I was from and used some apples to simulate the sun, earth and moon. I worried that this information would not be useful and instead just contradict the traditional view that there were different worlds, and that the one we occupy is flat. But everyone was excited to learn and hear about the earth and planets as I understood them. As years pass and more and more technology and visitors come to the region I see that that lesson has helped them understand where our teacher goes and the difficulty he has globetrotting to teach his students.

I was pleasantly shocked to hear some geographical knowledge enter into our focus group conversations around the *DzaChu* River and its value. Many participants pointed to the fact that millions of other people in other countries depend on the water just as much as they do for health and life!

The Tibetan plateau is very pure and we have a lot of water. All living beings need water for health and hygiene we are trying to keep this resource clean.

There is something that happened last year that I hope doesn't happen again...I hope that foreigners know the importance of this water source and also that we

have lots of thieves and robbers here taking the minerals and harming us. (personal communication, summer, 2014)

One young photographer, who enthusiastically offered his beautiful images and songs for this dissertation, was so concerned about the populations downstream he suggested creating some educational videos or books for those people downstream. He wants people in Thailand, Burma and Bhutan to understand that they are trying to protect the water for them. This young nomad fears the end of this water and in turn his culture and is hoping that such an outreach would create some sort of support for protection of this invaluable place. More detail is offered in chapter 6 regarding the future of this work. This research should be understood as a single step in a multiple year action research project, and as these ideas emerged within our conversations I hope that there is some possibility to do such a project with his skills as a nomad and photographer and the collective experiential knowledge of his community. In chapter 6, I will go into more detail regarding the next parts to this project, and the goals that the emerged from focus groups with the nomads.

In the following pages I attempt to share these perceptions about the *DzaChu* and its meaning for just the English speaking audience. I have included the voices and some video and photographs to bring the reader closer to this sacred space and to the expert earth listeners who bravely spoke their truths into a recorder.

3. [Research Methodology and Design](#)

“There is really big change [in the river]. Because before when we said DzaChu, it used to be really big. During the summer time the DzaChu used to be able to reach the level of what is now the DzaChu Bridge. But now, there's no chance [for the river] to be big like that. Now the government is digging the source area [Tashi Kyiwa] that's why it the river is so much smaller. The river used to be very big.”
~personal communications (summer, 2014)

In this chapter I will explain the methods used to plan, complete and analyze the research. After years of living in the research site, I felt a very specific need to try to capture certain information. I decided that using a variety of methods would create the most authentic study. I chose to use some methods that I was previously trained in, such as ethnography, while adding new components like environmental ethnography, and decolonizing methodology.

My approach to research was through mindful inquiry, which allowed me to use the Buddhist mind training that I have been trying to develop personally for years, towards my academic work, following my teacher's advice. Living in the culture and with the land that the study was based upon offered me insight that would otherwise be unavailable. Listening to the deep stories shared by the nomads as a community member I was able to truly participate in the observations. I recognize that having spent 6 years living in Tibetan Buddhist culture that I cannot avoid some element of personal bias. And I address my bias and my personal inspiration for this research in this chapter, and

in chapter 1. After walking through the methods for the study I will conclude with an explanation of the research design.

3.1 Accounting for Bias: Transliteration, Translation, Names, Locations, and Measures

I have attempted to divorce myself from the many scientific methods I was taught in the past in order to adopt standards and procedures of decolonizing methodologies. These decolonizing, and environmentally based methods influence the presentation of this work, down to the way in which I will share locations and translations. For example, while I was excited to share nomad drawn maps of the region, the participants more often than not, excused themselves of this activity. Instead of measuring and tracking the location of each and every settlement, I simply recorded the place name as locals refer to it, rather than how a cartographer would explain the region. The nomads were not accustomed to thinking about their homeland as something that could be drawn and represented on a piece of paper.

It was my desire as a scholar to honor the language in which information regarding the Tibetan nomadic experiences of climate change was collected for my research. In order to accomplish this goal, I have included many Tibetan words throughout this dissertation and they are in italics.

There is a conflict I discovered in my research methods. I realized that while I was very interested in documenting a written language, most of the people whose perspectives I was attempting to translate and share were not literate in a written language. When I lived with the semi-nomads of *Nangchen*, they refused to teach me a written language. Even the few who knew how to write Tibetan told me it would be far better

for me to learn Chinese, insisting that the way they speak cannot be written. Being a visual learner, and a product of western schooling, I would jot down new vocabulary in the way that I learned to write the Lhasa dialect. People laughed and thought I was silly for trying to write their language. They viewed their spoken language as inferior to the languages of *Amdo* or even *Tsang*, which correspond more directly with the classical and well respected written Tibetan language.

I use the phonetic spelling of each term as it is pronounced in the local dialect. I have written the words so that those unfamiliar with Wylie (the formal translation system) may be able to make sense of the words. For example the Wylie translation of the Tibetan term for water spirit is *klu*, most English speakers would not know how to pronounce that word, hence I write it as *lu*, so they can say the sounds Tibetan nomads make to describe the beings. I offer the Tibetan and Wylie translation of all words in the appendix. Those familiar with common Tibetan phonetic spelling of *Lhasa* dialect may find these spellings strange. For example, the syllable *jang* is pronounced, “sang” in *Yushu*. Throughout the dissertation I have offered a close translation of the stories and experiences of the nomads who have taught me so much.

Throughout my formal data collection I asked my longtime friend and a volunteer for the Pureland Project, Jamyang, who acted as a co-researcher for this study, to translate for clarity. Jamyang is not only a skilled translator, but he had traveled with me to this region twice before beginning the research. As an ex-nomad, ex-monk and well-respected song writer, he was an excellent collaborator who helped me in all stages of the research. In having Jamyang translate, I was able to listen to answers two times. Once with my own ears listening in Tibetan. And again in my own native language, eng-

lish. I listened to and transcribed all focus groups discussions myself using a software called Notability. First I listened to the Tibetan recording and translating it into English. I also hired a transcriber to transcribe the English portions of the focus groups in order to have two versions of each conversation. I then reviewed and re-listened to each conversation while reading both transcriptions-seeing if Jamyang or my own translation was more accurate. Most of the time, I favored Jamyang's translation, since he is an ex-nomad who has a deeper understanding of the answers. Yet at times I favored my own translations. Unlike Jamyang, I was able to stop and start recordings of long-winded elders and to catch pieces of conversation that Jamyang was unable to hold in his memory!

For confidentiality and privacy reasons, I do not include any real names aside from those of high lamas and those included in already published works. The quotes from all interviews will simply be labeled "personal communication" to allow anonymity for the people of this region which is politically highly sensitive.

There are certain aspects of what I am sharing that are almost entirely my creation, such as the map of the area, in order for the non-local readers to better situate themselves in the place where these stories originate. Otherwise, I have attempted to use the terms and measurements expressed by the Tibetan Nomads. For example, if the nomads describe the river as thirty minutes down the mountain then I will also express the distance in those terms, rather than attempting to overlay my own measurements in terms of feet or miles of distance. In these ways I intend to keep this study as close to the ground and nomadic reality as possible.

3.2 Methodology

This is an ethnographic study that uses the lens of phenomenology. Other contributing research methodology were decolonizing methodology (indigenous methodology), mindful inquiry, and environmental ethnography, these are outlined below to offer an understanding of the research and how it was produced.

3.2.1 Decolonizing Methodology

According to Smith, *Decolonizing methodologies: research and indigenous peoples* (2012), mainstream research is commensurate with colonialism. The act of research as an academic pursuit is explained to be a type of imperialism. As science spreads throughout the globe and is taught as an absolute truth, scientists are given a new type of power. The ways of knowing have been declared and those people who do not go to school and do not use literature are losing a battle they do not even know they are in.

The indigenous ways of knowing and being are being threatened by formalized schooling and the publication and spreading of scientific information. Technology has allowed many illiterate people to publish video, audio files and artwork on the internet, but inequalities remain regarding access and censorship of this international forum- which only the wealthy and privileged proclaim to be free. In many places the Internet is very far from free.

Indigenous methodologies are described more fully in the *Handbook of critical and indigenous methodologies* (Denzin, 2008). The book outlines the ways indigenous and non-indigenous people can work towards socially just policy, politics and social justice.

The book *Research as resistance: Critical, indigenous and anti-oppressive approaches* (Brown, 2005) offers insight into anti-oppressive research practices. While

mainly from the North American perspective, the authors give insight into theory and practice of research methods that will be important to both stages: while designing, implementing as well as reporting a project, I was informed by these methodological approaches.

3.3 Ethnography

The study of people and their cultures is fascinating to me and something that I do naturally. The participants in this research are not only people through. With the help of mindful inquiry and phenomenology, the ethnography grew to look at the environment and the spirits who protect it.

3.3.1 Environmental Ethnography

The modern way of assessing climate change is through technologies most lay people do not have an understanding of. In order to track glacial changes, the predominant method of data collection is based on remote sensing data, combined with multi-spectral data, reclassification remap tables and a water surface index. Nomads, who are often called illiterate, who do not know of these technologies have been telling me for years that the weather has been increasingly warm, making the rivers swell from glacial melt. It is time to start listening, and documenting our traditional scientists, they may not know the written language, but they know the language of the earth better than any degree certified scientist that I have met.

Cambell (2010) described his environmental ethnography in the following:

I had expected to meet people who would produce relatively consistent narratives about the landscape, explain their ‘indigenous Environmental Knowledge’, and be able to discuss matters of plants, animals, soil and weather with some re-

flexive ability. Instead, I found people/s environmental knowledge and relationships to be discursively fragmented and not at all like a textualized body of knowledge. (Cambell in Guneratne, 2010, p. 191)

Since knowledge is gained through interaction, Cambell's approach to ethnology is to observe interactions. While hunters and gatherers may be perceived as taking responsibility for the environment, in fact it is "the powers that animate the environment that are responsible for the survival or extinction of humans" (Ingold, 2000, p. 68). The factors of power, control and agency are all conceived in very different ways between the scientists and the animists.

It is my hope that throughout this dissertation I accurately reflect the nomads' interactions with water and the earth and also appropriately share their own recordings of those interactions to be able to bring voice to the earth and the waters.

3.4 Mindful inquiry approach to ethnographic field study.

I chose mindful inquiry as a method as it fits within my personal practice, and also seems like a non-invasive, non-colonial way of acquiring information and understanding. Rather than completing this research for data, I immersed myself in this work to deepen my understanding of the world, its realms and nature. For example, I returned to the community I had lived in for 3 years to begin the research. It was with these nomads who I consider close like family, that I was able to begin research comfortably, with my awareness attune to the subtle level of the process. I was already aware of how they fetched water and prayed to the spirits, since I had already participated in those activities in the past. This familiarity gave me the space to focus on not simply the inter-

personal factors, but also the human-nature relations that are often unspoken and hard to recognize.

Mindful inquiry is described as a special blend of critical social science, hermeneutics, Buddhism, ethnography and phenomenology (Bentz, 1998). Mindful inquiry allows for the process of this research to become a practice, a practice, in which the Tibetan participants can guide, shape and utilize the space of this research to share their science.

The research questions in this work were especially concerned with the perspectives of the Tibetan nomads. Instead of pushing my questions and agenda as a researcher, as I explained above, I was able to follow the ways of mindful inquiry and allow the research to really develop and shape itself. I remained flexible while conducting the research to allow my questions to change shape and direction as informed by the Tibetans. I consider the study design to be ethnographic in nature, while the research was approached through mindful inquiry. For example when elders would begin telling long stories after being asked one question, some of the questions were no longer necessary, as they covered the answers in the story, instead follow up conversation with the group was more appropriate to have intergenerational exchange around climate change and culture. This flexibility allowed for much more conversation to emerge, and was generally where the planning for chapter 6: Looking Ahead materialized.

Within the realm of mindful inquiry, I used three main lenses for my doctoral research: phenomenology, ontology, and narrative inquiry. These lenses, and the ways they are relevant and connected to my doctoral research, are described in the following sections.

3.5 Phenomenology

This ethnographic study was based in Phenomenology. Sometimes seen as an anti-positivist theory, phenomenology allowed meaning to emerge naturally without engaging quantitative methods. Phenomenology is also a way of studying the world to understand how it is known and seen; it is an epistemological approach. One reason why I was drawn and capable of undertaking this research is because having been raised in America, I have an outsider's epistemology, while my ontological views have dovetailed with the Buddhist system of thought. That is due to my own initiation into Buddhist thought and worldviews for the last 15 years. The system of cause and effect and interdependent origination are part of my personal belief system. Having studied in a traditional Tibetan *Shedra* (university), I have studied and internalized these Buddhist belief systems. With this ontology I found that phenomenology of this subject to be not only intriguing but accessible, as I would be allowed to participate in ceremonies, reading texts among the monks and given prayers and ceremonies to complete on my own, to connect not only with the nomads, but the space that they inhabit and the spirits protect that region. In doing this I was able to gather a better meaning of the research participants understandings of phenomenon.

Creswell (2007) explained Phenomenology as the study of the shared meaning individuals give to experienced concepts or phenomenon. As is evident from the narrative in his dissertation, the nomadic experiences of changes in weather and the concept of spirits were deserving of a phenomenological study. It is in exploring these relationships that the nomads have with the environment --which includes animals (wild and domesticated), water, and earth, plants (edible, medicinal and poisonous) that a shared

meaning will become apparent. I see phenomenology as a decolonizing methodology as it is not bound to that which is spoken or written in texts. It is a look at the way things are seen, as it is now at this moment, space and time. Some things that may be unspoken, a relation and understanding that may be expressed in actions rather than words.

The analysis of ecological consciousness and traditional ecological knowledge has become a large piece of this research project. The understanding and expression of the nomadic experience has been what I attempted to capture. As I have practiced in this research, phenomenology is one of the core pieces to the practice of mindful inquiry (Bentz, 1998).

Knowledge has a variety of sources. In animism, knowledge is recognized through experience. It is by understanding relationships and the ways of being alive. While many scientists may argue that knowledge is verified through experimentation and observation, animism is a participatory and a knowing that is ever-evolving (Harvey, 2006).

In researching with animism, this phenomenological lens will lead one to understand the expansive definition of personhood. Persons are those full of life, they may have form and they may be formless. Stuckey (2011), in her article “Being Known by a Birch” discussed alternative ways of knowing and the worldview that utilize that knowledge contrasted with those that may dismiss that type of knowledge. Ways of knowing were heavily influenced during the Scientific Revolution in the seventeenth and eighteenth centuries. During that time, the divide between nature and human became greater and the separation between human and nonhuman gave rise to the “modern scientific” worldview.

I understand mindful inquiry and phenomenology as a way for the research to emerge naturally through listening with all of my senses, which will also allow me to pick up on some of nature's voices. I have already had many experiences with the land and water in the Tibetan nomadic region. One of my practices has been to sit in the mountain forest during my two-hour lunch break for each day for years. Being in the woods, sitting still showed me so much about the space and its animals. Yet by setting my intention to listen around the subject of climate change, I attempted to open up a way of intentional listening that has given me "data" that I am honestly not prepared to be able to share in only words, and even that in English language. Thus I have used a multimedia platform to express the findings, and still I find it does not fully share what I have learned.

I have spent many years traveling, living, worshiping and working with this nomadic people of Tibet. Throughout this dissertation, I have tried to offer a clear and honest report upon their perspective and relationship with this space and each other. The study of the shared meaning nomads give to the experienced changes of their homeland and what I have tried to capture in this dissertation is exactly what is missing from the literature about this very important place. Therefore the phenomenological look into nomadic perspectives of climate change has illuminated the understanding and relationship these people have with the environment.

3.6 Narrative Research

Narrative research can be described as ways in which people tell their stories. Carefully and mindfully listening to the way Tibetan nomads understand and interpret the phenomena of climate change through their stories was a method that I used as fre-

quently and often as informally as I was able to. In informal settings, nomads often tell stories, the stories are more frequently than not about the earth, spirits and animals. These narratives I had hoped to catch on video through the visual ethnography component, but instead the only recording device I often held was my own memory, which in many cases was the only appropriate and authentic way to gather the information.

Oral storytelling is an integral part of most cultures. In the region of Eastern Tibet where my research is based, most of the elders do not use written word and depend upon storytelling, sometimes in song in order to exchange information. The use of narratives is especially common for research with indigenous people (Creswell, 2007).

The research was conducted using both autobiographical and biographical data. I examined these stories with awareness of what may be left unsaid, due to the growing political sensitivity to talk matters of heart throughout the Tibetan region, after the Chinese occupation in 1948.

3.7 Onto-epistemology

Ontology can be described as explaining how phenomena come into being and defining their existence. As was presented in chapter 2 previously, I employed ontology as a lens for my doctoral research by asking Tibetan nomads questions regarding the changes they see in the environment. They define the changes they see by describing how they came about.

My intention with this research is to connect my Buddhist practice to my work with the Tibetan region more deeply. As an American-born woman who is not a Tibetan nomad, I must be particularly mindful of my own bias and energy that I bring to this situation. Having developed relations with Tibetan communities since 2000, I have been

accepted as a community member in a few villages both in exile and in Tibet. I have played the role of both teacher and fellow *sangha* member.

While doing fieldwork, I stayed with Tibetan families and in Tibetan monasteries to observe and participate in this way of life. As I took on the role of a researcher I was not only surprised by new relationships that formed while conducting this field study, but also the way that my relations with my Tibetan friends changed.

I had numerous considerations in undertaking this ethnographic work, as my identity has allowed me to cross gender roles and work with men in male dominated roles. It is also always important to respect the customs and traditions of the region, and therefore I had certain limitations to access certain data. For example, when we stayed at the nomadic camp during a prayer festival, I could have collected a lot of data on the first day had we rushed some meal times (for the purpose of collecting data), but it was not my place to be inserting an agenda, it was best to allow focus groups to organically come together.

3.3 Research Design

The specific methods used under these research philosophies are very important. No matter how much planning I did for my pre-survey in 2013, I found that my design had to change, as it was culturally inappropriate. While the methodology remained, my methods made a major shift.

Method

First I will explain my use of semi-structured focus groups were my chosen method, and why previous plans for the interviews failed. The plan for and implementa-

tion of self-ethnography through video is also explained below, as a fine example of how things never go quite as planned!

3.3.1 Semi-structured focus groups.

After my pilot research efforts in June 2013, I changed my research methods. My previous research has included written surveys, individual interviews, and focus groups. By employing these three types of questioning, I felt that my research was well grounded. However, when I attempted to complete this research in that way, I met many obstacles.

Although I had lived with Tibetans for many years, the nomads were much different than the Tibetans in exile with whom I had previously conducted research. I found that most of the people I met were living a nomadic lifestyle. Tibetan nomads live in very tightly knit clans, which means that everyone knows each other's business. When an outsider comes to visit a clan it is highly likely that the clan will gather. These small tight knit communities automatically create a focus group setting. Pulling people aside for individual research was not only unnatural but seemed rude and intrusive. I also found that having focus groups on the topic of the environment was the informal education that my Tibetan co-founders of the Pureland Project envisioned happening. I learned quickly during the summer of 2013 that private interviews are almost impossible. When I had designed my study I must have forgotten the fact that there is no concept of privacy and the fact that the individual is thought of very differently in nomadic society. When I re-recognized that this type of "group-think" is the norm for the main participants I decided to discard the survey and interview pieces to the study. Instead, in honor of the communal thought process and in support of the informal education that is

a part of the research intention, my primary method of research was conducting focus groups. In the focus groups observations and theories will be shared and hopefully discussed, yielding information for the communities to work around.

Self-Ethnography & [Visual Ethnography](#)

Visual ethnography is a technique that allows for a sharing of findings without the need of language. It is my hope that eventually pieces of this work will be returned to the Tibetan communities from which it came. In using video and still camera data I will be able to share the story beyond barriers of language. The visual component of the work will also allow non-nomads to better access the information I am trying to share, and allows for the nomads to share what they feel is important. Six video cameras were distributed to nomadic families to conduct their own ethnography. After much deliberation, it seemed that when approached with the idea of being given cameras to record with to become their own researchers, the nomads were excited and eager to participate. Five clans were offered simple video cameras to capture their relations with water. Since cellular phones with digital camera technology has rapidly entered this society, I am convinced that the video cameras are (as of this year) appropriate technology. The nomads now each have solar panels and charging stations and have used button, if not touch screen photographic technology. While the water spirits which were a large topic of discussion in the focus groups will not be able to be photographed, the relations that the people have with the waterways were documented and hyperlinked into the body of the dissertation to make the work a co-authored piece. I provided simple training on how to capture images, although most people already understood this technology. In the winter of 2013 distributed the cameras and collected the images from the memory cards

seven months later. Through technology and a social application popular with Tibetans, called Wechat, I was able to collect over a years worth of images. While very few people have email accounts, a new application for smart phones has become very popular and I utilized this technology as well to collect photographs from locals. I offered the cameras after the focus group conversations were complete so that they understood the focus of my work. I then asked them to record their interactions with water and asked them to narrate when possible about what they are doing and why. With that broad description I left visual storytelling up to them! No one narrated the visual as I had suggested but this gives me further information about the way nomads relate with the land, which I will discuss in a later chapter.

Editing the visual component of this work was actually challenging than editing my own work, I did not have the photographers with me to make the final selections. Yet where possible I requested the photographers to identify the important photos and recorded their explanations as to their importance. I would of course have preferred to give editing rights to the Tibetans, but it was not possible due to a variety of reasons. But I have included the important pieces chosen by a couple of the Tibetan photographers and have written about the topic they have recorded, for instance the bears recoded on the mountain top was a favorite video demonstrating the relationship with wildlife. I have hyperlinked the footage into the text next to each subject to add depth to this story.

I surveyed approximately 213 nomads regarding their ecological
tive. With three different visits to the region spread over the course of a year (from December 2013 to November 2014), I conducted thirty-two focus group sessions with four or more people in each group. Finding participants in the scarcely populated *Dzado*

headwater region was challenging, but we were fortunate to be welcomed to some summer gatherings that allowed us to meet most of the nomads of the region. Tibetans tend to gossip and the snowball technique of gathering more participants occurred rather quickly and effortlessly. Many focus groups began to grow as we were conducting them, therefore the count of people actually surveyed is more than 213, but that is the number of names that we collected as participants who gave consent to be part of the study. I never turned away opportunities for more focus groups, nor did I shy from opportunities for private interviews. Even when I broke my neck attempting to reach the headwaters of the DzaChu in December of 2013, as I laid in a freezing cold bed with a home-made cardboard neck brace we interviewed nomads before getting a ride to the hospital back in *Yushu!*

In order for this work to be a step in a larger action research project, I have decided to share pieces of this script and many of the visual ethnography parts of this work over Instagram. I have chosen this format because my original website that I created to display the nomads work was blocked in China. At the request of some of the participants we will attempt to make a type of cross-cultural forum regarding the issues of the Mekong and I felt that Instagram, being a popular social media tool would not only give the weight of the story telling to the picture, it would really give the nomads the credit and allow for conversation. The majority of nomads still do not have internet, but the younger generations of nomads have all made a small fortune on bug grass and have smartphones for when they go to town and have internet access. The other limitation to this piece is the lack of literacy, this is why we may expand the instagram conversation

over into the popular app- wechat- in which people cans leave voice messages for each other- so they do not have to read and write.

3.3.3 Settings & Participants

While the region of Kham and the Tibetan nomads who live there, Khampas will be better described in chapter 4, this section will offer a brief description of how participants were gathered and interacted with.

Population sample

This study is composed of the stories of Tibetan nomads practicing a predominantly nomadic lifestyle, or who came from a nomadic lifestyle and are now retired or ordained. Nomads between the ages of the 8-100 were invited to participate, yet we had a couple of six year olds join in! Gender of the nomads was mixed, the male-female ratio never forced, although midway through the study I did try to target some groups of females as we did not have very many women speaking up during the focus groups, as the conversation was often male-dominated. The area is typically split according to gender lines, and along monastics and lay people. Because of this we traveled to villages, nomad camps, monasteries and nunneries to collect a range of perspectives.

Recruitment and consent procedures

I recruited nomads to participate in my study upon arrival in each village, camp, or monastery. The villagers generally gather when visitors enter, so it was a natural community gathering and I was able to approach the topic with those who naturally gathered. I asked for volunteers to speak to me over my visits by requesting them to speak about their experiences. Since the majority of the nomads I work with do not use

written word, they did not sign a release waiver. Instead I asked permission to share their stories and the photographs that they take verbally.

3.3.4 Data Collection Techniques

The first few questions of the interview acted as a general demographic survey. The objectives of these very straight (and unnatural to Tibetans) questions was to determine basic demographic information. The questions were sometimes awkward, as many people didn't know their age, and very few people considered being a nomad, doing nomad-work. But the information is important to find the fluctuation of perspectives on ecology if a person is from another community, older or younger, male or female, informally educated or formally educated.

3.3.5 Participatory Observation

Having been a participant in this community for several years, my re-entry into the culture after several years of study has given me a new perspective and way of recording data that I observed.

Harvey (2006) uses a number of different ethnographic tools to document Ojibwe people. He relates that not only stories capture the animist belief system, but more important are the actions of animist culture. Tibetan language was founded upon Buddhism, and to this day, monastics are the most literate among nomads. Therefore using the Tibetan language may not adequately define the belief system that long out-dates Buddhism, least the Tibetan language. Within animist research Harvey emphasizes the importance of studying relationships and respect. It is important to take note during participatory observation what signs of respect are and where they are directed. Instead of just having tea and catching up with my friends I will develop mindfulness to how they

are gathering the water, the dung to make fire to heat the water and the process of making and sharing the resources. In the act of simply watching and recording, or even watching recordings made by nomads, I learned and absorbed answers to my questions and gained insights into the Tibetan knowledge systems surrounding nature ecology.

Document Collection

I surveyed approximately 213 nomads regarding their ecological perspective. I held 32 focus group sessions with four or more people in each group. I personally returned to collect the data cards from the cameras after they were used for seven months. The data on the cards was amazing and has provided for entertaining me during the process of data analysis! As I outlined earlier, the WeChat application was also a technique to gather visual data from nomads who had smartphone access.

3.3.7 Supplementary Data

I have completed a lengthy literature review and continued to add any contributing scientific data that supplements this work throughout the writing process. The third pole is gaining increasing attention from scientists and international organizations and more research is being published on the topic each month. In the coming years as scientific global warming research grows, I hope that this type of anthropological study of the understandings and impacts of global warming is also popular. While I am not aware of other studies similar to this, as I dig deeper into this body of knowledge I hope to uncover some additional data to compare my research to.

3.3.8 Data Analysis

I was trained to analyze data through coding programs such as NVIVO, and originally designed my pilot study to be coded and organized with the program. After dis-

covering the path of mindful inquiry I understood the importance of pure listening. With the encouragement of my professor Dr. Cox, I let go of my attachment to my previous research training from the University of Pennsylvania and UNICEF. I had struggled with these large organizations, suspecting that my work was just an extension of their colonizing tendencies, which have scarred Philadelphia and the world over. Through my work at Prescott I have allowed myself to accept methods that had been frowned upon by previous professors at University of Pennsylvania and employers such as UNICEF. At Prescott I was exposed to the growing body of literature on decolonizing methodologies. I felt validated and supported when I began reading of these people-centered methodologies, much like when I opened my first book on Buddhism. I am grateful to have found this way of research before having begun the formal study.

This dissertation will be my largest research undertaking and it involves communities that I myself am a part of (albeit as a “foreigner”). I have always taken caution in choosing and using the research methods in gathering the data, and now I have gained a consciousness about handling the analysis with extreme sensitivity and open ears rather than scanning and shifting for patterns and numbers.

The study itself was formed to address a gap in the literature review and to document many conversations I am already a part of. I have chosen themes from these conversations and the literature review and have listened for these themes in particular. I have included whole stories revealing many outlying topics, which I am unable to cover in depth here. I decided to use what is known as “analytic memos,” or my own journaling throughout the data analysis process.

I see the ways that coding can degrade a rich and ancient cultural understanding and want to ensure that the findings remain intact and as authentic as possible. It is with this intention that I chose to listen to the data with natural tools of analysis. My western mind is lured by the ease of a linear digital coding system, but I was interested in keeping the records as un-manipulated as possible. Ethically, I feel that coding these stories would have deprived the participants of their multi-dimensional experience. Instead of using coding, which I consider as one of the colonizing methods, I utilized methods that appreciate the ways that ideas arise inside of the focus groups.

The focus-groups and discussions were transcribed by a professional and again by myself. I listened to the recordings first to transcribe them, secondly to revisit the voices with the two transcribed versions and thirdly to highlight and take notes on the themes. I listened to the quoted sections then a fourth time to ensure that the quote was translated in the best possible way. While listening I became aware of new emergent themes, and added them to the table.

The data that was collected on video both by participants and myself, the observer, were also to be screened. After note taking and evaluating the overall quality of the footage- both in content and the actual video quality I edited down the pieces into short clips to be intertwined with the text of the dissertation and saved on the website (www.purelandperspectives.org and on [youtube](https://www.youtube.com)). In this way the dissertation becomes more alive and interactive and hopefully you, the reader can experience some of the sounds and sights of this place-based study, hopefully engaging the heart in the stories shared by the nomads.

Table 2. Thematic Analysis

Theme	Description	Possible Key Words, Tibetan & English
Animism	The acknowledgement of the spirit world.	<i>Lu</i> : water spirits: <i>lha</i> spirits, <i>sa dak</i> land spirits, <i>rhi la</i> mountain spirits
Buddhism	Sense of the Buddha, his teachings, the followers of his teachings.	Interdependence, <i>karma</i> , <i>dharma</i> , <i>sangha</i> , monastery, monks, nuns, <i>terma</i> , <i>Lamas</i> .
Science	The knowledge or experience of public or formally acquired scientific knowledge.	Climate change, weather patterns, geology, geography.
Climate Change	Sense of changing weather patterns, temperature flux, and environmental	Temperature, weather, change, sense of history and future.
Law/ Policy	The understanding, perspective or practice of Environmental policies and laws.	<i>Trim</i> , Law. <i>Shung</i> , government.
Traditional Ecological Knowledge	Informally acquired knowledge of the natural world.	Sense of place, Homeland, nomads, culture, herbal medicine, wild edibles

3.4 Validity

It is difficult to produce a piece that I feel is ethically sound and scientifically rigorous. Unfortunately, the progressive decolonizing methodologies are often discounted due to the lack of traditionally used tools.

I have tried to be mindful in designing this research and recognize my role as an outsider, with hopes to act as a bridge between academia and the lives and experiences as nomadic Tibetans.

3.5 Summary

I am not a nomad and have no authority to present upon their views. My nomadic friends have requested help, and I have taken the opportunity to co-research with these friends and colleagues. Their pictures, videos and conversations are contained here and on Instagram @thepurelandproject and on the website www.thepurelandproject.org. I am honored to work on this topic and hope that the methods that I employed to gather research, along with the ways in which I continue this action research project with the Tibetan nomads, is of the highest ethical integrity.

4. Research Setting: Tibetan Khampa Culture and Nomads

“But now, because of the scientific view, because of science, one small mission comes and is able to move the mountain easily. So now on that level, it’s becoming worse. And scientifically, there’s no saying like, “Oh you if you do this, then this makes Lu unhappy.” There’s no such evidence but what we believe is what I said. If you do these things or actions then it makes the Lu unhappy.” (Personal communication, Summer, 2014)

This chapter will provide an overview of the culture of the Tibetan nomads. The nomadic lifestyle and culture is distinct in each region. This research has been based in Kham, not those nomads of Amdo or U. This overview pertains to the people of this particular region, and even in writing this these are small distinctions, as there is even a dialectical distinction between the nomads of Nangchen and those of Dzado.

4.1 Perspectives

Scientists would be having an entirely different conversation about our current climatic situation without an understanding of past and future. Since this study is based on perceptions of change, it seems most appropriate to explore the foundation of the concept of change- time. The nomadic concepts of change and time deserve the entire dissertation themselves, yet I do not have the capacity to explain the topic. I will simply attempt to offer a concise overview to properly frame the following stories and conversations below.

I still find it is difficult to understand how Tibetan nomads conceive of time even after a decade of living and working with Tibetan people. The Kalachakra Tantra is the official Tibetan text, which is dedicated to explaining the Tibetan Buddhist concept of

time. It is a highly complex teaching and I am not qualified to discuss this text regardless of many months of study! Since the majority of Tibetans have not studied these Buddhist texts, it is unnecessary to cover them here. Rather than basing this introduction on a text or teaching that many have not received, it is more appropriate to base this section on Tibetan time based upon participatory observations.

My libraries of journals reveal not only my observations regarding Tibetan concepts of time, but also how being immersed in this culture has trained me to perceive of past, present and future differently. Although nomadic life on the plateau is changing rapidly as capitalist culture pervades all corners of the world, many Tibetans still retain their own concept of time. Since I began traveling in the area in 2001, I have seen an all-around increase in the mindfulness around clock time and the idea of time as being a more quantifiable concept.

The time in the *DzaChu* region is matched with Beijing time, as is the entire nation of China. Technically the time should be two hours before Beijing time. The idea of going to bed at 10:00 p.m. and waking up at 5:00 a.m. is unappealing in the winter when the sun doesn't rise until 8:00 a.m.. The chill of the night is better handled in bed under a sheep skin [chupa](#) rather than outside [milking dri!](#) Instead of paying much attention to the numbers on a clock (which some elders I encountered do not know how to read) the nomadic focus is on the light of the sun. Before dawn they generally do the first milking; my friends rise at 4:30 a.m. in the summer to milk and release the herd from the overnight posts that are next to the tent. They bring the herd back to the post to allow the calves to milk around 9:00 a.m. and then release them to the high pastures, only going to fetch them a few hours before dusk. Instead of a set schedule, the time they must go col-

lect the herd depends on the direction they have set the herd to pasture. The key is not to have the yaks tied up by a certain time like 5:00 p.m., instead the idea is to be able to milk all the *dri* or *dzomo* while the sun is still shining. If one really tells time by the sun, then the time for milking is the same each day. If one were guided by a clock the numerical time for milking would be in constant flux. There are a many considerations that go into nomadic timing and most of them revolve around the presence and absence of sun and its heat. For example in the summer months when the heat of the sun is strong and there is an abundance of daylight the yak are sent to pasture for long periods of the day. Yet in the winter there is less grazing possible and many families will not even milk their livestock, instead allowing the calves to utilize all of the nutrition. Other families may milk the herd once each morning in the winter months, but that too depends on the amount of nutrition they are able to supply. Most families spend the fall cutting the long grass to dry in preparation for the winter months. It is in this way that the sun and the seasons dictate a nomadic schedule with more authority than the hands on a mechanical clock.

Many nomads keep track of the date according to the moon. The Tibetan Buddhist cycles of time are set upon the lunar cycle. The cycles of the moon play an important role in Buddhist practice. Full and new moon days are believed to be highly auspicious for undertaking virtuous activities. Even today many Tibetans remain unaware of the "*gyatse*," or Chinese date. The concept of time moving is still very much tied to the season and the lunar cycle. Even government schools are unable to set strict dates for vacation. In regions where [yartsegumbu \(cordyceps\)](#) are the prevalent form of income, schools allow a one-month vacation beginning whenever the first *yartsegumbu* is har-

vested. One morning during my first spring in Tibet I looked out my window to see all of my students driving off in the back of a big truck into the mountains. It was a school day and I had our lessons all planned out for the week. When I ran down the hill to inquire where everyone was going I was told that it was the beginning of a one-month holiday for bug grass picking! While I was somewhat upset that no one bothered to inform me about this slight change in what I thought was a schedule, I was happy to settle into a surprise retreat while everyone else cleared out of the village and ran to the mountains!

Adapting to nature's time has been one of the more difficult but rewarding lessons I have learned from the nomads. Allowing time to become less of a standard began during my first research project in the region in 2001. At that time I encountered the issue of people not knowing their age. It threw a small wrench in my research, but even at age twenty I found this a refreshing concept. I enjoyed not having much weight placed upon each person's birthday or age. Instead each Tibetan celebrates birth on *Losar*, Tibetan New Year. The year begins with a new moon, and lasts fifteen days. Each year is represented by a *lotak*, or animal symbol, which repeats every twelve years. Those conceived before *losar* are the *lotak*- of the previous year, those conceived afterwards are considered the following year's *lotak*. While many people are aware of their *lotak*, the majority of rural dwellers still do not know their date of birth, although Chinese documents require that one be assigned. Mothers would report to me that their child was born in the spring, summer or winter (the concept of fall in nomadic regions I work in was never spoken of, while in central dialect there is a clear word for the fall season). Tibetans are often forced to create a false date of birth to report on their ID cards and household permits. It does not seem to be an issue to falsify this date as it means very little

to them. Most Tibetans now understand that a birthday means something to outsiders, so many Tibetans have found that writing an earlier date of birth has given them some advantages.

I have found that the spread of formalized education on the plateau has heavily influenced the conception of time there. It was 2007 when the village school I worked at began using a bell system for announcing the end and beginning of class periods. I cringed at this change while my co-teachers (mostly raised away from the village in the district center of *Nangchen*) were thrilled that classes would become timelier.

Hours and days are not the only concept to become more punctuated by numbers, the age of people and things are also being counted with more scientific precision these days. The change in the weather, grass, and water is now also being studied with a close eye on the clock. In this study although many of the questions revolved around time and change I have not put a huge emphasis on exact years, as my goal is not to establish since when climate change has impacted the Tibetans, rather to prove that the long-term changes in weather and climate are having an impact on these nomads and listening to the way that they understand the changes and what may become of them in the future.

In my writing, I will distinguish between western science, Buddhist science, and nomadic science. Nomadic science is very much the science of nature- a concept which I will explore further in the following chapter. While the scientific need for exact numbers has crept into Tibetan society by way of Chinese and other foreign development, the more rapid acquisition of numerical literacy is creeping in by way of consumerist culture. It is the elder nomads who still use the seasons and natural landmarks to measure time, while their children are well versed in both the scientific and Tibetan calendar.

I have watched many elements of life change in the nomadic communities, yet one element remains constant: the pride with which nomads speak about where they are from. Nomads often brag about the water, the grass, the mountains, or whatever it is that is plentiful and pure in their homeland. The nomads display a sense of belonging to their place in this way. The Gar students who are sent to the district center return to their village saying that they missed the clean air, water, and food. The region does not have any sort of abundance in terms of food, but those who are from *Gargon* prefer [their butter, yogurt, milk](#) and meat to that of others. Not only do Tibetans link food directly to the animals from which it is sourced, they also praise the earth, which gave the nutrients for the livestock. In the following chapter the connection between earth, animals and humans will be covered in detail.

4.2 Black Heads: The nomads of *Yushu*

Most American teenagers would not think of rising at 4:30am to start work, but this an undeniable part of young nomadic woman's responsibilities. The nomad women of *Yushu* start their day early, to have enough time to milk all of the *Dzomo* and *Dri* and set them out for grazing. Some youth as young as eight years old are in charge of herds which are worth hundreds of thousands of dollars. Most nomads wear and herd their wealth. When they have excess money it is not put into a bank account- in fact many of the nomads do not even have the proper state issued ID cards necessary to open a bank account. Instead the herders hold their savings in their herds or on their bodies in the form of gold, coral and turquoise jewelry.

The nomads I lived with in *Gargon* have very little savings, their herds are small and their jewelry is few. Only a few families have over one hundred head of yak and

very few have valuable jewelry. *Dzado* region is known for being wealthier, the people not only have silk *Chupas* to don at festival time, but each woman seemed to be wearing enough jewelry to buy a car.

As mentioned in Chapter 2, Tibetan nomads live in a way that is determined by nature. The Tibetans do not try to defeat nature; rather, they try to work with nature to survive. The nomadic ways of living in this challenging landscape have been developed for hundreds of years. Their traditional Ecological knowledge, which will be discussed in detail later in this chapter is full of detailed knowledge about the animal and the environment. They know from generations of past trial what varieties of livestock will thrive and what types of range management they need to practice in order to be successful. Success for the Tibetan nomads who I spoke with depended on the health of the herd and the health of the family. Environmental extremes and disasters have been met with extraordinary resilience due to generational knowledge about survival. The mobility of nomadic life has allowed them to be extremely flexible and gave them freedom to practice rangeland management how they needed to. These days while the tent is still quite mobile, the Chinese laws are not as flexible.

Families in the region are given 2-3 areas that are expected to be fenced in. Traditionally the nomads would move 4 times a year. The tent splits down the middle and each half is [carried by a yak](#), each half probably weighs over a couple hundred pounds. One [yak can carry up to 70kg](#) (Rinzin, 2007). There are between 4-8 wooden [tent poles and many ropes and stakes](#) are tied onto other yaks for transport. The family usually has one or two large metal chests (used to be wooden) that they may keep clothes and prayer and ceremonial objects inside, when set up in the tent, the alter usually sits on this box in

the far center of the tent. The solar panel, electric butter churners and kitchen pots, ladles and spoons are usually packed in yak wool saddlebags for the *dri* to carry. The mattress pads and blankets are now packed into Chinese army bags and thrown on top of the pack animals. The food staples, barley, rice, butter, cheese, tea, salt and dried meat are packed into bags. They often fill up on water in their [plastic 20 gallon bottles](#) to journey with incase there are no streams along the way. When I first arrived in 2005 to *Gargon* nomads would munch on dried cheese, whole roasted barley grains, or raw [dronma](#) during day hikes and moves, but now a days more often than not they have a packet of *weiwei* (ramen) noodles crunched up in their pocket, taking handfuls of the dry noodles like potato chips, the children especially love the MSG ridden plastic flavor packets, savoring the spices and tongue tingling chemicals by dipping and licking their fingers into the little packets. With a loud snap of the tongue after each mouthful of the spices they announce their enjoyment.

The yak is a famous symbol for Tibetans, but in the region of this research there are fewer yak and more *dzomo*. Yaks are native to this region, wild yak (*Drong*, tib., *Bos grunniens*) are still seen at times in the mountains. Yak are mainly used as pack animals, so not many are needed and most are castrated, leaving the breeding work to only a couple of *chu-yak* (bull yak) per *surra*- nomadic cluster. One *chu-yak* is able to impregnate 40-60 *dri*. *Chu-yak* are known for being unruly and I generally steer clear of them, but they are so dangerous the nomads many times let them roam the mountains freely, knowing that they can defend themselves against bears, and wolves. The domesticated female yak, the *dri* is more looked after than the males, as they produce more *dri* and give milk! Although *dri* lack the strength of its male counterpart, and are not used much

for carrying objects. There are four major life stages of *dri*. First, *So-nyi* (two toothed) when it becomes fertile. Second, *drunma* which has just have given birth and is at peak milk production (one *dri* can go give birth 6-8 times in her lifetime). Third, *yarma* which has given birth the previous year. And finally, *driyam* (dry *dri*), which is barren and not giving milk. These are usually slaughtered for meat. In the *Yushu* region slaughtering occurs in the fall and many times the nomads will hire Muslims to kill the animals. If Tibetans kill the animals they do this through suffocation by tying the nose with rope. Suffocating a yak takes up to half an hour, so the Hallal rules of slicing the throat may be more humane, and both sides are happy for their karma of whether killing properly with prayer (the Muslim view), or refraining from killing (the Buddhist view). Compared to the yak, *dri* are slaughtered at a younger age because they become useless, their meat is considered tastier as it is relatively young when they become barren. Cross-breeds of the *dri* and yak are called *dzo* and *dzomo*, they have shorter, smoother wool and are a preferred animals in *Yushu*.

Yak and the *banak* --the black tents woven from their wool-- have both become symbols for Tibetan self-sufficiency and close-to-nature nomadic life. The black tents are woven every few years as necessary. Some families just replace only the patches that are leaking, while others, who are more wealthy (who have more livestock and more women) tend to replace the entire tent. The process begins with the [shearing the animals](#). Shearing tends to be a man's duty that takes only one or two days depending on the herd size. This takes place in June or July as the summer sun gains intensity and the large hairy animals are warm without their hair. The nomads leave the hair long on the underside and around the head and legs. The women then spend about a week or more (de-

pending on the amount of wool collected and the number of women working) brushing, or cleaning the wool. The women then cross a couple of sticks together to begin spinning the wool with. They spin and spin the wool together for months, taking the balls of warm and unspun wool in their *chupa* pockets to the mountains to work on spinning while they are watching after the herd. Once enough wool has been spun, the nomads then weave the wool in small squares that are later sewn together to make a large rectangular tent. The tent is erected with sticks and wooden stakes, and usually brush around the edges to keep the elements and wild animals from coming inside. Brush is also used to lay under the thin mattresses to offer more comfort. The beds are defined by large logs that create a bed frame. An earthen stove is erected in the center of the tent. The construction of the stove is incredibly important as it not only provides the heat, it also cooks the meals with its fires. The making of the stove used to consist of only three rocks, but now many stones are gathered for stacking to make at least a two cooktop stove covered in earth. Having two cooktops would mean that the stove has two circular holes on top, usually one larger and one smaller for the pots to sit upon. Around *Gargon* and *Tajuk* (in the protected forest zone) many nomads use a combination of yak dung, sheep dung and wood to burn in the hollow earthen/stone stove. The fuel is pushed into the rectangular opening in the front of the stove to create the [fire directly under the circular openings](#) for the pots and pans. The smoke exits the system by sneaking out around the pots or back out through the fuel feed. The smoke then finds its way up through the top of the tent that can be opened with a stick from the inside to allow smoke out and sunshine in, and closed by pulling on its strings from the outside. The ashes of the fire are pulled out into a little half-moon indentation at the foot of the fuel feed area and

sometimes this space is also filled with coals to expand the warmth of the fire (or to bake potatoes or apples!). Although the nomads didn't like me to do any sort of work, it was apparent that my friends were happy if I had a fire going for them when they returned from herding or milking. Even in the summer the weather can be quite cold, often our socks and shoes would be soaking wet after setting the yaks to graze in the mornings due to the amount of dew in the grasses! There are also many flash hailstorms in the high mountains which are used for summer pastures. Traditionally a grandmother would stay in the tent and tend to the fire, but these days, most Tibetan elders are being moved into villages, townships and cities where they are closer to doctors and other material comforts. Just because elders are no longer around to watch the fire and the babies does not mean that the jobs can be abandoned. It means that the women have much more work to do!

Keeping a nomadic household has certain beautiful simplicities, in the way that nomads can be self-sufficient. But in this lifestyle the issue of survival is the concern, rather than someone working to meet a deadline so that they can receive a salary, to then pay off their credit card debt that has bought them food for them and their family from half a world away. The modern lifestyle has become very complicated and very removed, while perhaps it is a misconception of those living modern lifestyles are further from the survivalist mentality, and rather concerned with comforts, that distance them from our universal realities of suffering from climate change. The nomads are far from disillusioned with the reality of life and death, and the changes that our climate is undergoing and the hardships that it is and will cause. The nomads spend each day simply concerned with the wellbeing of their livestock and their families.

The mindfulness they keep on their fire is a demonstration of their survivalist mentality. The women begin and end each day by purifying through smoke offering, lighting juniper or burning other aromatic woods in the fire. The offering of incense is done much more commonly than the offering of water on the altar each day, as incense is much more accessible than water in many of these nomadic places.

The fire occupies a central place inside of the tent. The fuel piled to the right of the door, along with some of the herding supplies, like the slingshot, or the stakes that the livestock are tied to each night, and the anti-nursing contraptions that are put onto the calves to keep them from milking their mothers except during designated times. Vessels full of water and the large ladles are also kept by the door. Food stuffs and pots and pans are stored along the right side of the tent along with the beds and sitting area for men. In the back of the tent the altar is laid out with pictures of lamas, perhaps some texts if someone in the family can read and usually a butter lamp burning throughout the day. They may also have prayer wheels or other practice or sacred objects on the altar, which is usually the neatest place in the tent. Valuables and extra clothes and blankets are usually left in the metal or wood chests that the altar sits upon. The left side of the tent are the women's beds and where they may store clothes. The tension strings that keep the tent in place are often places for hanging [malas](#), phones, facemasks and regularly used items.

Nomads from all different regions speak of summer as a [wonderful time of year](#). Not only is Tibet finally warm at that time but the landscape is covered with green grass and countless flowers. Milk is also abundant and the nomads feast. By wintertime the nomads of *Gargon* have very little food left and the spring is very difficult. The nomads

of *Yushu* rarely have excess milk to make butter or yogurt to sell even in the summer, when they reach the depth of winter, there is usually no yogurt, due to the small amount of milk. In the [winter the calves](#) need most of the milk and the nomads need to make sure that there is enough feed for the mothers to be healthy and producing enough nutrition for their calves. The fall is often spent cutting the tall grasses and drying them in preparation for the winter and the spring when the grass covered by snow is not developed yet.

The production of food falls entirely onto the women of the household. My friend who I mentioned earlier who returned from exile to his nomadic family in Tibet refused to admit to his family that he had learned how to cook while he was in India. He said that it would be much too embarrassing, even though he was a great cook! After the first milking the women usually make a fresh kettle of milk tea for the men who are usually just beginning to stir after daybreak. The rest of the milk sits in the back corner of the tent with the rest of the food supplies waiting to be processed. Day old milk is processed into butter and cheese if not left to make yogurt. Machines are used now for processing butter and I rarely see the tall wooden churns that are now sold in antique stores along the tourist routes. The processing only takes about twenty minutes now and the skimmed [milk can then be boiled](#), combined with some curd and put into a *shogom* (wooden yogurt barrel) and stored for a day or more to make yogurt. Otherwise the skimmed milk was boiled for an entire day until all water had evaporated and it looks like yellowish feta cheese. Two women are usually needed to lift the huge pot of cheese off of the fire and they then squeeze the cheese handful by handful after it has cooled

and scatter it on the canvas from a tent, a tarp or a yak wool blanket to dry in the sun for the day.

The traditional hierarchies of Tibetan culture have been dwindling since the Cultural Revolution, which destroyed the royal families of *Nangchen* and dismantled many of the family treasures, leaving most people on the same level. The communist revolution did bring some sense of equality among the Tibetan people, yet it never disappeared. The government redistributed land and people were allowed to again accumulate their own wealth, many of the wealthy families became wealthy yet again. Now within the capitalist, consumer culture, many of those who were educated or moved into town have resources that other families do not have. Monks and men still dominate over women in Tibetan society, although the women control the food, water, shelter and fire, the men still maintain the social dominance and sit closer to the fire. Men are served food first and they handle the money.

For some time, I tried to recognize my ethnocentrism while observing Tibetan culture. I thought it was my feminist lens perceiving inequality while it was in reality just gender roles that were a foundation to the functioning of nomadic society. My first visit to Tibetan nomadic areas in 2002 was marked by certain discomforts. I remember my sister and I always being seated in the men's side of the tent and close to the fire, served with the men while the rest of the women waited to eat the leftovers.

Our Tibetan friends whose families we were visiting had already told us that their families may spoil us, but little did we understand the gender barriers that we were about to break! Not only was it the first time many of those families had contact with someone of non-Tibetan non-Chinese descent but it was also new for the men to be of-

fering their seat to a female. Even nuns do not receive the type of treatment that I do as a foreigner. Slowly over my years with the nomads I began to enjoy my role as a barrier breaker. While of course my own American feminist ego had silently declared war on the patriarchal system, I took to heart some of the Dalai Lama and *Karmapas* teachings. These two main Tibetan leaders have repeatedly called for change of the Tibetan culture. Neither of these spiritual heads sees a benefit to “preserving” Tibetan culture. They both call for changes through education and awareness. One of the main issues that both Lamas have been under scrutiny for is the equality of women and the dismantling of the Tibetan hierarchical society. With these teachings supporting my own cultural orientation towards equality, I began to try and utilize my foreigner privilege. I try to serve my female friends before they can serve me any food and allow the men to pour my tea. It’s often too awkward for my female friends to sit next to me on the male side of the tent but when they leave we enjoy the warm seats and I push any foods that I have brought (that were of course immediately washed or cut and served to the men) on the women with the same persistence that they extend to me while they are sharing food. As men spend more and more time away from the tents on their motorcycles and in towns, and more and more women are educated I see many more young women taking more control and power. Yet it is inside of the tents the roles often remain the same. This is again why many of my female friends who have attended school no longer want a nomadic Tibetan husband- they tell me they want to be treated well.

While the hierarchical systems are not as strong among those with fewer resources, they are very alive in town where richer families often take young nomadic girls to be servants inside of their homes.

4.3 Home of the Nomads

It took us two drivers and two days to get to *Tashi Kyiwa* from *Dzado* the district center. The total time driving was nineteen hours. The days in the car were quite enjoyable, as the landscape was providing constant entertainment. Numerous wild asses, vultures, hawks, cranes, owls, antelope, pikas, gophers, fox and wolves ran along the ridges we rolled through. Luckily, the ex-nomad drivers were as enthusiastic about the wildlife as I was and didn't mind slowing to watch the wildlife in their beautiful homeland. The lack of a real road to the region, as well as the lack of inhabitants, gave me a breath of hope that protection of the region was being taken seriously. Unfortunately, my assumptions were negated by later interviews.

While the drivers were quite confident, I begged to walk rather than drive through the wetlands that *Tashi Kyiwa* is situated within. Just like the drive until that point, the walk to the source took a lot longer than it looked like it would take. My friend who had left nomadic life at the age of six to attend government school in *Dzado* said to me that it would take two to three hours to walk, foolishly I said: "oh no no we can make it in an hour"- I can see it from here! I had not experienced walking in swamplands (without bridges) before. She was right; it took us two hours. That was one of my many lessons in never underestimating the guestimates of a nomad on issues of walking times, cooking times, food, fuel, and water amounts, or even recovery time from an illness. I have learned that even youth who left the earthbound life quite early on still carry with them excellent knowledge on these subjects from just the few years they had of living in close union with earth.

Walking in the swampland was difficult, like the source was trying to protect itself. The landscape was perfect for birds, reptiles, and some four-legged friends with small padded feet or hooves. The earth was full of depressions full of water; clumps of raised earth about half the size of our feet rising out of the water capped with clumps of diverse grasses and some medici-

nal plants were pointed out by the drivers. As we [hopped from](#) little earth pedestal to little earth pedestal, I appreciated the life between each step. Not only did I adore the precious tiny creatures in each pond, I was also overwhelmed with gratitude for having my own life. Eight months earlier, I had failed to reach the river source, which I was told was easily reachable when the ground froze. But the frozen ground was what the taxi slipped on, flipping us onto the bank of the *DzaChu*. The doctors said I was lucky to survive the crash and have a [C3 fracture](#) that wasn't paralyzing. It was with all of this in mind that I savored the opportunity to visit *Tashi Kyilwa*, which in my world had become like a pilgrimage place. Besides the life in my body, my heart was full with appreciation for the abundance of life in the area. Each step seemed to reveal a new type of plant, bug or fish. Each step took me across a few little pools of water; I could not even imagine the rich world inside each one. Every few meters, I would happen upon beautiful feathers that had once adorned the huge Tibetan griffiths, golden ducks, and black-necked cranes. The beautiful abundance of life brought me to tears.

The region is one of great peace and enormous power. Even if I had not spent the last couple of years studying about the river and its importance I would have recognized the space as sacred. While [prayer flags](#) and the colorful square papers of the windhorse prayer celebrated the site, there was a distinct deep solidity to the space that demanded our attention. After the initial pictures and inspection of the site, all of us became quiet and still in response to this energy. Even the two drivers who seemed to really enjoy conversation took some quiet time to themselves. One came back with a bottle filled with water from the source, and only after returning to the car did he recognize that he had accidentally captured a fish inside of the bottle. The source and surrounding ponds were so full of life that we were not too surprised.

At the top of the main pool of water there was a [poorly made sign](#) that declared:
“*Dachu* source *Tashi Kyilwa* environmental protection. From volunteer *Dzakyi* Tibetan Nomadic people for the ecological protection 2007 by *Gekyi Karma Tenzin* (Tib) July 30, 2007” (Chin).

I was a bit concerned reading this sign, and I watched my heart begin to hasten. My face may have even become red as my mind raced and wondered, “Did we really just travel all this way to come to the wrong river source? Had I been that careless in all these conversations? Is my Tibetan pronunciation that poor that they thought I was talking about some river called the *da chu*? Where are we? What have I done?”

Jamyang spoke before I did. Commenting that whoever made the sign was really bad at writing! As a writer from *Amdo*, Jamyang is always commenting on the unfortunate state of Tibetan literature and learning in *Khampa* areas, but this time I was grateful for the comment! Otherwise I too have caught some of the *Khampa* pride and don’t like when the other Tibetans insult this place or its people, in fact even when *Amdowas* say that the *Khampas*’ livestock are small I find myself getting defensive!

When we arrived back to camp that evening, one elder explained:

DzaChu has many different pronunciations, in Tibet we have many different dialects, some from Lhasa may call it Dachu, or maybe [those] from Amdo too. But we call it DzaChu. DzaChu is the real name. Dza like the [Dza \(rocky mountain\)](#) which surround this place. Of course some people would call it Dachu like Da (big) but now it is not even deserving of that name- it is no longer big like it used to be. (personal communication, date)

After my big scare I was very interested in asking people why they ‘A’ called the river two different names or ‘B’ didn’t spell check before carving a giant stone marker!

I was happy to hear this old man’s explanation and slept with much contentment having met the spiritual source of the *DzaChu*. Along the way to *Tashi Kyiwa* we passed many streams and rivers, but the one that was most striking was actually the river that comes from the Chinese named source of the *DzaChu*. Locals call that river *Nakchu* (black water) it is- as the name suggests, quite muddy and comes along the [north side of a rocky ridge to join with the Karchu](#)

(whitewater) which was actually a beautiful shade of green running along the other side of the rocky ridge from *Tashi Kyiwa*. The meeting of these two rivers is an incredible sight in both the physical and political sense. It is only from the joining point of the *Nakchu* and the *Karchu* that the river is called the *DzaChu*. Although both the Chinese and the Tibetans claim an upstream source of the river, neither river coming from that source is specifically called the *DzaChu*. When the two rivers come together in union, mixing their brown and green waters, the river gains much momentum and power, and at that point the rivers become one real *Dachu* (big water- as spelled on the sign) the mighty *DzaChu*. One elder told me:

There is really big change [in the river]. Because before when we said *DzaChu*, it used to be really big. During the summer time the *DzaChu* used to be able to reach the level of what is now the *DzaChu* Bridge. But now, there's no chance [for the river] to be big like that. Now the government is digging the source area [Tashi Kyiwa] that's why the river is so much smaller. The river used to be very big. (personal communication, summer, 2014)

When I returned to *Nangchen* and traveled to *Amdo* after visiting *Tashi Kyiwa* Tibetans had many questions for me. Tibetans take much pride in the fact that their homeland is the source of the *DzaChu*, *DriChu*, and *MaChu*. And many friends are as interested in my readings about these mighty rivers as I am, which is why it seems appropriate to print much of the findings and information in Tibetan. The first question I seemed to face was: "how big is it?" To me it seemed quite large. From the erosion marks left on the landscape, I assumed that the river had once been bigger. Locals confirmed during interviews that the *DzaChu* had once been much larger. I was happy to share that the source of the river was surrounded [*by healthy marsh lands*](#). I had initially been appalled at what appeared to be an oil spillage in the water in the surrounding wetlands, but I was relieved when Jamyang put a Tibetan name to the phenomenon- [*Nga Ru-spoiled marsh!*](#) He told me that the oily looking marsh is much more prolific in his region and that elders share stories of having had to drink such water during the great famine. Later I heard

that all of the decomposing dead plants and animals can secrete oils into the water and give the rainbow shine to marsh water. I was then happy to report that the immediate region is quite well protected naturally and although there are major issues to be addressed and big changes are occurring for sure. *Tashi Kyilwa* is still breathtakingly beautiful and full of life.

4.4 Old Culture, New Culture: Capitalism and Consumerism Among Nomads

Chapter 6 will focus on the findings that point to climate change as one of the leading issues that endangers the Tibetan nomads of Yushu. The literature review in Chapter three provides a background for the cultural history. It is important to consider the current situation of the region. Yushu is undergoing extreme changes that are felt on spiritual- socio- economic and political levels.

The traditional nomadic culture is romanticized by the global community and the local community. Tibetans who I speak with in exile and in the cities who have and have not been nomads all spoke of the culture as something that they valued, although many of them would dismiss nomads in other ways. Often the “old culture” is seen as beautiful when one steps away from it, but when interacting with “real” nomads, many Tibetans will dismiss them as uneducated and backwards.

The issues of exclusion are a large reason why the setting and participants were such an important part of this study. Exposing the views of these “real” nomads and demonstrating the congruence of their Traditional Ecological and spiritual Knowledge with Western Science, may heal some of the discrimination that the nomads face- even among themselves.

Formal education has caused a major rift between “old” and “new” culture. The youth who are sent to the city centers are taught a new culture. The new culture is one of capitalism. Our current capitalist system is built on consumerism, while nomadic cultura

was traditionally built on subsistence. This is a major change that is impacting nomadic life in a dramatic way.

The capitalist culture pulls the Tibetan nomads into a new economy. This generation is getting a crash course in the cash economy. Many Tibetans I work with have very little education or experience around financial planning or general budgeting. The commodity that has catapulted the nomads of this region into the cash economy is *yartsegunbu* (cordyceps).

In one interview an elder spoke about how they did not harvest as much *yartsegunbu* in the past. Now even the government schools close down for the harvest season, because the harvest of the medicine. In Galipeau (2014) studied an area downstream of the Mekong, in Yunnan Province and found that between 30 to 37 percent of the household income was dependant on the harvest and sale of the *yartsegunbu*.

The semi nomads of this study reported between 10,000 and 150,000 Chinese Yuan worth of medicinal fungus being their primary income.

Since two of the research sites in this study are well-protected national forests, the livelihood of logging is no longer permissible. Without the logging industry, the nomads of the region depend almost entirely on bug grass for their monetary income. The nomads in Nangchen area that participated in the study do not have enough excess to sell any of the animal products that some other nomads make money off of. The dependence on *yartsegunbu* is even shown as high in Galipeau (2014) where he quotes the Tibetans of Geze, Yunnan: “It is also better here than other villages in Deqin. This is the best village because we have the high mountain with lots of resources and if we work hard we can make lots of money from the mountains.” and

“It is better than other rural places and other vil- lages around here because we have so many resources. Other villages in this area must look for work outside the village.” (p. 45) The diversity in income that those in Geze have offers the people a safety net if the cordyceps market drops. The farmers of the region cultivate both ginseng and walnuts. While the diverse market does provide a more stable income, the Tibetans do take pride and place more importance on the yartsegunbu.

The grass is so valuable that as mentioned in the second quote, the villages with less resources face outward migration due to the lack of income. While the traditional or “old” nomadic livelihood simply depended on the herd for the majority of people in Yushu, now the sale of caterpillar fungus has brought in the cash economy. This relatively new need for cash, and available commodities, such as cars, smart phones, and electric tools is having a huge impact on the society.

Daniel Winkler(2008), long time ecologist working in Eastern Tibet, offered insight into the commodification of the medicinal fungus. He states that the price of the medicine rose 350 percent between the years 1997 and 2004. Used as a tonic in Chinese medicine, the fungus has grown in popularity especially for the aphrodisiac purpose. The Tibetans do also have some uses for the medicine within their own tradition, yet those I know who harvest the medicine have never reported to me that they use it for their own benefit, rather they say it is worth much more value to sell the product and receive the cash.

The commodity has had a large impact on society, since the item has such a high price tag in such a money-poor region, there are annual reports of fatal attacks on pickers, thieves-willing to kill for a couple thousand U.S. dollars worth of medicine.

The value of this medicine has given many nomads the opportunity to “retire” from the nomadic lifestyle. Some families I know had one good year- when the family of 5 was able to pick 200,000RMB worth of fungus and sold it for a house in town, they sold off their livestock and now stay home, doing very little, except during harvest season (May-June) when they return to the mountains to try their luck once again. There are many people who are actually tied to their homeland due to the value cordyceps have given it. While the commodity has pushed some nomads into town, it has given others reason to stay. They can now afford tools that make the life of a nomad more comfortable such as a car, solar panels, electric equipment for processing foods etc. Those with household permits of the cordyceps rich regions are also not willing to move and register their residence elsewhere, due to the fact that in Yushu most areas require a permit for all outsiders to come and harvest. Residents of the area are given rights to harvest in their homeland.

While the harvest has obviously brought some economic prosperity to the region, in this research it rarely came up that digging yartsegunbu may be disturbing the spirits (unless on a sacred mountain). Yet in Emily Yeh’s research with Kunga Lama (2013) she found that many participants actually said that ‘bu picking was against Buddhist practice, and detrimental to the society. This is similar to what scientists are saying.

Many Chinese and foreign scientists (including Winkler) have spoken about the environmental impacts of yartsegunbu harvest.

Summary

It is with this background of the transitioning nomadic culture, that the findings of the study will be presented. It is important to understand that just as there are many understandings of climate change, there are many influences that are creating change within Tibetan society at this point in time.

5. Findings: The Endangered Black heads

“The most enjoyable thing to do is to watch over the yaks because in the mountain there is everything. If it's too sunny, then we can hide in the shadows. If it's too hot, then we can go to stay beneath the trees. The mountains provide us with everything we could ever want and I really enjoy it.”
-Personal Communication (Summer, 2012)

In the previous chapters, I described the nomadic people of Tibet and introduced their connection to the earth. The relation that the people have forged with the land for centuries has made these people the experts on the land and water. What they reported to me over the years regarding climate change has been alarming. I had entered into this research to expose the issue of climate change, yet it was these findings that exposed a much more serious truth that the participants of the study shared: Climate Change is one of the greatest threats to the Tibetan nomadic culture and to Asia's magnificent *Mekong* River. There are numerous reasons nomads are declining in number, including education systems, relocation programs and *yartsegunbu* markets. The focus of this dissertation will be on the environmental reasons that the nomads are finding other than nomadic livelihoods. The nomads that I spoke with believe that the only chance for survival of the land and their culture depends on reconciling with the water and land spirits, as both a cultural and ecological preservation technique will be instrumental in regaining and maintaining balance at the source of the *Mekong* River.

The following pages will not only be the conversation I intended, the nomadic perceptions of global warming on the third pole, but I will also embark on a story that the nomads requested me to tell- the story of their cultural endangerment due to ecological abuse of their homeland.

5.1 Changing Culture: Ex-Nomads

The most surprising and difficult finding in this process of collecting the stories and perspectives of the nomads was hearing the nomads describe their own culture disappearing. Many Tibetan nomads already changed “professions”, due to a variety of factors. While this work focuses on the ways in which climate change endangers the nomads in terms of the actual availability of water, grass and ability to raise sufficient herds to live off of. Yet many other nomads have been moved into towns under resettlement campaigns. Resettlement projects implemented by the Chinese government encourages nomads to sell of their livestock in exchange for a house in town. The other major reason Tibetan nomads are leaving the lifestyle is due to availability of other livelihoods. As the market for cordyceps expands, the nomads are given better opportunities to make a excellent profit from picking the herbal medicine for a month or two. My drivers in *Dzado* make about \$100,000USD each May and June by picking the fungus and selling it in town. Many families have used this income to buy houses in town, trading in the hardships of nomadic life for the comforts of a house with electricity and sometimes running water and an indoor bathroom!

Throughout this text, I use the term ex-nomad to speak of those Tibetans who have stopped living in tents, and discontinued their work with livestock. Due to the

reasons explained above, many Tibetans are now ex-nomads. Environmental, political, and economic changes have caused millions of Tibetans to become ex-nomads since the 1950's. It was with some deliberation that I came to use the term "ex-nomad". I do view nomadic knowledge as something that defines ones identity as a nomad, and many people living in the towns and cities do have that nomadic knowledge which would allow them to return to the lifestyle. Jamyang and I had a conversation about the terms used to speak about these people who are no longer "employed" as nomads, nor do they identify as nomads. We use the term ex-nomad much like I use the term ex-monk. Jamyang, my interpretor, co-researcher and long-time friend is both an ex-nomad and an ex-monk. The Tibetan term for a man who gave up his vows as a monk is called a Tra Lok, it could be loosely translated as a reversal or return of the monk hood.

In the English language the term ex is often also used for professions, relations and things that impact our identity. In my research ex-nomads often demonstrated pride around being of a "pure nomad" background, but they ere clear in the fact that they were not infact nomads. The ex-nomads who were employed in town identified with their new profession, often letting me know what the profession was before I even reached the question of what type of work they did. The nomads themselves had a hard time answering the question of what work they did. Women, who in this reagon carry the brunt of the labor, would often giggle at that question. When urged to respond they would list the daily chores. "I milk, I carry water, collect dung, herd the Dzomo..." many simply identified with the act of milking, and said "I millk". It was mainly the nomadic men that replied, "I am a nomad". The youth in the local

schools identified themselves as nomads, while the students in towns did not answer that they were nomads, instead they identified themselves as students. Of course the response for the questions for the students may have been different had I been in their tent asking what work they did, rather than visiting their school and asking the question. For example, when I resided in Nepal I would consider myself as part of an ex-pat community, yet when I would return to the states to visit family I was never reminded that I was an ex-pat somewhere else.

I use the term ex-nomad much like I use the term ex-patriot. Being an American, I did not see becoming an ex-pat as releasing all of my American-ness, although I had given up my residence in my homeland. Similarly, for the nomads, I see this term as emphasizing the impact of the nomad part of the identity, rather than the fact that they no longer act as a nomad. Jamyang and other Tibetans I spoke with about this topic identify greatly as having nomadic roots. One of my friends who I spoke about had not seen a yak in over 10 years while he was in exile, yet when I saw him in Tibet, freshly reunited with his herd, he could identify the yak by the sounds of their snorts. This type of connection with the earth, animals and community will not be erased from ones Being very easily, hence it remains a large piece of ones identity.

Unfortunately though, when removed from the nomadic life, especially at a young age, the TEK and the knowledge around certain skills does become rusty and somewhat unusable. In my most recent trip to visit Jamyang's nomadic family in Amdo, I asked his nephew who was just about to graduate from University if he would like to potentially return to the nomadic life, he replied "I wouldn't know

how". In particular he said he would not know the special skills that his fifty year old father possesses, he said that he was now unable to complete tasks like packing the animals for moving camps. He reported that he had not been around for so many years while he was away at school, and now he just doesn't know how to do the work of a nomad.

The term ex-nomad becomes powerful as I discuss the main finding of this research, the uniform response from the nomads that if climate continues to change, that Tibetan nomads will be extinct in as little as ten years. If this is the case there will be many ex-nomads.

A major influence for urban migration in the region of this study is the herbal medicine cordyceps, here called bug grass, as many Tibetans translate the term. Cordyceps, or *YarTseGumBu* are a major force in the region where this study was located. In *DzaChu* the medicinal herb is the source of the majority of the county income. Jamyang was shocked to see that in a place where the herds are relatively small (compared to his homeland in Amdo), the people are so wealthy. People in Dzado joke that they are like Americans in the way that each family has a car, if not two!

Each cordyceps picking season, between mid May and mid June, hundreds of people flood the region, paying for a picking permit to come and harvest this valuable medicine. Scientist Daniel Winkler has written about the influx of harvesters for this particular medicine. Having lived in the region, he has also had a long-time observation of the rise in cordyceps value and the impact on Tibetan society.

It is not only important to speak of this topic because of the economic and social impacts of the medicine trade, but also the ecological impact. Many Chinese scientists have written reports regarding the environmental degradation that occurs in the process of crawling on fragile mountains and digging this fungus up and out of these fragile environments. The practice for digging for the bugs also calls to question the anonymous answer that digging the earth disturbs the nagas. When asked about this the nomads said that they do not dig the earth on the holy mountains and that in fact those who were greedy enough to do so were struck dead by lightning and felt the wrath of the spirits in other ways.

The economic impact of nomads suddenly having a cash income of up to \$100,000 a year is huge. In a region that has traditionally been a subsistence economy. Nomads with new money are using their funds to give up the nomadic lifestyle. Towns are now not only growing due to governmental nomadic relocation programs, but now nomads are building their own homes in town, enjoying the comforts of electricity and running water. Younger Tibetans in particular express a desire to live in town, where they have options for doing work other than the very taxing nomadic lifestyle.

The trade of *YarTseGumBu* gives money a new power in the region and has shifted values drastically. Each year there is news of someone being killed in a robbery of cordyceps. The pressure to find many bugs is also quite high, the schools all close and the season is made an official school holiday for the region because parents would not bring their children to school, as they are needed to also search for their annual income, in the form of fungus.

While this study speaks of the nomadic culture being endangered through climate change, the culture is also undergoing major shifts due to the cordyceps market. While no nomads who were interviewed mentioned this shift as something that endangers their culture, from an external perspective, I have seen the shift into the market economy change the aims and living situations of many friends. As they come into this new money, they often spend their entire earnings on a house in town, often times overspending and going into debt for the house, banking that the next bug grass season they will have a good harvest and will be able to repay their debts.

Unfortunately many nomads did report that the number of bugs is related to the climate and that they are seeing a decrease in bugs. Not only is the harvest unpredictability, but the value of the fungus is also uncertain. As synthetic cordyceps are produced, they bring down the value of the wild cordyceps, something that will have a devastating impact on the Tibetans who depend on this as their only form of monetary income.

5.1.2 Multiple Literacies

In speaking about literacy, I believe that it is important to recognize the multitude of literacies that the Tibetan nomads possess and the TEK that are endangered. TEK is what has allowed Tibetans and so many other nomadic people to survive. Today, as formal education becomes extremely powerful, the existence of TEK is threatened by making those who absorb this precious information informally become invisible. Most scholars within the education sector ignore the presence of multiple literacies. Even humanitarian organizations, which state intentions of bringing equality and justice to the world, are often unintentionally tipping the scales in favor of the already material rich,

and the already politically powerful, making our global society even more unequal. As countries race to reach goals set by the elite, such as the Millennium Development Goals (MDGs), they wipe out TEK and in turn will undoubtedly erase the human-nature connection and continue to proceed deeper into this environmental crisis.

As you can see in the chart below, the formal education system is interrupting the typical life course of nomads. As young as four years old, the nomadic children begin to assist their parents in the household duties. When the children are taken to school at the age of six, it interrupts the familial workload (which now tends to overburden women), as well as the transfer of TEK. It is the Chinese law that children begin school at the age of six and continue to study for at least nine years. Many nomadic children skip the last three years of the education since they must go to boarding middle schools, but the six years of primary education are highly monitored now. Although the school projects, which I work on allow students to live at home in the traditional village house with family, I still see the impact on the children's TEK. Rather than actually herding the livestock, the youth live in the tents and work alongside their parents only during holiday break, one of which is mostly spent harvesting *yartsegumbu*. The chart below demonstrates this break in the nomadic way of life. The life course of one of the families that I have known for nine years shows how quickly change is entering the society.

Family role	Year of birth	Age 4-6	Age6-10	Age 10-20	Age 20-30	Age 30-40	Age40-50	Age50-60	Age 70-til
grand-mother	1940	Helping collect dung, wrangling calves	Nomad-looking after calves	Nomad-milking & herding all livestock/ helping with food production	Married. Birthed & raised children. Nomad-milking & herding all livestock/ helping with food production	Raised children. Nomad-milking & herding all livestock/ helping with food production	Moved into the village leaving livestock with the grown children.	Passed away	
grandfather	1936	Helping collect dung, wrangling calves	Nomad-looking after calves	Nomad-herding all livestock	Nomad-herding all livestock	Nomad-herding all livestock	Nomad-herding all livestock/ helped rebuild gargon as ngakpa	Became leader of gargon spent half time in gargon village and other half in nangchen	Retire as leader of gargon when diabetes developed

mother	1971	Helping collect dung, wrangling calves	Nomad-looking after calves	Nomad-milking & herding all livestock/ helping with food production	Nomad-milking & herding all livestock/ helping with food production	Nomad-milking & herding all livestock/ helping with food production	Started working as the school cook. Sold most livestock/ tending to father		
father	1970	Helping collect dung, wrangling calves	Nomad-looking after calves	Nomad-herding all livestock	Nomad-herding all livestock	Nomad-herding all livestock-trading yartsegumbu.	Nomad-broke leg riding horse – moved in village. Forced to sell livestock- due to no children to look after them.		

Son	1993	Helping collect dung, wrangling calves	Student at gargon/summer nomad	Student at gargon to nangchen to yushu					
Daughter	1990	Helping collect dung, wrangling calves	Student at gargon/summer nomad	Student at gargon to nangchen to yushu, now training as tour guide in xining					

For so long, nomads have spoken a dialect deemed as rough, lived a rough life, and avoided the formal education system. The nomads have never been told that they have something of value, besides the *yartsegumbu* that they harvest. I recognize the importance of this study being based on the endangered human-earth spirit literacy of the Tibetan nomads. It is a literacy that I am still attempting to acquire, although in many ways I have little chance to truly learn such skills. When I explained to nomads the preciousness of the knowledge that they hold, they found my perspective difficult to believe.

People generally call us nomadic people. They say we are stupid people. Why? Because we grew up with animals; the yaks and sheep. So that means if you have 100 yak, you're living with 100 stupid yaks. They don't talk to you and you can-

not talk to them. So nomad people, they just grew up this way that's why they don't know how to deal with people. They don't know education. For example, in Tibet, I think 50percent of people are nomadic. So that means 50 percent of Tibet is not educated. That means 50 percent of Tibetan people are stupid. (personal communication, summer, 2014)

Now, we are trying to send our kids to school. For example, her [he pointed to my friend from the Dzado source area who was helping with interviews]. Her parents, they don't read! Now obviously, she can write and read. And she set an example that it's possible. Now if her father takes this [he lifts up a bottle of soda] and asks her what the contents are, she can absolutely tell him that this kind of chemical or this kind of things or content is in this. So if it's good for you or something and it's bad for you or something- she can say this. But some people, they just want to send their kids to school for a show. I really hope it's not going to happen like this way [that children are not educated to learn, just to show they are in school]. (personal communication, summer, 2014)

In this way, the village leader expressed his feelings regarding education. He obviously respected written literacies but was afraid that the formal education system would leave them without any nomads. He hoped that after going to school, children would find jobs, but he knew that would also mean that they would not return to the nomadic life.

The leader was obviously quite torn between his love for nomadic life, and his respect for education. He immediately respected Jamyang for his literacy, and upon

hearing that he was from *Amdo*, insisted that he write his speeches for the gathering that we were attending. After reading the first draft of the speech, the leader realized Jamyang's level of writing and began treating him with more and more respect. While these written literacies and formal education systems were wonderful to respect, I also tried to inject some respect for the unwritten, nomadic TEK into our conversation.

This study attempts to harvest some of the knowledge that comes from these unrecognized, Tibetan literacies. The ways of the water and the mountains, the relations with the earth and its many animals are all pieces of the picture that need to be part of the global discourse on climate change. Unfortunately, many nomads feel that they are not experts, and they doubt their suspicions. One man was at least 50% certain of his view:

I cannot say that I am 100 percent certain that we will need to face life without them [water and grass], but I'm at least 50 percent certain that if we continue to keep doing what we are all doing, then we will face time without water and grass. (personal communication, Summer, 2014)

5.1.3 It's not what they say but what they do

I have observed Tibetan nomads of different regions since 2002. They are not saintly people, and there are many parts of the society that are unjust. In terms of their relations with the environment, I am not proposing that Tibetans do not contribute to any environmental degradation or that they all respect the *Lu* and *SaDag*. Just like anywhere, Tibet also has its hypocrites walking around. Thargyal (2007), a Tibetan Anthropologist wrote:

Mining gold in Tibet was something unexpected or perhaps paradoxical when one considers the beliefs and ethos of Tibetans derived from the tenets of Buddhism and Bon or the ancient folk religion. Western travelers in Tibet have often reported that Tibetans left nature untouched for fear of retribution by the guardian spirits of nature. But this can only have been partially true in certain places. Regardless of such assertions, gold was mined by Tibetans in lower Zilphukhog on a small scale, no doubt with the initiative of Chinese or Tibetan gold merchants. Mining gold did not make one rich, even in the long run, but it nevertheless offered an economic niche for those dependents who found no other way of supplementing their pastoral income. (p. 99)

In the *DzaChu* region, women are the main laborers. Waking at 4:30am to milk the livestock and only retiring after the last bowl of dinner is consumed around 9:30pm, the nomadic women have a stamina that I have not seen in women in my own country.

Most nomadic women of this region who are over the age of 20 are not educated and have little or no written literacy skills. Having been told that reading and writing are the most valuable skills, most nomadic women deemed themselves unworthy to be interviewed. I was only able to conduct formal interviews with the nomadic women who I knew or who were friends of friends.

Luckily, since I am a woman, and it is common for nomads to be friends with others of the same gender, I have many female Tibetan friends. I have spent a great deal of time with them talking, playing, and rarely working (I am not allowed to do much work at the *surras*- either because my work is slow and sloppy or because they will always consider me a guest and guests should not do work). Much of what I have reported

is from years of observation and informal conversations. My research does not fit as simply as I had anticipated when I began my doctoral work or even when I was granted my IRB.

What I have shared in this dissertation is only a part of the friendships and community work that I have been doing for the past ten years in this region. It is impossible to think that I could gather enough of an idea of the nomadic relations with the earth and water within a year of field research. I have been watching and listening for the past decade and still only feel somewhat prepared to share what I have learned about nomadic relations with the earth. I have learned that interviews and focus groups are not the most important piece of this research although the conversations have been fruitful. The best “data” has not been recording what they say but rather watching what they do. This is where the use of video recording and photo recording devices became extremely helpful.

During my preliminary study, I had asked to interview one college-educated government employee. He refused to be interviewed, saying that he knew nothing about *lu*. Rather, he said that he just knew what the old people said about them. He told me that I was better off asking the elders, that educated people would not be able to speak to me about the subject. So I went to ask elders. Interestingly though, the elders didn't think they knew how to answer me either. The elders told me, “oh go speak to that man or that man, they have been to school. They can answer questions! I have never been to school for even a day of my life, all I do is eat flesh and drink tea” and “I am just a nomad, I don't know how to answer questions (personal communication, Summer, 2015).” These were some of the excuses they offered. When I explained further that I just want-

ed to have a conversation about nomadic life, many of the women still hesitated and referred me to others. The group of nomadic women told me:

We Tibetan people are without knowledge and not able to teach things like this, we don't know how to write the letters and we wouldn't know which way to go. We just go our own wild way. So it's just like this. (personal communication, Summer, 2014)

It was often difficult to encourage those with these self-doubts of their abilities to speak. There is a general thought among Tibetans that nomads are not intelligent. The nomads themselves perpetuate this view. For centuries, Tibetan nomads have educated themselves about animal husbandry, first aid, food preservation, shelter construction and countless other highly valuable skills. Yet the young boy (usually one from each family) who was offered to the monastery to ordain as a monk and study Tibetan language and Buddhist scripture was always the most respected. Written words are not even allowed on the ground or to be stepped over in a Tibetan household, which speaks to the amount of value that is placed on literature. Being able to read and write brought automatic respect from Tibetans, and in nomadic regions, where illiteracy rates are high, literate people are still considered the pillars of their community.

As we spoke to different people, I would often be writing in my notepad, recording device (an iphone), or sometimes onto an ipad. Many people saw the speed at which I wrote or typed and commented on how wonderful it was to be able to do so. Often people gave me pop-quizzes to see if I could write as quickly in Tibetan as I wrote in English. Since they were mostly illiterate, very few of them recognized my careless spelling and careless Tibetan grammar, so they were in awe of my literacy. When inter-

views carried on into conversation (which was my hope and was luckily often the case), I would try explaining to the nomads how invaluable their literacies were.

5.1.4 New ecological knowledge transfer

Drolma and Pema no longer eat meat, but when they did they told me they would never drop its blood into the water, this would make the *Lu* upset, as would dropping milk or any pollutants into water. It is notable, though, that new substances, such as hand soap, shampoo, and laundry detergent, are not seen as pollutants. Only a handful of participants spoke about new products, such as plastic, soaps, and processed foods.

I was surprised at the amount of reflection people shared regarding food. There has been so much candy and soda entering the communities that I thought I was the only one not eating it. But some of those eating it do have awareness about its dangers to health.

Before ten years we didn't have this American fast food [pointed to the candies on the table], we used to only eat nomad food [like meat, milk and butter], but now we have changed...this food [candy, etc.] causes a lot of disease and sickness and [provides] no nutrition, our old food was pure and has lots of nutrition.

(personal communication, date)

Some people were not only aware of the health impacts of the [new foods](#), but they also noted all the packaging for processed foods as an issue for Tibetan nomads. This realization is evidenced in the following quote from an interview with a village leader in summer of 2014:

For example, people eat this [pointed to candy] and throw away the plastic. But apples, we only used to eat those types of foods, we throw it, but it doesn't hurt

the earth. Now we have this type of food [points to candy] people eat this they will throw up, its rubbish, maybe it's difficult to control because of the increase of the population- obviously there are many problems to solve! (personal communication, summer, 2014)

One young man pointed out the difference between the environmental protection that Tibetans are very conscious of, and the protection and behaviors that people are ignorant about.

Now people, when we talk about environmental protection, they [other nomads] only really think about the Lu and mountain spirits. They don't know it's possible to pollute air or anything else. For example, they don't think that if you put a plastic bag in the river, it's going to harm anything. And they don't think throwing a water bottle, a plastic water bottle in the grassland will harm the grass. They throw some garbage in the water and they think it's going to wash away. They never think that it's kind of a poison or that they're hurting something. They only think that the mountain spirit is going to punish us. That's how they think about this. Then it's my hope that we can improve this awareness. (personal communication, summer, 2014)

When I asked how to improve awareness, the young nomad told me:

Just give or tell them reason why it's pollution and why it harms environment, what the consequences are that we need to face. Otherwise, without knowing those things after ten years, maybe there's no more clean water and no more snow mountains. (personal communication, summer, 2015)

While this conversation displays some understanding of plastics harming the earth, the village leader who shared in this conversation with me hosted a weeklong picnic which entertained guests with tables full of plastics and processed foods. Afterwards, I asked if they would be cleaning up, they said of course. Unfortunately I did not witness anyone carrying on any sort of clean up! And Drolma, who loves the fresh stream water, washes her clothes with Chinese laundry detergent in the very same stream.

While there is some awareness being raised regarding these pollutants, a new ecological knowledge is needed these days. The previous foods and preservatives were all natural, organic, compostable items. The new plastics and artificial foods are not nearly as biodegradable. While the nomads told me that the *Lu* do not like plastic, that it is a pollutant, I heard only one teacher display awareness regarding the pollutants in cleaners, like soap, laundry detergent and shampoo which are often used for cleaning directly in the river. In the words of this teacher:

I have heard that the whole planet have problem with waters drying out. It's the same here. I think that the water spring is getting smaller. It used to be that they're doing a lot of pujas for offerings to those Lu and land spirits; but now, not many of those pujas are happening. That's one reason [for the environmental changes]. Another one [reason] is when people are washing their laundry; they didn't use to go very close to the spring. They do their laundry a bit far from the spring. But now, many people are doing laundry very close to the spring. Some people, they are even doing their laundry in the tank [of water] so the spring has been polluted. That's why it's getting smaller. Because this also displeases the Lu and the land spirit. (personal communication, summer, 2014)

In this way, it is also about witnessing what they do, not just listening to what they say. In the United States, we also have plenty of studies that report the high number of doctors and nurses who smoke! The struggle is not always about education; it is about behavior change. Besides local believe systems about respecting the *sa dak* and *lu*, there are policies in china about litter and trash disposal. But in two separate interviews Tibetans blamed the government for trash disposal issues. While it is generally a municipal responsibility, one of the nomads blaming the government for not providing trash pick-up was himself leaving plastic and glass bottles very near to the source of the river. There is all around confusion about what to do with waste at this point. While those participants who mentioned trash disposal said that they burned waste, they noted that this is likely to upset the mountain spirits too. With no experience of plastics and artificial ingredients, it is very difficult for nomads to know the harms the materials have caused or might cause. Certain elders and youth brought up the issue of these new toxic imports (some formally educated, and others illiterate) but no one had an idea what should be done with them rather than to bring the waste back into town where they came from. In *Dzado*, the town closest to the source, it is said that there is municipal trash disposal, yet the river in *Dzado* is full of plastics and other waste products, making it seem that there is very little enforcement around pollution issues. The increase in non-compostable waste has been one of the major issues that I have been seeing that seems preventable through education and some additional waste services

5.1.5 No more nomads

My best girl friend in Tibet has me on the watch for a “nice American man.” She wants a way out of the challenging nomadic life. Her mother encourages her to love nomadic life, as it was everything she wanted for herself and cannot understand her daughters disdain for the lifestyle. In one of our conversations they argued about their life.

“I’m wishing for my next life to not have to be a nomad woman. I spend this life worrying about yaks. In the night time and the day time, I always have to think about the yaks. There’s no free time, it’s very difficult.”

Then her mother said: “But I’ve always really enjoyed watching the yaks. I really enjoy going to the mountain and the forest.”

My friend disagreed with her mother, saying, “It’s actually scary to go in the forest!”

The neighbor jumped in the argument at that point, siding with the mother. “The most enjoyable thing to do is to watch over the yaks because in the mountain there is everything. If it’s too sunny, then we can hide on the shadows. If it’s too hot, then we can go to stay beneath the trees. The mountains provide us with everything we could ever want and I really enjoy it.” (personal communication, summer, 2013)

My friend went to [Gar School](#) when the villages’ first school opened in 1998. Despite her good grades, she was not allowed to go on to high school, because her parents needed her to help care for the livestock. Her sister, older by just a couple of years did not have the opportunity to go to school at all and seems to enjoy the nomadic lifestyle much more. Although she agrees it is difficult at times, she takes pride in her work and where she is from. Dissatisfaction seems to be bred into many formal educational institutions. Throughout my time as a teacher at Gar School I tried to instill a sense of satisfaction with life, because although I came from the magical foreign land called the U.S.A., life can be perfect wherever one believes it is.

My friend decided to believe life is perfect in America no matter how much I share with her about the downfalls. Of course not many of us need to bear the elements as much as she, but I tell her that manual labor can be quite intense in the states as well.

Unfortunately I believe the main thing she is running from is the culture of rape. Many young women whom I speak with are searching for a good man, one who will respect them and share the workload within the household. Not many women are looking for a nomad husband, and this may be one of the many reasons why Tibetans tell me that this may be the last generation of Tibetan nomads!

“Before, all people of Gargon were Nomads and had yaks. Nowadays, only half of the Gargon population has yaks. Now, even with fewer people, there isn't enough grass to feed the animals. And before, the grasses on the plateau was sufficient for the livestock to graze for one month. Now, that area can only supply the livestock enough food for ten days.”

There are reasons nomads are declining in number. The focus of this dissertation has been on the environmental factors that the nomads are finding other livelihoods. Yet I am convinced, other “push and pull” factors should be taken into consideration why nomads are leaving the lifestyle.

The most recognized reason for Tibetan urban migration is the highly politicized relocation projects. There have not been major relocation programs in *Gargon*, *Gyalsum*, *Tajuk*, or *Ato*, so none of the nomads I spoke with even mentioned this issue, although it has been highly controversial and is said to be endangering the Tibetan nomadic culture.

The most noticeable migration that I have observed has been for education. This has been a focus of mine having worked in the educational sector over the past decade. I have watched numerous families move into *Nangchen* town from the villages that I work within in order for their children to attend high school. Of course most children that graduate from the village school go on to become boarders at the governmental

schools in town, but there are reports that this school is of lower quality than the school for town residents. So many families who can afford to build a house in the town center do so when their children reach seventh grade. My fear of bringing formalized education into the region is that it often has this effect of eroding and depreciating the nomadic culture.

I have also heard of some families moving to town for work. Interestingly, the only people I know who are really working in town have are a couple of the midwives that were trained to be midwives for the villages. Instead they chose to work in the county hospital. Another couple of monks have also moved to town, originally to care for monastery business, and eventually starting their own businesses. One other student has remained in town after graduating middle school to be a maid for a wealthy family, but I suspect she doesn't receive any income, only compensated with room and board. There are not very many employment opportunities in the towns, either. In *Nangchen* and *Dzado* I only know of brick and cinder block factories. There are some agricultural businesses with acres of greenhouses. Besides these three, I have not seen any other industrial businesses. The other job opportunities are with the government, ranging from nurses to teachers to officials or in business. Taxi driving, hotel management, shop keeping and repair people are the main options for Tibetans. The government jobs are highly sought after and mostly given to high school and college graduates whose families are already connected to the offices, therefore very few nomads get the opportunity to be assigned such a position. Government jobs are the most secure and high paying positions in *Kham*. Although picking bug grass can turn quite a high profit, the government officials are able to work for just fifteen years and then collect retirement for the rest of their

life! The new Beijing government's concern with ending corruption has caused upsets in some offices in *Qinghai*, but the nomads agree that now the governmental salaries should be fairer.

These reasons have been common reasons for rural to [urban migration](#) world-wide throughout history. Moving to town for employment and education is not a surprising development. The more concerning reason nomads are turning away from nomadism is due to the issue that there are not enough resources for them and their livestock on the mountains anymore. Repeatedly I heard that it is becoming increasingly difficult to feed a large herd of livestock. Many study participants explained that the last ten years have brought much hardship to the nomads due to changing weather and decreased availability of grass. I have already explained the changes in the weather and the grasses in previous chapters.

The common statements regarding the end of Tibetan nomadic life was for some reason shocking to me. I have conducted years of background on this subject and have read about the endangerment of the nomads. I also lived in Kham witnessing a nomadic community move away each year I return for a visit fewer people are still there. It never seemed like a reality to me, perhaps I was just in denial. But It is odd because in giving talk to Americans about Tibet I have emphasized the danger of losing of nomadic life, yet I never thought that it would be the thesis of this work. Instead I thought I would be writing the story of the nomadic experience of the changing weather, grass and building the bridges between their experience and the scientific reports. After listening repeatedly to the conversations I feel that the most important thing that I have actually been re-

requested to share by the nomads to the foreign audience is that they are struggling to survive as nomads.

If these Tibetan nomads, who are in my view some of the world's most practiced survivors, are struggling to survive while living in one of the most pure, pristine environments, what is happening below the concrete the rest of us are walking on? Most of us do not notice the grass, we say oh yes this was a long extreme winter, or oh wow it's a very long heat wave this summer. But what are our symptoms? In "modern" societies, we are so far removed from nature; even our science distances us from the experience of nature by placing numbers between "us" and "it." Looking and listening can be very different than feeling. The Tibetan nomads are feeling the earth kicking them out. This is the world's warning. Our best survivors, who endure some of the world's most extreme environments at the roof of the world are suddenly struggling to survive. Not at the hands of any political party, but rather due to people like myself who send billions of pounds of carbon into the air, disrespecting the spirits and causing the extreme weather that has ruined the livelihood of the most self-sufficient and resilient people I have ever met.

The *Lu* and *sa dak* seem unable to be pleased these days. With the large-scale destruction of their home-places, the spirits are almost unable to be pacified. Although it is not the nomads contributing to the mining projects or the dam building programs, the Tibetans fear that the spirits are no longer able to be pacified and they are now just going to make the place inhabitable.

For centuries, the Tibetans have been building relations with these spirits. The names and visions of these spirits have been passed along for generations. But now pacifying the spirits has become very difficult, because now it is the humans who need to do

the protecting of the spirits, rather than the spirits protecting the humans. This is not to say that no Tibetans ever contributed to environmental destruction. Of course as humans perhaps they also took more than they gave back to the earth and its resources. Rinzen (2007) even reported that Tibetans themselves mined for gold in the *Dege* area. Tibetan nomads who had a cultural stigma against digging the ground to the point that many did not take up agricultural practices! Yet many were lured by the opportunity to make money. There were both men and women of *Dege* who were documented having mined for gold during the 1940s.

One family argued over whether or not the spirits were even occupying the land anymore, as the area had been so degraded by mining that they felt the place was no longer inhabitable by even spirits. However, many also believed that the *Lu* and *sa dak* never change places, some saying that it's due to their lack of legs that they cannot move. Others say that if the spirits leave the region it will bring disaster.

Many times this story of an endangered Tibet has been told, yet it is generally recited with political undertones and an agenda for Tibetan freedom. What I am presenting here is not of this nature, not only because I do not find the environment to be a political matter, but mainly because the participants in this study did not make the issue to be a political matter. Instead those who were informed about the mining issue were very clear that it is corrupt officials who allow mining in their region. Although they are not clear on the exact identity of the mining companies, the nomads understand the companies to be independent of the government.

The [Dzado protests](#) of last year were actually resolved by some nomads reporting the issue all the way to Beijing. They are confident that China as a larger government

would prefer to have the land protected, as it serves many of their people, but instead local government is allowing the resource to be mismanaged. So while corruption is a political issue, this report on the endangerment of the nomadic culture will not be centered on pointing fingers. It is in this way that I believe healing can begin. Chinese government policy has been attempting to follow advice of environmental scientists, some may argue in a more dedicated way than the U.S. government. Hopefully, these nomads who are brilliant earth-based scientists, many of whom are illiterate in a written language can shed light on their struggle to survive. I also hope that Chinese leadership is ready to listen to them.

5.2 [Changing Nature](#)

The rebuilding of China has undergone major shifts towards capitalism in the last 30 years and Tibetan nomads have been exposed to consumer culture in various ways. Consumer culture has exploded in China so rapidly that its ecological impact has raised major concerns. This study will be capturing many of the ecological impacts of socioeconomic changes.

This section will address the question: How is the *DzaChu* (the source of the *Mekong* River) viewed and understood by Tibetans, My original question that was answered with a strong agreement by most participants. The Tibetan nomads included in this research who answered this question replied that the *DzaChu* is a special river that offers water to many people downstream. They see the *nagas* of this river as very powerful and wrathful, and are afraid that the spirits have been horribly offended by the mining, which has taken place in the upstreams and the headwaters. The changes that they see in the river and the surrounding homeland is the issue that brings me to my thesis,

that this homeland, the source of the Mekong is in such severe ecological decline, that the nomads see it as a major endangering factor to their cultural survival. That is why it is particularly difficult to hear Tibetan nomads from all over come to the same conclusions. Below I share a few of those observations:

“If we do not change our course, we will be no more. There will be no more water, then no grass, without grass our life stock will die and without our livestock, we, nomads will be finished (personal communication, summer, 2014).”

“In ten years, the grassland will become useless. There will not be much grass and the river will become very small. A lot of the waterfalls and springs will dry out and the glaciers will disappear (personal communication, summer, 2014).”

Our village doctor told me, “Old people would say ‘don’t cut trees, dig, or remove rocks because the *Lu* will use the four elements to get revenge through flood, rains and earthquakes. We didn’t call this science, but now I think what the old people were saying- that is actually science!” In interview after interview, the nomads talked about their valuable observations on climate change.

Just like the water, its [the grass] is decreasing annually. This idea is related to environmental degradation. All of nature gets a problem, wildlife gets issues. It impacts our lives because our lives depend on livestock. Before we didn’t need to feed them [the livestock] anything else [besides regular grazing on the mountains], now we have to feed them wheat and barley. This is due to changes in the earth. Because the government builds a lot of roads and also there is a lot of mining, it’s [the changes] because of this. The four elements should be balanced

and mixed, sometimes it should be hot and sometimes cold, but now it's hot when it should be cold and cold when it should be hot! (personal communication, summer, 2014)

The knowledge of these inhabitants is above and beyond any kind of knowing that I would be able to produce with any sort of GIS or other technology. This knowing is beyond words, even if I were to try and create words to describe the type of conversations the people have with the earth, it would not do it justice. I attempted to have nomads draw maps, explain in stories, and use visual and audio recording devices to portray their relation with their place. Yet the nomads laughed and often refused to draw maps, they replied that they did not know how. The way of understanding the landscape and its energy are beyond what can be recorded at this time. While they know the region like it is an extension of their own body, they will not explain it in many words or pictures. Therefore the maps included in the appendix are made by cartographers who have done other research in the region. This is visual encouragement for the reader most of whom will be of the Western educated mindset and need a map with coordinates to orient them to the earth.

5.2.1 [The DzaChu River](#)

Dza means rocky (especially sharp or jagged) mountain. *Chu* means water. *Dza-Chu* means the water of the Rock Mountains. The Tibetan name for the river derives from the environment that surrounds it. [The landscape](#) of the *DzaChu* region is quite impressive. Many of the Rocky Mountains are over 4,500m and house [glaciers](#), feeding numerous [streams](#), which bless the valleys with water. Downstream from the source the rivers water contributes to beautiful pastures in *Nangchen*. Unfortunately the grasses

surrounding the headwaters are no longer as plentiful as they once were. The following section will provide more detail about the changing pace of pastures and grasses, although the strong interdependence of the water and grasslands makes them difficult to separate.

The Tibetans claim the source of the *DzaChu* to be *Tashi Kyiwa*- *Tashi* meaning auspicious and *Kyiwa* being the source, the starting point or the central piece. Most Tibetans are aware that the Chinese have named one other spring as the source of the *DzaChu*, but none of them knew where that place was, nor did many know that Russian Scientists and Japanese scientists also claim some other place as the beginning of the Mekong River. Tibetans laughed when I reported that there is this type of scientific argument around the source of the *DzaChu*. All matters of great importance seem to have some sort of conflict. This being a study about the Tibetan perspectives of the *DzaChu* I only visited *Tashi Kyiwa*, although those who knew about the Chinese source offered that it is quite a beautiful place!

5.2.2 [Grass](#)

“Every nomad depends entirely on grass so when these grasses are decreasing in quantity, the milk is also decreasing in quantity. The bodies of our yaks used to be huge, really very big, but now they cannot grow as big as they used to be. Also the dri [female yak], they cannot produce a lot of milk like they used to. Also because of the decrease in grass, the [bug grass is also becoming less and less year by year](#). These are our major resources [grass and cordyceps]. When there are problems with them [these resources], then we have this effect.”

Healthy animals equal healthy nomads. Nutritious grass means that the yak will grow hair to provide the nomads shelter, grow lean to provide meat and have abundant milk to provide for both their young and the humans who love butter, yogurt and cheese!

Healthy grass equals healthy animals. As relayed by this Dzado nomad, grass is a precious resource. I was told repeatedly “If there is no grass there are no nomads”, like the participants had rehearsed a script for me. One grandfather explained with sadness in his voice: “Because of the decrease in grass, there's no kind of food for livestock. That [shortage of grass] didn't used to be possible. For example, in my area we had a lot of bug grass but at that time but we didn't have the tradition to harvest them. We totally lived off of the livestock and we had enough livestock. But now because of the decrease in grass, many people had to leave from the nomadic life because there's not enough grass for their livestock. That's [the shortage of grass] why they sold their livestock. Then they moved to this county place [Dzado the county center].”

Balanced weather equals healthy grass. Good grass depends on balanced weather throughout the entire year: "When the weather is good the grasses are good, when the weather is not good, the grasses are not good." The weather has been changing and has had some unexpected impacts on the grasses. The changes in the weather have reportedly caused an increase in caterpillars, and pikas. Between 10 and 2 years ago the nomads began noticing an increased number of grass eating black caterpillars which has caused a shortage of grass in *Dzado* County. The nomads of *Dzado* are also reporting a large number of pikas, which are digging up the earth and degrading the grasslands. According to one grandfather the government attempted to exterminate the pikas once in the 1980s and again last year “at first it seemed to work, and then the number just increased

and increased." Most Tibetans have vows against killing and those who apply this to all animal life hire Muslim butchers to kill their livestock for them. I thought that the nomads may be opposed to an extermination project, but it seems they did not have an issue with the government poisoning the pikas, because the small rodents were doing such damage to the grasslands. This Damage to the grassland is said to be the cause of an increase in skinny and sick animals.

“In the last decade it [the *DzaChu*] became much smaller. That's why the earth and grass has also changed. We used to have a lot of water. But now, it really becomes smaller. And not only the *DzaChu*, but also other rivers and springs are smaller. Before, the spring was only smaller, now it's totally dried out [referring to the nearby spring]. And some [springs] used to be big, but now they are really small. As a nomad people, we are living depending on livestock, yaks, sheep, and horses. But because of this change [decrease in water], the amount of grass has been reduced. [Now it] cannot feed enough of our livestock. And also, sometimes it's difficult to have water for them. Then that of course impact our lives...people are saying that because they are digging and cutting trees and because there are so many *abras* (pikas) and mice that causes these changes.” (personal communication, summer, 2014)

Some nomads cited different causes for the change in the grasslands. One in particular informed me, “The biggest change is the grass. There are lots of caterpillars eating the grass and so now there is not enough grass for the livestock. That is the biggest change (personal communication, summer, 2014).”

As both the quality and the quantity of the grass in this region are decreasing; they are both carefully watched by the Tibetans. According to one of my Tibetan friends,

“the change in the grassland is that it used to be very tall and very thick especially in the fall. When you looked at the mountains, they were kind of shining; there was light from the grass! There also used to be lots of flowers and kids would play in the flowers. They would play and hide; they could hide in the flowers because they were very thick. Now, there are not many flowers and there isn’t much grass and the grass we have is very short and much less [than before] (personal communication, winter, 2013).” When I asked him why this was happening, the teacher replied, “This is related to environmental preservation. When there is no grassland, in the same way all nature is also having a problem....Sometimes, when it used to be hot it's cold or too much rain, and sometimes too much sun (personal communication, winter, 2013).”

According to the teacher, there were a variety of reasons that the grasses are changing, road construction and mining, which both upset the *Lu* and who then disturb the balance of the elements changing the weather. Luckily the teacher had another job with a salary that acted as a safety net when his wife might be unable to care properly for the herd due to the decline of grasses.

Yartsegumbu has become the buffer for most Tibetans in the region. The medicinal bug grass (technically a fungus) is extremely valuable in the herbal medicine market. The harvest gives families in *Dzado* up to 700,000 per year (almost \$115,000USD). The people in *Dzado* refer to their species of *yartsegumbu* as *Zambala*, which means the god of wealth. This money is helping nomads survive as nomads as the amount of meat and milk declines due to poor pasture. Some Tibetans described the increase of dependence on the bug grass as dangerous. They have been complaining to me for the last six years around *Gargon* that there are fewer and fewer *yartsegumbu* to be found. Some partici-

pants even suspect that the gradual decrease will continue until *yartsegumbu* are extinct. If that happens, the nomads believe that they will become very poor. Few Tibetan nomads are aware that lab-created cordyceps are another reason that wild *yartsegumbu* sales may come to a crashing halt. Since Chinese traders have been coming to the area for centuries to exchange valuables for the cordyceps, it is difficult to conceive that the market itself may come to an end.

In either case, the economy is extremely fragile, and Tibetans have very little control over what happens. What seems certain is the fact that nomads depend on healthy animals, which depend on healthy livestock, which depend on healthy grass, which is dependent on balanced weather. Therefore if the climate continues to change and the weather maintains these extremes and grass quality and quantity decline, the animals and then the nomads will disappear.

5.2.3 Wildlife

Most Buddhists and Scientists agree on theories of interdependence. One of the most obvious demonstrations of interdependence is observation of the natural world. When a habitat is destroyed so are the species that it hosts. Just as the lack of grasses are seen to impact the nomads, the most clear warning signs are now being seen in the wildlife of the region.

The drivers were alarmed by the sight of a single wild ass. They were both from the place where we were heading, the source of the DzaChu. With sadness in their voices they recalled how one could see countless wild ass while riding through these parts of Kham. But things have changed. Instead of riding through thick pastures of grassland on

[horseback](#), we were driving a four wheel drive SUV on heavily padded earth. Although our path was far from what most Americans would call a road, the way had been traveled enough for the grass to hardly grow in the tire tracks. [Fences](#) now cordoned off each family's property and even I was shocked at the lack of grasses.

We passed a handful of wild ass all of whom were alone. Usually ass travel in herds and were said to be very abundant in the region. I was told that when soldier come to a region one of the first things to disappear are the wild ass. Apparently the large, timid animals are used for target practice. "When we would go to that road yesterday [the road headed to the source of the Mekong], if we went by horse, we could see thousands and thousands of wild ass. They were like soldiers. They would marching one by one. We could see many, many wildlife like Tibetan Antelope and also others."

What has increased in population has been the *abras* (pikas). The stories of the previous chapter had negated my appreciation for the tiny fur balls that scamper between their underground homes all summer long. In *Nangchen* participants of this study never complained about the *abra* population, yet in *Dzado* the issue dominated many conversations.

Abras are classified as rodents. Being tiny herbivores they depend on the nutrition of the grasses. *Dzado*, once having an abundance of grass was an ideal habitat. Almost every person who spoke about changes in the grasslands reported that the *abras* were consuming all the grass leading to a general decline in livestock health, due to a lack of grass. I inquired whether the predators that would normally eat the *abras* have decreased, or what may have led to the overpopulation of the *abra*. One young nomad blamed the influx of rodents on the increase in trash. Before he said nomads had very

little waste, yet these days there are so many containers and wrappers and disposables that are littering the grasslands, he said that the *abras* are attracted to that waste. They said that the hawks and owls that feed on the *abras* are still around, but that now there are just too many *abras* to eat!

The number of hawks and vultures in the region is actually quite impressive. The birds of prey decorate the tops of the fences throughout the day, unintimidated by humans. The vultures can grow to be about four feet in height. Within the immediate area of *Tashi Kyilwa* we witnessed a few endangered species. There were a couple of pairs of black-necked cranes, a bird that china has always taken pride in, and a few golden ducks.

“Another thing there is the birds, the crane. In the summer or spring, they come here. In the fall, they go back. We say they come here to bring the heat from moon area to here. When they're going back, we say they take the heat to the moon. Then also, we say they take salt from here to moon. But obviously, in the last few years, it's rare and rare. Almost cannot see any cranes. That is the very big change that we noticed and easily can see.”

Herds of Tibetan Antelope were scattered about the mountains as we traveled towards the source of the river. Regions located further downstream like Nangchen have numerous deer and blue sheep. But our drivers reported that the musk deer have almost all disappeared due to the hunting of them for Chinese musk medicine.

Tibetans take much pride in their local wildlife. While animals like the *wa* (fox) and *bi* (sand fox) that we saw can kill lambs and baby yak, the nomads report that they

no longer kill these predators. Bears in the area are said to have even taken human lives. The small brown bears often come right into people's tents, raiding them for food. The one young photographer was very proud of [his video](#) of him and his dog chasing the bear away from their tent. Using firecrackers to scare the bear away from their own food, the nomad reported that the bears are one of the things that make the region so special.

After three years in the region I had seen many of the species named on protected and endangered lists, yet I have yet to see the much talked about snow leopards. There are some photographs of the [snow leopard den](#), and a majority of people who spoke about wildlife in the area reported with pride that they have snow leopards in the region.

In the past, nomads may have had hunted some wildlife to trade with Chinese, but it was rare. It's clear from their old pictures that nomads used to kill wild animals for fur as well. Chupas used to be trimmed with [leopard or otter fur](#) if the family was wealthy. In 2006 H.H. the Dalai Lama taught the *Kalachakra Tantra* in Amavati South India, during the teachings I was surprised to hear how many pro-animal rights information he was disseminating. After the teachings news spread to Tibet and thousands of Tibetans gathered their fur clothing and burned them. The teachings held hundreds of miles away had a very heavy impact on the Tibetans and they became very aware of the importance of the wildlife. When the Chinese army came in the 1950's they were said to have killed many of the species that were once prolific. Those species include: *nawa*-blue sheep (*Pseudois nayaur*), *lawa*-musk deer (*Moschus* spp.), *gowa*-Tibetan gazelle (*Procapra picticaudata*), and *sha* deer (*Cervus* spp.).

More recently, the nomads have reported a major decrease in wildlife, but no one has reported to me about any one species becoming extinct. The nomads attribute the decrease in wildlife to the increase in Chinese people in the region. They say that while there are more and more Chinese scientists, photographers and tourists coming to the area to appreciate the wildlife, there are also hunters who take the lives of these animals for their expensive pelts and organs that are used for Chinese medicine. In *Gargon* the locals have said that they try to protect the wildlife in cooperation with the monastery's monks, but unfortunately the hunters persist. Some of the teachers recalled that last winter some monks found a dead snow leopard in a trap, they had been too late to save the animal and they could not find the hunters responsible for the crime.

While killing in Tibetan Buddhism is believed to accumulate bad karma, nomads do often slaughter their livestock for their food. The killing of another being for sport was an offensive concept to most Tibetans with whom I broached the subject, and something that they attributed as a Chinese past time.

5.2.4 [Water](#)

As discussed previously, the human spirit relationship, the Tibetan understanding of water is very much connected to this relationship with the spirits and vis versa. It is impossible to separate the two concepts, but the focus of this section is on the experience of water and any of its changes. Water is something that all of us touch on a daily basis, it is what we are mostly made up of, yet most people laughed when we asked them about their relationship with water. It was just obvious some said. Some outlined the reasons water was important and the ways in which they use it. "We drink it, we wash our

clothes and our hands and our dishes with it (personal communication, summer 2014).”

Others described their relationship to this element in these words:

“Water and our relationship is like living and dying. We call mother river or mother water. If there is no water, then there is nothing. We really respect water like we respect our parents (personal communication).”

Still others expressed an undeniable connection with water, without which life would not be possible. “Without water we could not live (personal communication, winter, 2013)!”

There was a very clear distinction between the relationship nomads have with water and the relations they have with the *lu*. There was a type of dependence on water as a resource that was expressed in conversation. The way in which nomads discussed the *Lu* was quite different. The relationship between the humans and the *Lu* is composed of both fear and respect. The relations between the humans and *Lu* is the foundation to the relation between the humans and the water. The *Lu* act as protectors and control the water, slightly similar to the way we interact with the ozone layer and how it impacts our weather systems.

“The water is really good here, like the mineral water we are getting from the market (personal communication, winter, 2013).”

Water in itself can also be treated like medicine. In Gargon, one of the school teachers reported about the water that they have in the village:

They call it Yinchung Spring. The place is called Lufrika. That is Rinpoche's spirit spring water. If one day you wash in that spring, you'll get some special

skin disease using those blessed water. Now, they said this water, Namka Tulku's water, they said you don't really need to do any Puja for this because this is naturally blessed. (personal communication, summer, 2014)

The Gargon nuns told me, "*the water is our most significant relationship because it's a very important thing. If someone is sick, we often say drink more boiled water. It can also cure high blood pressure and pneumonia and anemia* (personal communication, winter, 2014)."

The nomads I work with understand water as having the ability to cause disease and also cure disease. The one spring in *Gargon* that is described in the previous conversation is believed to be the two *Rinpoche's* spirit springs. These sources have different relationships with people. They say that if you wash in the one spring- *Garchen Rinpoche's* spring then it will cause the person disease, but if one drinks from *Namkha Tulku's* spring water then it is almost like medicine. It is so pure, that no prayers need to be done for using that water- it is just like mineral water that one would buy from the store.

5.2.5 [Weather](#)

The nomads see the changes of the weather, and changes in the environment much like scientists-it is a chicken and the egg scenario.

Because the glaciers melt and the waters change, that's why the weather has also changed. We call our self a snow land but there is no snow like we used to [have]. And also the weather is not balanced that's why we don't have much grass like there used to be. The quality of the grass or the quality of the earth is getting worse and there are less grass and more animals; you know, small animal and

more big grass, that's why it's used to be that in one place maybe you can graze ten yaks, now [maybe](#) only five. (personal communication, summer, 2013)

The biggest change the nomads reported seeing in the last ten years was a change in the weather. The second greatest change was the decline of quality and quantity of grass. The third greatest change was in the purity and quantity of water. The final greatest change was in the food, now they eat many processed and Chinese imported foods, rather than the simple traditional local diet. As a person coming from the outside, to me the changes in weather are also quite striking, but urban migration would be the first thing that came to mind when answering my own question: “what changes have you seen in the last ten years?” Only one other person mentioned this change, most nomads were focused on the changes they and their animals were experiencing every day.

In the last few years, people say that the weather has become very extreme. To me Tibet has always been extreme, with hailstorms happening on otherwise clear and sunny august days and the potential for getting sunburned in the winter sun because it shines so brightly. One person told me:

We used to have really deep and long grass. But now, very small and short grass. That's because of the rain. It used to be that the rain came in very slowly. But now the [rain is very strong](#) and it just rains very suddenly. (personal communication, summer, 2104)

These sudden rains have caused huge [landslides](#), and the destruction of many homes. Flooding has become a major concern in certain areas where it was never before an issue.

“Some families had to move from flooding. Then sometimes when the sun shines very hot, then it dries up the earth.” Also making it hard to live here reported one nomad from Gargon.

The groups conducted at Gargon village mainly blamed the lack of grasses on the erratic weather. The doctor reported:

The big change is weather; weather change. Because sometimes there is no rain and sometimes there is too much rain. Then in the winter-time, it is extremely cold and the summer time it is really hot. When it's very hot, the sun is going to burn all the grassland. Like I've mentioned, even when there's no rain but there's very heavy fog so everything is wet. Now if there is no rain, everything is dry and the sun is really going to burn it. That is very big change. That's why the yaks cannot grow very large and also they cannot produce lot of meat...Before twelve years ago it was different... Even without rain, every morning, they have a very heavy fog and every morning the land is very moist, very muddy, very watery; not watery but moist. That's why if you wear your shoes, it's always getting wet even when there is no rain. That's why I think that is why the grass was really, really good. Every morning in the summer time, there is a heavy fog and you would loose your way because you cannot see very much. Now thereare not [much fog \(in the morning\)](#) like there used to be. I think maybe that's the reason the mountain grass has fewer and fewer nutrients. That's why the quality of yaks are poorer and poorer. Also, the amount of milk is less and less (personal communication, summer, 2014)

The nomads also say that the seasons are also different now. Quite a few groups agreed that spring is becoming shorter. Some monks said: *“the spring comes also late. Usually, it comes in April. But now, I think it's later than April. Then summer time is really hot; more hot than usual. Winter time is really cold, more cold than it has been in history.”*

Nomads spend most of their day outside. Even when they are inside of their tents there is a lot of weather just coming inside! The tents are made from [spun](#) and [woven yak hair](#). The *ba nak*- or black tent has actually become a symbol for Tibetans. Tibetans have become proud of this black tent as a symbol of their unique culture, which is very much in union with the earth. Nomads are having a difficult time enduring the extreme weather in the tents though.

From before, now the big change is the rains. Before, there were small rains that didn't cause flooding. Now there are very heavy rains that cause flooding. About two years ago, one of our yards was washed away. The Khora path around Gargon has been washed away too and has been very small because of the heavy rains flooding the area. Before the rains didn't come this suddenly. Now, the rains come heavily and strong and very quickly. This makes a problem like we had two years ago, the yard washing away. And three years ago, the fields washing away. The cars also had a lot of trouble making the passes because the roads became very bad very quickly. Also before, there were not many worms. But now, there are lots of worms especially as the rains come, many worms in the grasses. Before there were some but now there are many. If the family lives close

to the sun, then there aren't many worms. But if there are many worms, they can even come into the house. (personal communication, date)

I moved to Tibet in the middle of their winter in February of 2005. [It was ridiculously cold](#), but no one complained. I lived in a [room inside of the monastery](#) with a wood-burning stove and there was as much wood as I needed. I am from Rochester, N.Y., one of the snowiest places in the U.S.A., but I had never experienced cold like I did that first winter. Two teenage nomad girls who were not attending the school quickly became my best friends. They would take me to their nomad tents and I would wonder how anyone could live in such extreme cold. Later that year my teacher's family offered me a traditional Tibetan coat. Inside were the skins of over fifteen lambs. I begged their forgiveness in being bound by vegetarian vows that included not wearing skins or furs. They encouraged me to just try it on. Only then I realized how they were staying warm. No matter how advanced our textile technology has become, I do not know of any material better than that of the sheep and lambs skin to protect one from the elements. *Chuppas* the traditional Tibetan coats, are becoming less popular to wear inside of the villages, but in the tents it is the only logical choice to protect one from the elements. The *chuppa* is used not only as a coat and big backpack during the day but it also doubles as a blanket at night.

The yak hair tent is quite impressive when it is new, as it ages it loses its waterproof quality and the rain comes right into the living area. As the weather becomes more intense, the natural barriers wear down more quickly. The tents are now being traded in for the blue emergency tents that were supplied for the Yushu earthquake victims. The tents can be purchased for around 400RMB (\$75USD) while the black tents take about

three months to make with countless hours of work. First they must shear the yak, brush clean the wool, spin the wool into yarn, and then weave the wool into large panels, [finally sewing the panels together](#) into the tent.

5.2.6 Natural disasters

Local people in Tibet believe that if you impact the mountains like mountain spirit, they're going to harm us. That's why we are upset that the government is mining those areas. It's also one reason they [the nomads] moved [into town], because people believe that they will get sick and also there will be earthquakes or other problems [around mining areas]. (personal communication, summer, 2014)

The destruction that comes with the natural disasters is now a major issue for Tibetans. The Chinese government has been hit very hard with a variety of natural calamities over the past eight years. The nation has spent trillions in disaster relief, rarely asking for external assistance.

Climate change is being reported as the cause of many of these natural disasters. Scientists point out the root cause to Climate change as being above normal CO₂ levels. Tibetans would say the root cause is disrespect to the natural environment, which can be seen as building roads, mining, and also emitting gasses into the air. The toxins released into the air are said to offend the mountain spirits, while toxins released into the water offend the water spirits.

The connection between mining (especially fracking) and earthquakes is now just becoming general knowledge in the United States. For Tibetans the connection is

obvious, digging upsets the mountain gods and they are only expected to take revenge upon the humans who have disrespected them by creating an earthquake.

As mentioned earlier in this chapter, the *Yushu* earthquake hit Qinghai Province unexpectedly on April 12, 2010, killing a reported 2,698 people (yet Tibetans report tens of thousands). The scientists reported that the epicenter, located in the Rime Township, was an active earthquake zone on the *Yushu-Garze-Xianshuihe* fault line. *Yushu*, the town itself had not had an earthquake in recorded history.

Dzado residents told me that the *Yushu* earthquake was caused by mining in the region. They said that mining had just begun that year on one of *Yushu*'s holy mountains. The mining had disturbed the mountain spirit so greatly that it resulted in the earthquake. *Dzado* residents heard the *Yushu* earthquake like a loud warning for them. Many of the *Dzado* youth actually go to school in *Yushu*, as it houses the regions only high schools.

Many of my students and a few friends experienced the *Yushu* earthquake. Tibetans all reported that many more than 2,698 people died in the quake. The Chinese had only counted those who were registered in the county. There were many Tibetans who remained undocumented due to political regulations. Besides taking many lives, the earthquake left almost the entire population homeless. Everyone in the region suffered losses, even those counties, which did not physically feel the earth shake felt the repercussions of such a large natural disaster.

While my friends told me how well the earthen houses held up to the earthquake, and how the people buried beneath the crumbled earthen homes were able to survive, the

Chinese government took the opportunity to level the entire town and establish clear building zoning code that does not allow for traditional earthen houses in the town. The tradition of local building was halted with this disaster.

Families who did not lose a life in the earthquake often lost a child to a Chinese city because students who survived the quake were quickly reassigned to schools as far away as *Shen Zen* near to Hong Kong. There were huge relief efforts between the monasteries, Tibetans from other regions, and the Chinese Government. 85% percent of the buildings in *Yushu* town were destroyed, yet the government decided to completely re-design the city and level all of the old buildings. Now the Prefecture capital is almost completely rebuilt after only four years.

The city's recovery was impressive, yet the fear of another earthquake is in front of many minds. The nomads warn that if they are not respectful to the *sa dak* without a doubt history will repeat itself.

The fear of another earthquake was a main reason many *Dzado* nomads gave me for participating in the protest last year against mining in their homeland.

Earthquakes are not the only natural disasters that occur when *Lu* and *sa dak* are unhappy. Floods, windstorms, dust storms, and hailstorms are other dangers that may occur on the plateau. *Gargon* village experienced these issues. While I was living in the village there were countless hailstorms, while these are not uncommon they can be quite destructive. Of course, the black tents are quite resilient, but in new buildings some of the windows would be broken by large hail.

In 2009, the road to Tajuk village was almost completely wiped away by a landslide caused by unusually heavy rainfall. Roads in Tibet are incredibly difficult to maintain and many people say it is due to the *sa daks*. Not many people have complained about roads or bridges being built though because in many ways they benefit the locals. The roads are constantly being rebuilt in these mountains due to landslides and erosion. It should be clear by now that roads do not belong on these mountains, but as usual, we humans are not listening.

In 2011, the Gar school was brought down by a flood that swept away its foundation! The unexpected large amounts of water also destroyed a few houses. As I reported in Chapter One, the intense heat of the sun created such a rapid drying of the earth after this flood it cracked the earth, leaving scars in the earth as though the village experienced an earthquake.

Some Tibetans explained to me that the *Yushu* earthquake was a karmic event. Every bit of dust is a karmic event; a catastrophic disaster is of course the effect of a cause. This is what Tibetan Nomads mean by the notion which is the definition of karma. Karma can be translated from Tibetan as seed and ripening, meaning cause and effect, a simple principle that underlies the entire nature of the universe. Such a display of karma is rare though and striking. And if we take a wider perspective we can see that the natural disasters are also just a piece of a larger puzzle. That these events are a symptom of a larger illness, a signal that our mother earth is suffering.

Participants in this study reported changes in weather up to 20 years ago. The changes in weather were highlighted more by the nomads in *Nangchen* rather than those in *Dzado*. The nomads in *Dzado* primarily spoke about the changes in their grasses. The

people of *Gargon*, *Tajuk* and *Gyalsum* villages in the *Nangchen* region have refused government orders to raise the fences for their livestock. The nomads of *Dzado* have been complying with the fence regulations for almost ten years, coinciding with the reports that changes in the grasses have been occurring for ten years. The nomads of *Dzado* did not raise the issue of the fences being a factor in the degradation of their land. Instead those whom I spoke to in *Dzado* regarding the fencing policy said that the fences actually relieved some land rights tensions for their community. I have observed that the nomads who have neglected their free government fences, and left them rolled up to rust on the mountainsides of *Nangchen* do not have as extreme degradation. The nomads of *Dzado* report of black earth- useless land, and the people of *Nangchen* complain that the grasses are not as thick, tall, shiny, nutritious or plentiful as they once were.

As an annual guest to this region, I have observed overwhelming amounts of changes to these people and their homeland. The grasses, the species, and the knowledge and respect of ecological traditions are being lost without a doubt. It is my hope that this chapter adequately reported the changes that the nomads report. As an outsider and a non-resident, I feel that my observations are only useful as support for those who live the harsh reality of climate change impact each and every day.

5.2.7 Climate Change

There have been numerous causes cited for the degradation of Tibetan Grasslands. Between government papers and scholarly articles, Tibetan nomads voices regarding climate change have been smothered. This research is intended to allow the Tibetans to enter the conversation regarding climate change and the conservation efforts to mitigate it. I have not come across any literature denying that the Tibetan grasslands, as Ti-

betans have traditionally used them, are depleting at a rapid rate. As demonstrated in chapter six, nomads have observed the grasslands undergoing changes in its quality for at least five to twenty years. Japanese, Chinese and German scientists and government who participate in the Mekong river commission agree that the grasslands are in danger (MRC Initiative, 10/15/14).

The cause of decreasing grassland quality is still being debated among the possible causes are overgrazing, climate change, mining, river damming and rodent overpopulation. As I will describe in Chapter six, the Tibetans believe that the poor weather causing poor grass is the retaliation of the *Lu* and the *sa dak* because they are being disturbed by mining, road building, and pollution. Scientists such as An (2013) have found reason to believe that grassland degradation is due to the government imposed regulations under the *Rangeland Contract Responsibility System* of fenced grazing areas for each family. The group of scientists who conducted a study in Qinghai province found that nomads used very scientific, earth-based knowledge to decide the timing and distribution of their livestock on the pastures. The scientists made it clear that the issue was not overgrazing, as the Chinese government has believed.

As recorded in the first chapter, the nomads of the Qinghai Plateau are very well aware of how many livestock can live on what amount of grass. Rinzin (2013) wrote that in the 1980s the nomads of *Dege* (another previous kingdom of *Kham*) actually cut back their herds as soon as the government allowed them to do so. After the Cultural Revolution, in the 1970's, the people of *Dege* were forced to increase numbers of livestock. While they were able to do this, they recognized the burden on the earth and deemed it an unsustainable practice to keep so many livestock. Many Scientists have found that the

quantity of livestock are not a concern, it's the quality of the herding practice that makes the main difference on the grassland. Just like the Chinese policies to increase herd size in the 1980s, the *Rangeland System* imposed by the urban dwelling leaders have not had a positive impact on the region. Instead, these fences are making the area more vulnerable to climate change, as the nomads are unable to move their herds. When the nomads were given these inflexible regulations, many were upset. In *Nangchen*, many nomads still refuse to erect the government-mandated fences. Most of the local Tibetan authorities do not push the issue because many of them, as ex-nomads understand that the policy will be devastating to the future of their people.

There is a large body of research on climate change, but very little of the research has been derived from the wisdom and experience of indigenous people. The act of writing, let alone publishing, has been a recent way of colonization. Forming all types of knowledge into science, dismissing the indigenous knowledge that does not fit within its neat definitions of things that can be proven. While the act of research, writing, and publishing may not be intended to silence people, it tends to bring Western, formalized thinking theories and stories to a place of dominance. If indigenous peoples do not have the opportunity to give voice to their experiences in a western forum, their voices may not be included in the dialogue.

In this age of increased interdependence, it is wise to take note of whose voices are heard and what experiences we are basing our understandings upon. The climate change conversation has been heated for over a decade now. Many scientists disagree on what they call facts. One thing that we cannot disagree with or disregard is the lived experience of change.

Climate change has been impacting the nomads of Tibet since I first began being able to understand what they spoke about. When I moved to Tibet in 2005, I began hearing stories of the unpredictable weather patterns and the havoc it was causing on the simple nomadic life. A culture that prides itself on adaptability to nature was suddenly struggling to survive. I have chosen to work in the *DzaChu*/Mekong watershed region because that is where my spiritual roots are from and where many of my spiritual siblings abide. I am also aware that there is much literature regarding this important river. The *Mekong* is a main artery rooted in Tibet that controls the life force everything downstream, which is much of Asia. I have reviewed literature regarding climate change in the region, which is compared and contrasted with the stories collected on the banks of the river.

It is important to note that this project is not about the scientific perceptions regarding the Mekong River, but rather the locally experienced changes. The differing views were noted by Huber (1997):

The weather forecast as we know it today is one outcome of this transformation of time and space, of quantification, measurement and representation. Traditional forecasts never went beyond weather rules (such as 'a red sky in the morning is the sailor's warning'). The predictive power of modern meteorology is based on the knowledge of physical laws of causation and probability, and on the quantification and modeling of nature. Studying the way living things interact with one another and with their environment, ecology observes, interprets and represents thoroughly quantified natural phenomena. We emphasize, however, that modern environmental knowledge is not necessarily associated with Western ideas of

mastery of nature, as Merchant appears to claim: 'for the past three hundred years, western mechanistic science and capitalism have viewed the earth as dead and inert, manipulated from outside, and exploitable for profits' For this knowledge also plays an important role in the environmental ethics of the green movement, whose arguments for moral responsibility towards the environment are based on informed predictions about natural processes which imply quantitative knowledge. (p.583)

Scientists have been documenting incredible ecological changes through mechanistic methods of measuring seismic activity, weather system fluctuations and biological adaptations. The Himalayas are cited to be the area most dramatically affected by climate change thus far (Eastwood, 2011). Tibet is the source of water for billions of people, animals, and plants. Asia's main rivers, the Yangtze, Yellow, Mekong, and the Ganges, all are sourced from the Tibetan glaciers of the East (Edwards, 2010). It is said that about two billion people from twelve countries are dependent upon this water source. Some of the water is traveling up to 3,000 miles to its users (Eastwood, 2011). It is because of Tibet's position as Asia's water tower that the impact of climate change is especially alarming. It is calculated that 1 in 5 humans on the planet depend on the drinking water from the Tibetan region, if the water quality and quantity are in decline as the Tibetan nomads have reported, the world will be facing major hardships in the near future.

It is also due to its geographical location that Tibet is heating up twice as fast as the global average of 1.3 degrees per century. It is expected that this heat will melt 40 percent of Tibet's glaciers in the next 28 years (Eastwood, 2011). While most of the area

is covered in snow in the winter, the elevation causes that area to be a heat sink, causing climate change for the rest of Asia and affecting the world as a whole (Zheng, 2008). The summer monsoons of Qinghai province have proven to be significantly impacted by the changing climate, making nomadic life more challenging due to lack of usable grasslands (Zhang, 2008). The disappearing permafrost has also received bountiful press due to the risk it created for the multi-million dollar Qinghai Railroad project. The shrinkage of the permafrost area and the thinning of its coverage have caused horrendous conditions for the transportation system (Zhang, 2010). The warming soil and the degradation of the permafrost will cause major ecological shifts for the larger region over the next decade.

While catastrophic rainfall may be grouped under the category of an ‘effect of global warming,’ torrential rains may be common for monsoon and mountain climate (Ives, 1994). The people of *Nangchen* say that it is only recently that they have been challenged by rainstorms that have destroyed buildings and been followed by intense heat, which rapidly dried the earth and split their hills. It is difficult to derive from where these abnormal storms come, or if there is even a normal.

In the 1970s, Theory of Himalayan Environmental Degradation (THED) introduced the world to Asia’s major ecological crisis. The scientists were fearful that by the year 2000 there would be a major collapse of the Himalayan ecosystems. A series of recommendations were made in light of THED and the World Banks’ expected water apocalypse of the year 2000 that fortunately didn’t occur. While THED was a major miscalculation, some of the recommendations that came out of the scare were useful in terms of developing shared water resources in the Himalayas.

Firstly, THED established that mega projects should be a last resort. Secondly, integrated, holistic planning including social and environmental aspects of the watershed should be prerequisite to any project. Thirdly, a comprehensive evaluation should be conducted prior to construction. Fourth, water related project should not pre-empt a disproportionate share of available resources. Fifth, information should be freely available to all and representation for involved people accessible, sixth: safeguards and grievance redress must be established to guard from corruption. Lastly, constant review and corrective actions throughout the life of the program is crucial (Ives, 1994).

These rules that had been created for other regions, can certainly apply to equally high status zones, such as the third pole.

5.3 [Human-Nature Relations](#)

For centuries, Tibetans have been interpreting nature with the traditional animist perspective as discussed above. The relationship that most Tibetans have with their homeland is one that has been cultivated for generations by their family and community.

Namshe, or weather, is everything under the sky. Rain, snow, hail, thunder, [lightning](#), wind, and clouds are all conditions controlled by spirits. Each person has the opportunity to develop relations with the spirits, but there are particular community members who take upon themselves the responsibility of this communication. In *Nangchen* the monasteries tend to manage these relations, arranging for annual, and sometimes seasonal ritual ceremonies to honor and please the spirits. In *Rebkong* I have a friend who communicates with the spirits and is known throughout the village to be able to ask the *Lu* for rain. He is an *ngakpa*, a lay practitioner who is very humble about his abilities of reading the sky and changing the weather.

Tibetan youth who attend Chinese schools are becoming more critical of these traditional relationships with nature. In school they are taught what types of moisture create which clouds and how thunder and lightning are caused by temperature. The classical understanding of the *namdruk* (sky dragon or thunder) is not supported in the formal educational system in China, leading to a different relationship between humans and nature. The new relationship has Tibetans turning on TV's to watch meteorologists give weather reports, rather than attending a local ceremony requesting the rains. (Stubel, 1958)

While I was living in Gargon, I spent every Sunday with the nomads, now returning to interview them I saw their relations with the earth in a whole new light. One day during my summer research trip, I was herding with some old friends. As we scurried up the steep side of the mountain, I lost sight of Drolma, she had jumped down into the crevice carved by the small slow flowing water to [drink directly from the stream](#). She commented, "It's very delicious!" When was the last time I had fresh water? I had to stop and ask myself after I walked past the opportunity for a sip. It had been ten years. I contracted giardia after drinking glacial water from Tibet's most holy mountain- Mt. Kailash in 2004 and I have not had a sip of real fresh- fresh water since! My heart sunk when I noticed this disconnection from nature. All of my water- even that which I get from streams is always boiled in some metal pot, the well water pumped through pipes and my city water so processed that I filter it once more in my home. I longed to connect again and to drink the water, yet I had a feeling I would be sick. This is one of the many examples of the relations that are built so deep into our bodies. Those who live in areas such as Eastern Tibet can drink directly from the stream, their bodies accustomed to the

water, while outsiders, even those Tibetans from the city do not dare to drink the water without boiling, as it will cause them illness too. Of course science has an explanation of local immunities, yet it can also be understood as the relation between the individual and the water spirits. Stopping to drink the fresh clear water was an instinct after a few hours of following the herd up and down the mountains, yet I was stopped- by ideas about and fear of sickness that science has given me.

Many Tibetans tell me how amazing the fresh water is in Tibet. A number of interviewees mentioned with pride the delicious qualities of their water. In the village many students sneak sips of cold water while adults aren't looking to reprimand them. Tibetans consider cold food and drink to be unhealthy, while many still love the taste of true fresh water and often indulge in a drink from the mountain streams. Just as many of them will sneak bites of raw meat!

Tibetan nomads are extremely close with their livestock. [Human-animal relations are a foundational part of Tibetan nomadic life.](#) In the *Gargon* region, most families have between 15-100 *Dzomo*, a female crossbreed of yak and cow. In other regions *Dri* are more popular which are female yak. The region of *Dzado*, closer to the source of the *DzaChu* River is wealthier. Families in this region have between 100-300 *Dri* and *Dzo*, *Dzomo* and Yak. The families in this region also have sheep and more horses than around *Gargon*.

Each morning the women of the household rise before the sun to milk the *Dri* or *Dzomo*. They release the animals from the fence or ties near the tent and herd them towards the valley or the mountain (depending on the season, and where grasses and water can be found). Some families milk during the afternoon hours in the summertime if the

grasses are plentiful and milk abounds, but in Gargon they only milk once or twice a day. The young boys used to herd in this region, but now since most youth are enrolled in school, it is often up to the women to wander the mountains with the livestock. Spending all day, sunrise to sunset with these animals, the nomads become quite intimate with each one.

One friend had escaped to India in the 1990s. After 13 years of living in exile he decided to return to his homeland. I was able to be in Tibet when he returned. He recalled being able to recognize the yak and *Dri* that he used to herd before he left home. He recognized them by their snorts. He also knew them by particular markings, shapes and attitudes. He and his sisters kept me away from certain *Dri* who may try and tackle me with their horns if I were to try to milk them. They gave me the docile one to milk after dressing me up in coral necklaces and a snow leopard fur trimmed *chuppa*, which they have since burned off in solidarity with the movement towards animal protection and wildlife conservation.

The milk from the *Dri* and *Dzomo* (they refuse to drink goat and sheep milk and only use those animals for wool and dung) is either enjoyed raw, boiled for milk tea, or processed into butter, cheese or yogurt. The livestock are sheered once a year in the springtime and wool is used to make the tents, bags, and mattresses. In the fall the Tibetans hire Muslims to come and slaughter the animals for the year. It is in hiring Muslims to kill the livestock that many Tibetans feel they save their lay-person Buddhist vow of refraining from taking life. In some areas Tibetans kill their own livestock. I have spoken to many Tibetan men who vividly remember their first slaughter and how difficult it was for them.

In wealthy areas at least one animal born each spring is pierced in the ear with a piece of colorful yarn and offered to the monastery. The offered animal often stays with the family, but it is never killed and often the milk and eventually the naturally obtained meat from the animal is offered to the lama or the monastery at large.

When I told Tibetans that I became vegetarian because I love animals and not because of an understanding of Buddhism, they were shocked. It seemed odd to the nomads, as they love their animals very much. In fact, each nomad I met had a deeper love and connection to animals than I had ever experienced.

As greenhouses become more feasible to build and use, vegetarianism in Tibet is becoming more possible. But consuming the animals is also a part of the lifestyle in that high desert Himalayan plateau. Each part of the slaughtered animal is utilized, the skin is often used for butter storage and water bags. The bones are used as tools and for *malas*, pipes and trumpet horns. The flesh is preserved through drying and smoking and the family uses it throughout the year. Tibetans frown upon the eating of smaller animals such as fish and chicken. They believe that in eating larger livestock they can survive longer with only taking one life, whereas if one needs to eat a fish each day for sustenance they will be killing 365 fish a year, rather than just the one life of a yak.

The relationship nomads have with their herds is seasonal and depends entirely on natural conditions. During a pleasant summer the nomads will have a lot of work and have a lot of food to process. During a harsh winter the nomads may even have to haul water and cook gruel for all of their yak to make sure they are nourished. In the spring nomads have their hands full delivering calves and lambs, often raising them for the first

month inside of the tent if it is still cold outside, serving the calves special yogurt mixtures to keep them alive.

It is rare to see a nomadic woman without an [animal product in her hand](#). Each moment is spent working to process some part of the animal products. The men have been removing themselves from nomadic duties since motorcycles became available. While technologies can often level out male and female inequalities, it seems that in Tibetan nomadic communities woman may have gotten the short end of the stick. While many tents now have solar panels and butter-churning machines, the men have motorcycles, and they ride off to the town often for long periods of time, leaving the women all of the duties of keeping the herds, which in the past were divided between all members of the household. These days when men go herding, the motorcycles are used to quickly locate and corral the livestock. Appropriately motorcycles are called “iron horses” *chakta-* as they have almost entirely replaced the use of horses in herding. Now, boys, as young as nine years old, drive motorcycles to herd.

Besides motorcycle technology, land division and the rolling out of a fencing policy has forever changed nomadic life in Tibet. Instead of following the patterns of grass growth with the seasons, now nomads are forced to stay within one area. This policy has led to severe overgrazing which causes erosion, while also negatively impacting the health of the herds (Fox, 2009).

5.3.1 *Bon* and Buddhism: [Being and Believing](#)

As I described in Chapter 2, the distinction between *Bon* and Buddhist is within the academic world, and also within the Tibetan communities in exile. But in the findings, it is clear that Tibetan nomads distinction between *Bon* and Buddhism is quite

blurry. This section is intended to offer the nomads perspectives, while the literature review offered the prevalent understanding and beliefs around these beliefs.

Many different Indigenous religions have been classified as Animist, but the Tibetan people identify religiously as Buddhist, while in practice they may be more aligned with the animist *Bon* worldview. The nomads and farmers of Tibet maintain lifestyles that are in union with nature. Living and working with primarily raw natural resources, the culture has become one of listening and understanding. The *Bon* perception of sentient beings seems to be more expansive than that prescribed by science and Buddhism.

Many, if not most, Tibetans pray to the mountain and river gods daily, and they ask the elements if they are allowed to enter particular areas and use particular resources. There are many stories of people being punished by the spirits after abusing resources. “If a person causes harm to a *Naga* they may fall ill with warts or another type of skin disease like rashes,” I was told by a local Tibetan Doctor (personal communication, winter, 2013). These Animist belief systems frame the daily life of the nomads and farmers. Since Buddhism was shared via scriptures, very few lay people have studied the philosophy leaving most illiterate people more attuned to the oral traditions of *Bon*.

When at a shaman festival in *Rebkong*, I noticed both Buddhist and *Bon* deities inside of the same temple. I asked a group of participants what type of temple they have. They proudly replied that the bottom half of the temple was dedicated to the mountain gods (a *Bon* tradition) while the top half is for the *Buddhas* and *bodhisattvas*. The separation of the two religions was very interesting to me, which was why I asked the question. Generally, *Bon* and Tibetan icons are similar; many of the mountain gods and local protector deities were adopted into Tibetan Buddhist iconography and practices. The

Buddhist monasteries are now the places that hold the Naga rituals and mountain god supplication ceremonies. The two traditions have merged so deeply that many practitioners do not recognize a distinction. Yet in exile and among academic circles Bon and Buddhism are held to be distinctively different.

Academics would consider the worship of earth spirits as a *Bon* practice rather than a Buddhist one, yet the texts used in the rituals are written by Buddhist masters and contain references to both traditions, making them indistinguishable. The Buddhist *Drikung Kagyu* Lineage *Naga* ritual text states:

“Homage and praise to the nāga king with his retinue, who completely dispels the darkness under the earth with the light of the blazing gem on his hood, and who has utmost admiration for the buddhas’ teachings and incredible might and power.” “All of you have seen the Buddha face-to-face, and you possess the eye of primordial wisdom. Therefore, remember the commitments [you made] in the past and provide us with favorable assistance now.” (Naga Prayer, Tibetan Text)

Lu have been involved in the story of Buddhism since its inception. In both the *Theravada* and *Mahayana* traditions there are beliefs that the Buddha was protected by the *lu*. The Tibetan stories of Buddhism coming to Tibet involves Guru Rinpoche also working with the *Lu* and *Sa dak* in order to be successful in his mission of spreading the *dharma*. It is in this way that the distinction of what is bon and what is Buddhist has disintegrated.

What nomads believe is beyond my classifications of *Bon* or Buddhist, although I will cover both of those terms in this chapter and offer my personal understanding of them. But what the nomads have shared with me has been a beautiful flawless faith in

the *Rinpoches* who are the spiritual guides for the people. My *Rinpoche*, who is the region I work in the *DzaChu* watershed area is considered a high Buddhist teacher. He has Buddhist monasteries and ordains Buddhist monks. These monks often perform offering rituals for the *Lu* and the *sa dak* and the nomads consider all of this of utmost importance.

The way that the nomads interact with the earth and live their lives seems to me to be beyond what is discussed in the monasteries. The ideas of *Sa dak* and *Lu* were passed on from their ancestors; the stories that they tell to increase respect for the land are stories from other nomads, not *Rinpoche* or monks.

Although many nomads depend on monks to do the [rituals for the lu](#), they themselves are responsible for their own relationship with the spirits. Just as there is the concept of both individual and collective karma, there is also this individual and collective relation with the earth spirits.

The nomads live in such close relation with the earth and its elements the relations they have with the spirits are clear and were the topic of at least half of each conversation that I had for this study. Many may see the [Practice of Tibetan Buddhism as Bon](#), but others (and most participants) see no distinction.

5.3.2 Seeing is believing: Understanding the spirits

This study is not an attempt to prove the existence of *Lu* or *Rhi Lha*. The purpose of this chapter is to address the question: How do the stories told by Tibetans nomads of the *Dzado* River basin reflect their perspectives on climate change? The foundation of the nomadic perspective is based upon the belief in *lu*, which was briefly outlined in the introduction. In the following pages, the words of the Tibetan nomads will expand upon this concept to provide a

better basis for understanding the nomadic views on climate change. Tibetans say that most people do not have the karma to see *lu*. Out of over sixty Tibetans that I have interviewed, only one elder had a vision of a *Naga* and it came to her in the dream state. Others told me stories of visions recounted by lamas with pure vision that are able to see beings of different realms. Within the *Naga* family and their classes we find that some are benevolent, and others are malevolent. There are a variety of diseases that were reported to come from disturbing the *lu*. Skin diseases, such as warts, kidney issues, and leprosy are all associated with *lu*. Illness will only be pressed on a human when a karmic relation has formed between that human life and the *naga*, otherwise the *Lu* will never harm an individual which they have no immediate karmic link to. It is in this way that the relationship between *Lu* and humans is very local. Yet there are numerous *Lu* for humans to create karmic connections to, the amount of *Lu* far outnumbering humans on this earth. A human may create a negative karmic link with *Lu* by polluting the water and making the *Naga* sick. Pollutants include urine, blood, and chemicals. By contaminating the water with pollutants an individual may cause harm to the *naga*, which will in turn, return harm onto the perpetrator.

Those who have the karma to see the *Lu* may recognize them in a variety of forms. They may be snakes, fish, alligators, turtles, frogs, even half human. Most *Lu* live in the water, such as springs, lakes, oceans and rivers, yet some may choose to live in trees nearby the source of water, this is why cutting trees by the water sources is so offensive and it is believed that it may cause illness.

"I don't know we have never seen them" was the most common response I received when I asked people to tell me about the mountain and water spirits. A couple of

sisters even joked with me, “*Oh yes, well we sometimes invite them to drink tea! Hahaha* (personal communication, summer 2014).”

The nomads infer the existence of *Lu* from the experiences they have had. Not even one out of 231 people involved in this study denied the existence of *lu*, yet only one grandmother said that she had encountered a *Lu* and that was in a dream state. Others reported seeing snakes and toads but it was never clear if those beings, which they saw were actually embodiments of *lu*.

I see similarities between belief in *Lu* with the belief in the ozone layer. *Lu* and *Sa dak* belong to the formless realm of beings, meaning that they may not (although not impossible) take an embodied form, which humans can perceive. It is the relations with these invisible things that are of great importance because of the impact that they have on our lives. The holes in the ozone layer bring climate change, just as the unhappy *Lu* hold back the rain or bring tremendous downpours.

Just as only a few highly trained scientists are defining the ozone and its qualities and perceiving its challenges, only a handful of realized beings have reported having communication and visions of the *lu*. Quite a few nomads told me about some higher beings who could see the spirits and communicate clearly with them. One younger man told the story of Milarepa:

In the region of Mount Everest, there is a mountain spirit and her name is CHILA CHINGWA. One time, the local people cooked meat and they burned the meat in the fire, polluting the air. This made CHILA CHINGWA very sick, so she was unhappy. In that year in that local area, they had many diseases and they had no rain and many problems. Milarepa was there, he was a very good yogi in

Tibet. He asked CHILA CHINGWA 'why did you do this to local people?' and she said 'because they polluted my clean air. They made it dirty.' Then Milarepa asked local people to make incense and fire puja. Then she forgave the local people then it became okay. So like this, we pollute the water and the air so they [the mountain and water spirits] are not happy. Then they kind of punish us.

(personal communication, summer 2014)

Such stories are well known around Tibet. They demonstrate the widespread understanding and mode of communication with the earth and its resources.

While only realized beings are said to be able to see the spirits, one of my friends reported having seen one of the *sa dak*'s yaks, saying:

The mountain protectors are just like humans in the way that they have families. There's one mountain protector that is behind the monastery here [yargon] that has a cleft palate and it has a red horse and a red yak without any horns. One time I saw this red yak of the mountain protector. Because he's a wrathful spirit he and his belongings are colored red. The Nomads that live around the area of the mountain protector, they mostly have red livestock. But if the people do something to upset the mountain protector, then all those red livestock will be killed. (Personal communication, summer, 2014)

There are present day lamas who are also thought to possess the gift of being able to communicate with those of the formless realm. Some monks recommended that I refer to the *torma* offering text to the *Lu* written by *Dharmakirti* in order to understand what the *Lu* look like. The text is included as Appendix B. The following is a descriptive

excerpt from the visualization a practitioner is expected to meditate on during one part of the practice:

In the center of the great lake, a precious white lotus with eight petals [manifests] from a pam syllable. In its center and the directions are phu phu syllables, from which manifest: nāga king Varuīa in the center, looking like an autumn moon, and on the petals, white Ananta in the east; blue Padma in the south; red Takúaka in the west; white Vāsuki in the north; white Mahāpadma in the northeast; white Śaḍkhapāla in the southeast; white Karkoūaka in the southwest; and vermilion Kulika in the northwest. Each of them has a celestial body, folded hands, and a hood of snakeheads, and the lower part of the body is the coiled tail of a snake. They are clad in silk and adorned with myriad jewel ornaments, and the crown of each is bejeweled with an illuminating gem. All around them are nāgas of the royal caste, the noble caste, the brahman caste, the commoner caste, and outcastes, along with their kings, queens, princes and ministers, and their subjects, retainers and wives. All around them, they are completely surrounded by the chiefs among earth-owners and the leaders of plague-causing spirits, including Tenma, the goddess of the earth, and Lagpa Chenpo, the preserver of the earth, and others. All around them, they are completely surrounded by the various forms of nāgas, earth-owners, and plague-causing spirits that inhabit the worlds of the trichiliocosm, obscuring [all around] like rain clouds.

(Tibetan text Appendix B)

From the practice text, we can see that the *Lu* are sometimes half celestial human form and half serpent, the upper body having the head arms and hands of a human and

the bottom half being the tail of a snake. The *Lu* are visualized in a realm with other earth bound spirits, like *Tenma*, the goddess of the earth, and *Lagpa Chenpo*, the preserver of the earth.

We have a tradition telling us that if you dig the earth and move rocks and dig up plants, you pollute water and the environment that makes Lu unhappy. If they are not happy, then there's no rain in the year and no really good weather in the year. Then that makes your livestock not good in that year. And for farmers also, their crop does not have a good harvest. That's why we have a stove, only three rocks [are used to build it]. But we're also really careful when we move those, where we get those three rocks [from]."

5.3.3 Making Connections: Human-Spirit-Earth Communication

No participants reported being able to communicate with the *Lu* or *sa dak* directly, but almost everyone implied that they had relations with the spirits. Every group had answers about what they could do to the questions: What pleases the *Lu* and *sa dak*? And what displeases the *Lu* and *sa dak*? The majority of the responses included 'I' and 'we', meaning that what they do as nomads directly impacts the *Lu* and *sa dak*, placing the responsibility of the spirits pleasure or displeasure on the humans. The nomads recognize the spirits as having different attitudes, some *sa dak* are generally wrathful, and others generally peaceful:

If you're living in a place near a mountain protector that is more wrathful, then if you do a little mistake you can have a lot of trouble from the mountain god, like there will be hailstorms and things like this. Then if some people live by other mountains where the mountain gods are more peaceful, then if you make a

mistake, the mountain gods don't really care so much because they are more peaceful and compassionate. Sometimes, by accident you might waste some meat or some milk burns in the fire, then the mountain gods will make a problem for you like killing off the young livestock. But if they make offerings, such as food offerings or incense offerings, then it will make the mountain gods happy." Lu and sa dak are generally feared because they can be so wrathful that they even kill people: "there was one young man who cut a tree down near the spring and he made a chopstick out of the wood from the tree. He was eating with the chopstick and then he threw the chopstick in the river when he was done. He became very sick and died. Everyone thinks that he died because it made the Lu unhappy by cutting the tree and making a chopstick and throwing the chopstick in the river. Also, if you made the Lu unhappy, you will get skin disease. (personal communication, summer, 2014)

In deeper discussion regarding the pleasure of the spirit world, I inquired who could make the offerings to the *Lu* and *sa dak*. This type of human to spirit communication was left up to monks and lamas.

Some nuns told me about the way they ask for rain:

Usually, we offer them incense and also put medicine into the water. That makes them happy. Sometimes if we don't have rain for a long time, we also do this kind of offering and then we have rain. We keep saying this is because the Lu are happy that's why they're giving rain. (personal communication, Summer, 2014)

According to the monks:

We do not have any certain time to make those [lu] offerings. But when there's no rain or something wrong with the weather, then we are going to make these offerings to the Lu. We make everything very clean. We of course wash our hands and then make Torma. All of these we prepare and then throw into the water. It should be like Lutip. That means one star should shine on that day. There are not any special decision-makers who are going to say when to go [besides the stars]. If one Lama has time, they also go. If Lamas don't have time, then we go there. But usually, we need to see the weather. Especially if there is no rain for a long time, then we try to see whenever there that star day, then we do this Naga offering. (personal communication, Summer, 2014)

There are certain days to make offerings to *lu*. *Lu* sleeps on certain days and do not like being woken, even if it is to make offerings. The days are calculated according to the lunar Tibetan calendar. The translation of the Drikung Kagyu Lineage *Lu* offering puja, which is included here and in Appendix D. It has included not just *Lu* but their entire retinue of earthbound spirits.

Many scriptures speak of the earth-owners and plague-causing spirits as members of the entourage of the nāgas. Therefore, it seems apt to include them in this torma offering. It seems that the nāgas, earth-owners, and plague-causing spirits are closely related and they appear together; they bring harm to most sentient beings in this age of strife. (Tibetan Text, Author & date unknown)

During the summer months of 2014, when I was conducting research in the region, my non-profit was also constructing a well for *Gyalsum* village. I had been quite hesitant to work on the project after beginning this research and hearing repeatedly that

digging, moving stones and otherwise disturbing the earth cause the *Lu* displeasure. But the project had been requested years ago. The project was urgent because the school cooks are over seventy years old and they have been hauling water from the river for 50 children.

In June 2014, we decided to begin digging. The source of the water was said to be established by the third Karmapa. When the Karmapa Rangjung Dorjee was traveling through the region, he took a rest on the very spot where the spring rose miraculously. I was extremely nervous to potentially harm such a sacred site, but the villagers insisted that such a project would not harm the spring nor upset the *lu*. When I arrived to the village to survey the site, the project manager had already contacted the local lama and requested a ceremony be conducted to ask permission to dig and channel water from the spring. Villagers offered *tsampa*, butter, yogurt, dried juniper, and prayer flags for use in the ceremony. One nun created hundreds of small *tsampa* dough balls that would be strewn around the offering site.

While making the *tsampa* offering, she made certain that everything involved in the process was completely clean. She washed her hands and all utensils meticulously while I watched in appreciation. It was a rare sight to see Tibetans clean anything with such intention and attention to detail. Especially in this village where water had to be fetched from a far away river, hygiene is much more difficult to maintain. As the offering became too large for the platter, one ball of *tsampa* rolled off onto the table.

Without thinking, I grabbed the little ball and put it back onto the plate. All of a sudden, the monk who had been directing the nun on the offering making procedures became upset. The table and my hands were not purified, and I had unintentionally taint-

ed the offerings. Luckily, the issue was taken care of with some juniper incense. It was a new experience to be the one making the mess because in the Gar monastery where I usually stay I am the housekeeper.

After preparing the offerings for the *lutsang* ceremony, we went to the site to set up a seating area for the monks. I was shocked to see that the spring was full of litter. My friends and I spent half an hour pulling a variety of plastics from the water source. The monk remained concerned with assembling the cushions for the other monks for the ceremony rather than actually cleaning the river. When the lama and his monks arrived the river was free of trash and the monks had a nice place to sit. The *lutsang* ceremony was carried out with great intention, and there seemed to be a good response from the *Lu* accepting the offerings. As the ceremony ended and the lay people began hanging prayer flags there was a light drizzle of rainfall. Rainfall, unless it is a relentless downpour, is thought of as a good thing, a good sign or a omen to Tibetans. We began the digging the following week, and there have been no issues with the water since.

At one point in Indian history, it was believed that even human sacrifice was necessary to please these beings (Oldham, 1905). To deal with [The Wrath and Compassion of the Spirits](#) ceremonies exist, generally consisting of burning incense, or the white foods (*tsampa*-barley flour, sugar-or honey, milk-or yogurt) or burying *bumpas*, or blessed vessels at the root of the river. During my time living with Tibetans, I have been a part of multiple rituals to please the *lu*. Participating in these rituals has heavily influenced my doctoral work. Through these ceremonies I was able to recognize the pathways for communication with these unseen forces. While I struggle to form these expe-

riences into words, the recognition of these spirits is a foundation for me as an author of this study.

I hear that the Lu have no legs, but I don't know this for myself. So if somebody from a faraway place does something bad, then the Lu cannot take revenge. But if someone from the local place does something bad, then the Lu can have revenge upon them. (personal communication, winter, 2013)

On April 14, 2010 a 6.9 magnitude earthquake killed over 2,900 people in *Yushu*¹. Scientists have noted the instability of the region due to its location near to the *Yushu-Ganzi* fault. Yet many Tibetan *Yushu* residents have other ideas as to where this earthquake originated. Many Tibetans attribute the earthquake to the mining of a nearby mountain that had begun earlier that spring.

Without hesitating, Tibetans rattled off the same list of actions that make the *Lu* and *sa dak* unhappy, digging earth, moving stones, cutting trees, and [polluting the water](#). I was surprised at first on how similarly the answers were delivered. I wondered if my question had been pointed in some way as a leading question. After the preliminary study in the summer of 2013, Jamyang and I reviewed each question on the survey. We rephrased a few questions that were not translating well into the dialect or not yielding valuable information and we decided that the rest of the questions were fair and good. The question that seemed most simple to people- even easier to answer than their age- was: “what displeases the *Lu* and *sa dak*?” again and again, no matter where we were, the response was almost identical. When I conversed about this issue with a few nomadic friends I asked how that knowledge might have transferred so that everyone knows. In

¹ "Death toll in NW China quake rises to 2,183". chinadaily.com.cn (chinadaily.com.cn). 2010-04-22. Retrieved 2010-04-2

a typical Tibetan fashion, my friends both replied, “it’s just something we know” (personal communication, Summer, 2014). Tibetan children as young as six and elders as old as 92 had identical understandings around how to treat *lu*. It was not surprising that mining was looked upon with such disgust.

The Tibetan region is precious to many people for a variety of reasons. As discussed earlier in Chapter seven, there are a variety of valuable minerals scattered about on the Tibetan plateau. In the DzaChu region the people reported having copper, gold and coal. Resource maps point out molybdenum, uranium, titanium and iridium. When asked about their most precious resource, the range of response was between grass, bug grass, milk, butter, livestock and water. Only one nomad mentioned the minerals that lay within the mountains, yet Chinese Scientists and the Chinese Government have explored these mineral resources well and often list them as some of the nation’s most precious resources. Tibet’s water resource has been gaining more recognition over the past decade, but the mineral resources have been a focus since the 1960s. Chinese resource management has been criticized globally, and is a main concern of this research.

A few elders recalled that they used to only dig three rocks each season, and that was just to make our stove. Nomads never dug earth and had harmonious relations with the *Lu* and *sa dak*. Occasionally, I caught sight of tears welling in the elders’ eyes when they spoke about the changes that were occurring. “At first the changes were slow, but now it seems it is all happening so quickly (personal communication, Summer, 2015).” The elder began telling us about the mining that is taking place on *Zanagrigen*, one of the mountains closest to the sources of the *DzaChu*. Another elder told us that perhaps it is no trouble now. “It seems the Chinese are able to come and mine the mountain, take

the gold and leave without any harm so perhaps now there is no repercussions for them” (personal communication, Summer, 2015).

It was explained in one conversation that the *Lu* and *sa dak* can only harm those whom they have relations with. It was said that if foreigners come and do something that disturbs the spirits, they will give them no trouble because they have not established any sort of relationship. If a relationship is established, then the *Lu* and *sa dak* can be extremely vengeful. In some ways the relationship is quite clear, one young nomad boy told me, “When we throw a lot of garbage in water, there are many animals that die including the fish and the frogs. If you throw one dirty cloth in water, then you can see many dead bodies of animals” (personal communication, summer 2014). From simple observation alone, connections are made between cause and effect. I have seen this understanding of cause and effect can produce respect and fear.

I have not been able to recognize the difference between fear and respect in the Tibetan relationship with the earth. I was also confused when I was told teachers had the second most respected position in Tibetan society, only second to the lamas (*Garchen Rinpoche*). But when I became a part of the school it seemed teachers were more feared than respected. For quite some time, I struggled with class management because I did not beat my students as the other teachers did (parents even suggested that I should). It was very difficult to teach for about six months because it took that long for me to gain the students’ respect. Within one year, my co-teachers were requesting that I share with them how I was able to not beat the students and rather play games with them while also commanding respect. It was new for the village for a teacher to act in this way and to be respected but not feared. When we spoke about respect, there was a major correlation

between respect and fear, something I had always defined quite differently. They asked me, “Do you respect our teacher, *Garchen Rinpoche*?”

“Of Course” I answered, and followed –

“Do you fear him?”

“Of course I am afraid of his wrath!” (personal communication, summer, 2014)

Since this conversation, I left behind trying to decipher between respect and fear in the Tibetan culture. It seems those whom they respect often command great power, especially the mountain and water spirits. The spirits do yield great power and can be beneficent or wrathful. And that is very much up to the humans’ behavior. “They are very much like us, if you show them love, they will be nice and love you in return. If you are not nice to them, they will make your life hell” (personal communication, Summer, 2014).

In many ways, the *DzaChu* region is becoming hell like for many inhabitants. Besides the reports of dwindling grasslands, barren earth, rodent infestations, and lack of water, discussed in the previous chapters, some are reporting some very dangerous situations. More than a few participants claimed that the water was now poisoned. They said that mysterious diseases were appearing in both people and livestock from the water. They blame the miners.

The Tibetans I surveyed expressed that although the Chinese companies are the ones causing the harm to the *Lu* and the *sa dak*, but it will be the Tibetans who pay the price for the damages. That is why over 500 people from around *Dzado* protested. On October 13, 2013, two other villages gathered and demanded that the mining around the *DzaChu* be stopped. On the October 14, 2013, the crowds gathered at the government

offices in *Dzado*. They were met with riot police, tear gas, and rubber bullets. Some elders died from injuries. The crowd was comprised of people of all ages, male and female, city workers, government leaders, and nomads, all convening to beg the government to protect their homeland. “We know that many people, not just us Tibetans or Chinese, but people from many different nations depend on this water, that is why we must try to protect it- even at the risk of our lives” (personal communication, Summer 2014).

But the local Chinese government in *Dzado* did not see the nonviolent demonstration as one expressing environmental concerns. The Tibetans protestors were charged as separatists, trying to call for Tibetan freedom. “They pulled aside the leaders or anyone who could speak about the issue well and publicly beat them in front of all of us as an example (personal communication, Summer, 2014).” Many people went to prison, and others went into hiding. Those leaders who were a part of the demonstration lost their jobs. They did not relent, however. Slowly, there appeared photographs of Mao and Jiang Xiemen, a younger participant recalled. “We truly were not calling for freedom, we were just asking them to protect the protected area (personal communication, Summer, 2014).” Eventually, the government got the picture and a few people from the region even went to the appropriate government offices in Beijing and reported the issue to the central government. Within a few days, agreements were made to end mining of the mountain.

Dzado residents are proud of this victory, but they do not have much hope that mining will be stopped forever. They say that the new prime minister is anti-corruption, this should help things here, but it is hard to tell if anything is really working. Those

who went to Beijing to report the corruption within the *Dzado* government are still in hiding. The officials get big pay offs from the mining companies and they are not happy that their side business of selling mountains has been disturbed!

Most people were clear that it is not the government doing the mining; rather, it is the work of private companies. But when I asked one man who poisoned the water he responded: “last year when we had the problem [the protest] many officials became upset that we were doing so and they poisoned the water” It seems that the local officials are selling the mountains although it is against official policy. Others didn’t blame the government for the poisoned water, they felt that chemicals were being used for mining that were seeping into the water source. Seeing that this has been documented in other areas, this line of reasoning would make sense.

The majority of the nomads who complained of sicknesses coming from the water said that it was due to the *Lu* being upset. They reported that the *Lu* were disrespected by the digging and dirtying of the water and that the local people will now be punished. *Lu* are considered quite temperamental beings; if they become upset or dissatisfied, they will harm the humans. They can be extremely vengeful, multiplying the attack back to the humans who disturbed them. The same is thought to be true with the *sa dak*. Some *sa dak* are known to be beneficent, rarely getting upset due to long standing good relations with the locals, but others are known to be quite maleficent. *Lu* and *Sa dak* have been reported to plague entire villages with sicknesses and also take the lives of particular beings who had been disrespectful.

When I asked for examples of the retributions of the earth spirits, the stories from the different regions were all quite similar. A friend’s grandfather told me that one

man went harvesting *yartsegumbu* on a holy mountain and upset that mountain spirit, as it does not like to be climbed. The man was killed by a rock falling off the mountain. There are many stories like this including bear attacks, perpetrating families having to deal with a great loss in their livestock and flooding destroying houses. I have been told that the *sa dak* and *Lu* always get revenge and demand respect.

SAITZE Mountain is still off limits for picking bug grass because that is where one mountain spirit lives. And because we believe that they [mountain spirits] also have their own livestock and their own property. If we go to pick bug grass from their territory, that means we are invading them, then they are angry. Otherwise if you give offerings and if you make friends with them, they will help you. When someone went to this DAIJA mountain and dug some bug grass some bad things happened...For example two families are living together in one area, they are neighbors and one family they didn't dig bug grass from that mountain, but one family they did, then what happens is that year, one family will die or get seriously sick or wolves will eat lot of the yaks from that family but not from the neighbor [who didn't disturb the mountain]. For example two years ago, one Nangchen man came and he dug bug grass from that mountain. They don't know how, but just one rock fell down on him and he was killed there. (personal communication, winter, 2013)

The relationship between the humans and *Lu* is illuminated in the offering prayers made to the earth bound beings. It is said:

Reciting this dharani in a state of samadhi and making tormas offerings ensures pacification of the harm and torment inflicted on all sentient beings by nāgas;

pacification of the suffering of the nāgas' body, speech and mind, thereby making them caring friends; improvement of the earth's fertility; attainment of all common siddhis; timely rainfall; excellent growth of grains and fruits; and pacification of fights and quarrels." These and others are the countless benefits of reciting this dharani, and therefore it is very important and a key point. Thus, having satisfied the [nāgas] with gifts of material objects, love, and protection from fear, the gift of offerings is: Kyema! Nāgas, earth-owners, and plague-causing spirits, all of you without exception, heed my words. Everything is impermanent and illusory, none [of it] holds any substance. Joy arises from wholesome deeds, whereas suffering arises from unwholesome deeds. All phenomena arise from causes, and the Tathāgatahas taught the cessation of those causes. Abandoning the non-virtues, practicing the virtues, and taming one's own mind—that is the teaching of the Buddha. (prayer offering, Appendix D)

Many stories of disrespect revolve around the practice of harvesting *yartsegumbu*. In Tibet, *Dzado* has some of the most famous, most potent *yartsegumbu*, so there has been some trouble there. The medicine has always been popular in China, but the price has skyrocketed in the last decade and people of the region have become quite wealthy due to the higher price for the harvest. They have also apparently become quite greedy, besides there being many knife fights over bugs and bug picking territory; many people have also begun to disregard the local rules as to which mountains humans are allowed to climb and which mountains shall remain untouched. To a science framed mind there would be obvious reasons to stay off of certain ecologically fragile mountains. The nomads' reasons are due to spirit relations, which are often related to those

ecologically fragile environments. While living in the region, I was pointed out key mountains, which I was not to climb. I was told stories about a woman being eaten by a bear and another who was struck down by lightning and reminded each time that I began to walk in the direction of those mountains that I should be scared. At that point, I did not have much understanding or relationship with the *sa dak*, but still those mountains were much too steep and treacherous for me to ever attempt a short cut across.

Due to *Yartsegumbu* being such a major part of the nomads' lives and their new found economy, it is worth explaining a bit about the process. In fact I was a bit concerned, because it has become such a major part of the nomads' lives that the camera cards would only contain pictures of the bug grass and the families harvesting them! There were a lot of photographs of *yartsegumbu* and of harvest time, which seems to be one of the most celebrated times of the year, not just because they are making money but because it's a sort of social event. Now many people have small western style tents and enjoy moving camp everyday with friends and family, leaving the livestock to graze on their own. For many women bug-collecting time is a break from the arduous routine of milking, herding and processing foods.

Unfortunately, due to the rising price and also the rising Tibetan population, there may be some dangers to this practice. Most Tibetan nomads are mindful of the earth, and avoid digging, but when harvesting *yartsegumbu* there is a minimal amount of digging that is done to uproot the plant that the caterpillar was attached to and now fungus has formed over. There are scientists who attribute some of the erosion in the region to these harvesting practices. The Chinese scientists claim that not only is it a lot of digging on fragile terrain, but it is also a large amount of foot traffic, and even more crawl-

ing, to access the steep mountains where the medicinal fungus is found. This seems to be a valid concern, yet not one nomad had brought up the issue of over harvesting or over digging during harvest to be an item of contention with the *sa dak*. The only issue for the nomads is that bug picking is not allowed on certain mountains. It is in this way that there can be some cross education between scientists and nomads to discuss which mountains have which preferences and how to develop appropriate relations with all mountains. The Chinese scientists may be able to contribute some data on the rise of bug picking and how such an increase in the practice of this harvest can cause environmental degradation, an issue that the small population previously had never had been concerned with.

The Tibetans of *Yushu* district seem to be content with the new government policies regarding *yartsegumbu* harvesting. In the areas where the medicinal fungus is found, the government has created regulations for collecting the now highly valuable resource. As I mentioned previously, the regions that have this resource are given a one-month holiday from school and many offices to go and harvest the fungus covered caterpillar, which will provide many nomadic families with their only monastery income for the entire year.

The government encourages this type of capitalist venture--perhaps, in hopes that it raises GDP of the area and in turn the Tibetans quality of life--but not without placing limitations on it. Fortunately, the Tibetans consider the limitations to be fair. The places like *Dzado*, which have the most valuable *yartsegumbu* are highly restricted during the harvest. Only those with householder permits issued in *Dzado* are allowed to pick in the region. Those who are married into a family from outside townships must even wait five

years before they are considered legal residents. Outsiders who work as teachers for *Dzado* district seem to have the best deal: they are allowed to go picking for free. Otherwise the permit to be in the region at that time costs 500RMB/day. When I laughed at the high price, two people in the tent said that they paid that price and told me it was worth it, giving Amdo Jamyang ideas that he should come and try his luck picking next spring!

It is said that in a season, one family can bring in as much as 100,000RMB. The nomads complain to me each year that they don't have as much *yartsegumbu* as they used to, but it seems that there are just more people out there harvesting! This highly valuable resource is much more of a consideration for the nomads of this area than the minerals contained inside of the mountain. They do not seem at all concerned with the amount of foot traffic or root pulling that is involved with this profitable activity, as long as everyone stays off of the holy mountains!

There are a number of articles published by scientists, stating that the harvesting practices are causing harmful erosion to the mountains of eastern Tibet. This erosion may not compare to the large-scale mountain removal that occurs in the name of mining, but it is a sensitive issue, as nomads depend on *yartsegumbu* for their livelihood. Despite this information, the local Chinese government does seem to be concerned about this issue.

Many Tibetans reported that with the decrease in *yartsegumbu* it is possible that within ten years the species is gone, and then the Tibetans of the region would go back to being quite poor. "But now, everyone is quite wealthy, we say that now each person has one car (personal communication, Summer,2015)!" It is true. *Dzado* is full of new

vehicles, a classic symptom of new money. Outside of most nomad tents in the area, we would see a car parked outside, replacing the motorcycles of ten years ago and the horses that were the tradition for centuries before that.

Dzado people do still ride horses, though now it is very much for the horse races. I was able to attend both the famous [Yushu horse festival](#) and the smaller *Ato* horse festival in *Dzado*. Now the [riders](#) are offered large prizes and [horses are worth large sums of money](#).

Just as the answers to the question “what displeases *lu*?” seemed to be alarmingly similar, nomads agreed almost unanimously about what pleases the *lu*. As they had been so repetitive, I almost omitted one of these questions. The answers were the inverse of one another. The *Lu* were pleased by not digging, not removing stones, and not polluting. Occasionally, we would be told that the spirits enjoyed having offerings made. *“The Lamas tell us that to please the Lu, we can make offerings of milk or tea or clean water or food. Whatever we are having, we can offer the first serving, the first taste (personal communication, Summer, 2014).”*

The *Lu* have been crucial part of Tibetan life. When the *Lu* are pleased they spread wealth and happiness in the form of rains, which produce crops and healthy grasses. When *Lu* are displeased they cause droughts or floods, causing starvation and death. Tibetans have designated a large amount of energy satisfying the *Lu* by using prayer and other ritual offerings on specific days. The days that *Lu* are accepting of offerings are outlined by Tibetan astrologers. There are specific days calculated by astrologers that are different each month.

Offerings to the *Lu* and *sa dak* include smoke offerings, prayer flag hanging, and *lungta* offering. Each of the offerings have a prayer, of which some are localized, but the format of the offering does not change very dramatically. Only some names of the local spirits may be inserted. Reconciliation between the *Lu* and humans are a main concern for conducting the Naga *torma* (*tsampa* offering cake) offering ritual. In the body of the Naga offering prayer text it is written:

Today through peaceful means, we—the master and disciples—repair, restore, and rectify the violations, trouble, harm, and violence that we have caused, deliberately or accidentally, to the earth-owners, nāgas and plague-causing spirits, including their retinues. Great nāga kings, you have seen the Conqueror and heard his Dharma teachings. Therefore, you are kind and do no harm to transient beings. However, the ordinary nāgas are arrogant and harm others due to their pride. The earth-owners and the plague-causing spirits are your subjects; they accept your commands and execute them. Therefore, I repair my violations in relation to all of you. By the compassion of you nāga kings, may the groves of precious trees become habitats for all nāgas. May this great ocean of pristine purity, the birds, wild animals, and so forth become a sublime sight for the amusement of the nāgas. May the frogs, snakes, fish, and so forth become assets of the nāgas now. May this beautiful torma made of three whites and the milky ocean made of three sweets pacify the troubles of nāgas, and thus become favorable substances for them. (Tibetan prayer, author unknown, date unknown)

As I mentioned earlier in this chapter, the offering ritual to the *Lu* at *Gyalsum* included yogurt, *tsampa*, and juniper. Often it is these types of white foods that are in-

cluded in various types of pujas. White foods are considered pure and appropriate for spirits. Yogurt, milk, butter, sugar, honey, and alcohol are all considered good foods to offer. Since these beings are in the formless realm, the foods are burned and offered in the form of smoke and juniper incense. Most nomads will hire a lama or ordained monks (and rarely but sometimes nuns) to do these types of offerings. Those who are ordained are considered good intermediaries to make sure that everything is done properly and in the cleanest ways.

The instructions on preparing the ritual are included in the prayer text. Cleanliness is prioritized to the extent that practitioners are encouraged to refrain from eating onions, garlic meat and alcohol prior to the practice as they are viewed as impure foods:

Grind the five types of grains—barley, rice, wheat, unhulled barley, and peas—into powder, add some nāga-medicine, and knead the mixture using the three nwhites and three sweets. Mold that into a round torma with a hood of writhing sakeheads, and some pills. Place them together on a clean precious plate and arrange it in front of you. Prepare [a bowl of] clean water with the three whites, three sweets, and nāga-medicine added. It is effective when done on a nāga day. In addition to this, arrange all the other essential items. Abstain from all impious food and drink- meat, alcohol, garlic, onion and others- before and during the torma offering to the lu. (Tibetan prayer, author unknown, date unknown)

The three whites are the ingredients yogurt, butter, and milk; the three sweets are honey, raw sugar and refined sugar. The mixture is made of about a bowl full of the flours, with one spoonful of the butter and sugar mixed with a few drops of milk, yogurt, and honey. They emphasize that the bowls and spoons used for mixing should all be

spotless, and that it is important to keep one bowl separate just for this purpose. Monks and nuns often wear masks while preparing *torma* to avoid polluting the offering with their breath.

Many years ago, when I was having health issues while in Tibet, I was told by my teacher to complete these offering rituals. I was very sick at the time with an ailment similar to typhoid fever. I had little idea what I was doing, but I included the prayer and made the offerings as they were taught to me. It was at that time that I had a clear vision of a serpent. Of course, the fever could have been assisting in providing hallucinations, but I received a clear message for the direction of my life from a serpent during that retreat. Since then, I have had no doubt that those rituals are quite powerful and should be done with clear intention. My sickness slowly cleared. Since that time, I have felt quite close to the formless realm of beings that will assist the human realm when properly invited and trusted.

In my perspective, these people are the most qualified to engage in these types of communications with the earth spirits; it is somewhat unfortunate that so few Tibetan nomads feel authorized to perform such rituals. It seems as though the nomads have so much respect for the beings that they do not feel learned enough to attempt such communication. There seems to be some self-doubt on the part of the nomads that they would not complete such a ceremony properly. Luckily, the hanging of prayer flags and the throwing of wind horses are both accepted to be lay-person's rituals.

A couple of sisters who live at the camp nearest to the *Tashi Kyilwa* told me that [hanging prayer flags](#) pleases the *lu*. I inquired how many times they go each year to hang the flags, and they responded, "over 40 times a year." I thought that I misheard them, but

they said no, they need to do it often because the strong wind and weather often brings the flags down. The young women said that this custom is their only ability to protect the spring. Like this, in silence, the wise continue to watch over the world's water. They do this important task of making the *Lu* happy without thanks but with pride.

Human-spirit-earth communication is one of many components that are rarely spoken of in Tibetan culture, let alone American culture. Although it is one of human's most basic survival skills, there is a lack of terminology and understanding of the subject. It seems that we must return to cultivating this skill, as a global community, whether we believe in spirits of the land or feel more confident when looking at thermometers and tape measures. The impact of climate change on this region needs as many witnesses as beings that the water nourishes.

5.4 Summary

As the world becomes smaller and smaller through consumer culture and the trade of goods and ideas that comes with it, changes are occurring rapidly. Tibetans are no exception to the outside influences, and the lifestyles of the affluent are particularly inspiring to today's nomadic youth. Formal education and written literacies are rewarded in a variety of ways within Tibetan and Chinese society. What often goes unseen is the detrimental impact formal education sometimes has to the familial structure, traditional culture, TEK, and the environment. While written literacy is important, its negative impacts have not been measured in terms of cultural and ecological loss. There are obviously compromises to be made, but the recognition of informal education and placing value on TEK will bring more equality.

The nomads have been reporting alarming environmental changes for over a decade. These people are close to the earth; they know their livestock and their grasses, and the water like it is an extension of them. They have designed their culture around the land and its waters rather than designing the land around the culture. The “modern societies” are taking this backwards approach to development, trying to change the water and land, to fit their needs. Mining for gold to adorn our bodies and aluminum to make into consumer goods, damming, and redirecting rivers that have been forming their paths for centuries. Disturbing nature’s course, and in the end, we are disturbing human lives. Unfortunately, the ones that already know and understand this truth deeply are the ones feeling the effects of those humans who are not adapting to nature, and instead trying to conquer it. While the nomads of eastern Tibet are extremely resilient, they are forseeing their own end. They are clear with their demands, things need to change, or they- the Tibetan nomads will disappear.

6. Conclusion: Looking Ahead

*“In the next ten years maybe there will be no more nomads.
No more bug grass.
No more grassland.
Maybe no more blackheads [Tibetans].”
(Personal Communication, summer, 2014)*

This final chapter concludes the research finding by summarizing how climate change is perceived by many nomads as the greatest threat to their culture. The chapter also portrays the hope that the Tibetans have for not only themselves, but for the wellbeing of the water, that it is able to nourish many people downstream for years to come. This chapter touches on the fact that most nomads admit, that they may be no more nomads in ten years if ecological changes persist. Yet the overall focus is on ways to preserve the water, the land and the people. The chapter reviews the findings as reason for the preservation of the region through international efforts and local wisdom.

6.1 [In ten years... we may not exist](#)

This was the most difficult chapter to write. Not because I do not have hope, and not because the Tibetans do not have hope, but because there is fear and there is a very realistic threat. One young woman stated the worst case scenario, “In the next ten years maybe there will be no more nomads, No more bug grass. No more grassland. Maybe no more blackheads [Tibetans]” (personal communication, Summer, 2014). I had trouble continuing with the interview, her words struck me so deeply. At seventeen, she already recognized that her people were endangered. I had considered this issue before, but hearing it come from a young Tibetan felt much different, hearing it from someone who is expecting the experience within their own culture, in their own family, made the thought solidify into a real possibility, a real threat.

I asked the nomads, “what changes might you see in the next ten years?” Everyone but my friend Pema, who was quoted in chapter six, hopes that they can still be nomads, but they recognize that not only do things need to remain as they are, some things need to be undone as well. Reparations need to be made to the mountains and waters that have been attacked.

As stated in Chapter 5, the Tibetan nomads are proud of where they are from. “The land is really special. No matter what we call the mountains or nature, people are saying this area is the second Bodh Gaya” (personal communication, Summer, 2014). Another told me, “this place is all I know but it's like a precious jewel. There's no better place than this” (personal communication, Summer, 2014) Then my friend Pema added, yes- “in the summer time, it's really enjoyable. Then in the winter time, it's horrible.” (personal communication, Summer, 2013).

Many nomads expect to see a change in the way of life, and for many that depends on the schools.

Rinpoche said that we should send our children to school to get a modern education. Do not leave them like your generation that doesn't read or write and are not educated. That's why I send my kids to school. I have six children, three boys; one is a monk, the two are here and the other three are in school. They are in high grade levels. I hope that they will study hard and that they will get good jobs because Rinpoche said that if you send your kids to school, he can guarantee that they can get jobs. So that's my hope. (personal communication, summer, 2014)

The previous chapter outlined some of the dangers of the required formal schooling of children. Sending a child to school usually entails them leaving the nomad camp and living in a village or a city. Removing children from their homes disturbs the TEK from being transferred. In ten years the TEK may be threatened to a point of extinction.

6.2 Considerations for the Future

I entered this research as a somewhat “honorary” member of one of the research sites. Having lived in Gargon for 3 years, I do have nomadic “family”. I came to these questions and this research after much informal conversation on the topic, and after falling in love with the region. I had concerns regarding involving this community and space in the research- feeling that it may be “too close to home.” While I will never be a Tibetan nomad, this community expects that I will move back to spend many years with them once again, and this research does point to the need return.

Having completed over thirty focus groups, thoroughly capturing voices of the nomads in the region, I feel prepared to begin the advocacy work that the nomads have asked me to do. Again, my position as an American woman allows me to be involved with these issues in a different way than the nomads. I feel honored that they trust me enough to ask me to act as their advocate and feel dedicated to use my privilege towards the cause of protecting this precious ecological area.

My recommendations in this looking ahead chapter are derived from the focus groups, personal conversations with nomad and government officials and research. It is clear that the Mekong River Water Shed would benefit from protection of the source of the river. The commission that is concerned with the Mekong River has been requesting China’s involvement for years, yet perhaps rather than being requested from the outside

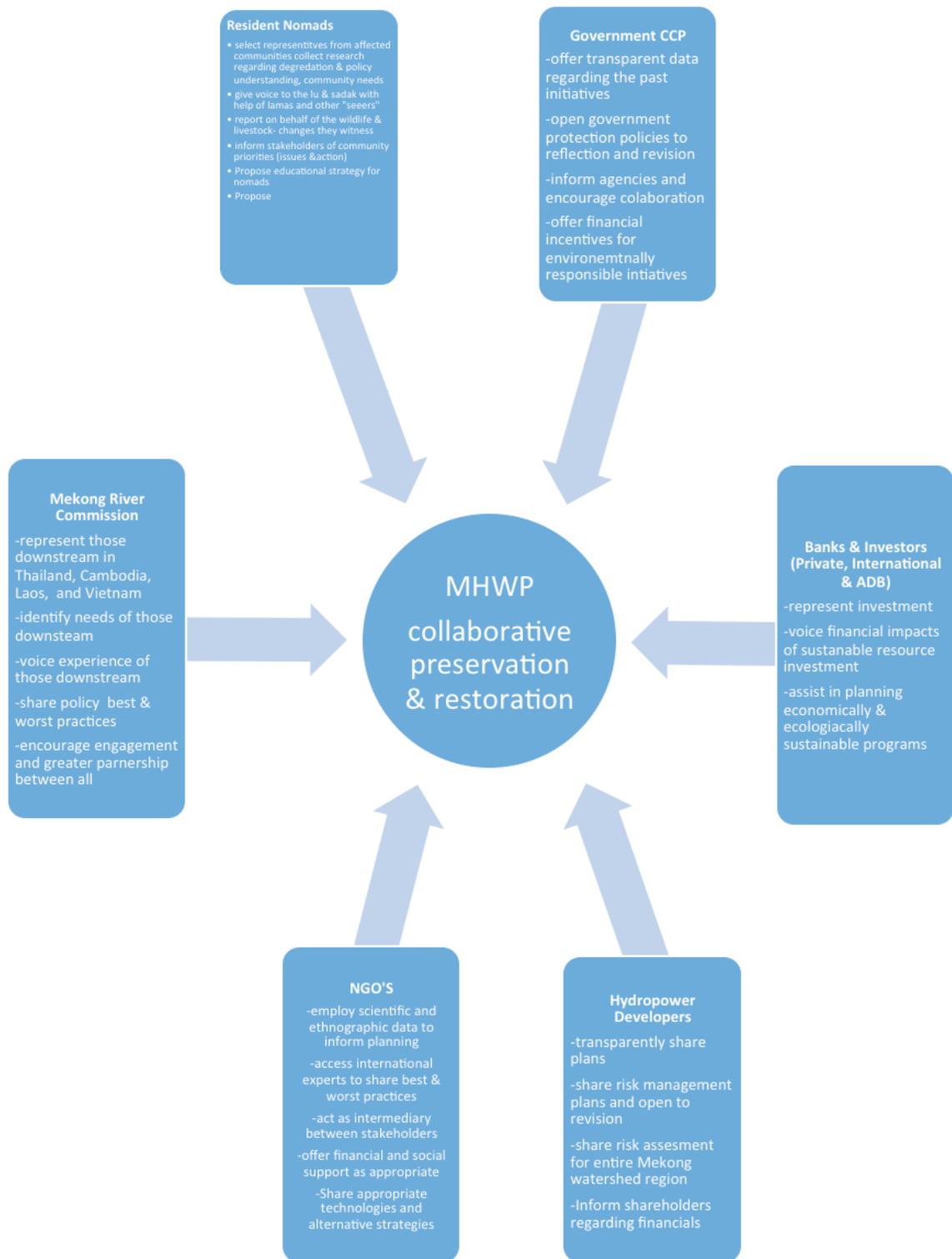
to revise its environmental policies, using an existing protection plan, such as those created when regions are granted UNESCO world heritage status would be a better option for China, since the government has embraced this process for numerous other regions.

Throughout the research process, and my time working with Tibetans in the region, I have been asked, “when is your country going to help?” As I recounted in the findings chapter, one nomad expressed feeling “like an ant” who would be crushed by the large elephant, that is China, had they tried to protest the road being built through their sacred mountain. The Chinese government is becoming a superpower whose force is felt internally as much as externally. The Tibetan people have upheld an idealistic image of the United States government as being the superpower who is on their side. After the U.S. government trained Tibetan soldiers to fight the Chinese P.L.A., the Tibetans felt that the U.S. was on their side. Unfortunately very few understand the greater political battles against communist rule that were playing out in the middle of Tibet. As I discussed what could be done to prevent, recover and promote resilience to climate change, many Tibetans turned to me and asked for external help. Many of the elders vowed that they were willing to risk their lives for the wellness of the land. I continue to receive encouragement from the nomads to be an advocate for this lifeline, the *DzaChu*.

As an American, I am privileged with freedoms that the participants in this work do not enjoy. As explained in the Introduction, I had created a NPO, the pureland project in order to raise funds and support these communities in the ways that they desire. More recently I joined the Bridge fund, a larger INGO that has been working in the region for close to 20 years. Being associated with a larger organization, I will be able to implement projects based off of this research and connect with other organizations in

the field that can offer assistance.

This chapter outlines the recommendations given by the nomads, for the nomads. I offered some additional research and ideas and spoke with members of the community regarding these issues before recording them.



When assessing and establishing a natural protected area in this region there are many key considerations.

- Who are the stakeholders?

From the water itself, the Tibetan nomads at its headwaters and the Vietnamese people at the mouth of the river all the way down stream, there are millions of stakeholders. Naming the *Lu* and the *sa dak* as stakeholders is in accordance with the local perceptions surrounding the area.

MHWP

collaborative preservation & restoration

<p>Mekong River Commission</p> <ul style="list-style-type: none"> -Represent those downstream in Thailand, Cambodia, Laos, and Vietnam -Identify needs of those downstream -voice experience of those downstream -Share policy best & worst practices -Encourage engagement and greater partnership between all 	<p>Resident Nomads</p> <ul style="list-style-type: none"> • Select representatives from affected communities collect research regarding degradation & policy understanding, community needs • Give voice to the <i>Lu</i> & <i>sadak</i> with help of lamas and other "seers" • Report on behalf of the wildlife & livestock- changes they witness • Inform stakeholders of community priorities (issues & action) • Propose educational strategy for nomads 	<p>Government CCP</p> <ul style="list-style-type: none"> -Offer transparent data regarding the past initiatives -Open government protection policies to reflection and revision -Inform agencies and encourage collaboration -Offer financial incentives for environmentally responsible initiatives 	<p>Banks & Investors (Private, International & ADB)</p> <ul style="list-style-type: none"> -Represent investment -Voice financial impacts of sustainable resource investment -Assist in planning economically & ecologically sustainable programs 	<p>Hydropower Developers</p> <ul style="list-style-type: none"> -Transparently share plans -Share risk management plans and open to revision -Share risk assessment for entire Mekong watershed region -Inform shareholders regarding financials 	<p>NGO'S</p> <ul style="list-style-type: none"> -Employ scientific and ethnographic data to inform planning -Access international experts to share best & worst practices -Act as intermediary between stakeholders -Offer financial and social support as appropriate -Share appropriate technologies and alternative strategies
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- What are the local perceptions of the area?
- What are the needs of the region: ecologically, spiritually, socially, economically?

The previous chapters have outlined the issues of this region, but the needs have not been clearly stated. Ecologically, the Three Rivers Headwaters (TRH) region needs to be restored by encouraging native species to regenerate. Regeneration will need time and some human listening and cooperation. Mining, road building, damming and other ecologically devastating “development” work needs to be brought to a halt.

Restoration work on the ecological level is also spiritual restoration work. The *nagas* and the *SaDak* need to be truly honored. The local Tibetan traditions of making offerings to the spirits of the elements and the land need to be respected and perhaps better understood by the rest of the stakeholders. The restoration and protection efforts should be in accordance to the natural laws of the *nagas* and the *SaDak*- which as demonstrated in chapter five- are congruent (rather than in conflict) with ecology and biology. There should be no digging, polluting or cutting of trees in the ecological zones.

- What is the ideal role for the nomads in the assessment, management and design of the area?

Chapter six discussed the nomads’ self-perceptions, which are perpetuated by non-nomadic Tibetan stereotypes. Engaging in conversations around their experiences as nomads of the *DzaChu* basin was difficult due to their perceived lack of authority- to even speak about the land and the water. In order for a protected area to work well, the government, the nomads, and other stakeholders, ideally some NGOs, will fully co-

operate in the best interests of the natural resources. I can make an educated guess by the ways in which the nomads of this region participated—or shied away from participating—who will be interested in working on environmental policy and management.

There are some older retired nomadic men who are used to taking the podium and speaking their ideas that would probably be representatives and managers of such a project.

It is crucial that women have a role in this process because women in Kham are the ones doing most of the manual labor and in the most/closest contact with the earth, their observations and experiences are critical to this study. I have found that making designated roles for males and females often works well in this region, as otherwise men will just take all of the roles. Tibetan nomadic life is not beyond gender roles. Instead of trying to dismantle them altogether, I believe that there are ways to use such social distinctions to bring back the balance that they were created to establish in the first place! For instance, the men of *Gargon* used to go cut timber for fires, that was their duty and women made the fires and used that fuel to cook. Now that they cannot cut trees many families must exclusively use dung, gathering dung is a women's job, so now women have twice the amount of work.

- What are the costs and benefits of the proposed and existing protection plans?

The considerations need to be made from both a macro and micro levels. The water of the Mekong is crucial for the microbes in the soil of its banks all the way to the cities in Vietnam.

Foggin (2004) promoted a way of preserving the environment while not compromising the local livelihoods of the Tibetan nomads. In chapters four and five, I ex-

plained that the government protection plans are juxtaposed with the Tibetan nomadic perceptions. It became clear that the current environmental policies imposed by the government are not benefitting the nomads and in certain cases, such as the fencing policy, harms both the nomads and the ecosystem.

The proposed plan to have a well-monitored protected area, recognized internationally, will give the nomads the rights to use their traditional pastoral knowledge to live with the land. Instead of being concentrated in one small region, the nomads will once again move across the mountains rather than being forced to overgraze. The international recognition and support will hopefully bring some NGO funding in to hire nomads and scientists to monitor the region and ensure that there is no mining, hunting, or otherwise disrespectful, illegal use of the land and water.

- What are the indicators?

It is clear that the health and wellbeing of all life within the entire watershed region was dependent on the health of the microbes in the headwaters of the Mekong. Yet the indicators for health of the waters will be created in collaboration with the local residents who in the above research have demonstrated their capacity to assess the environment. Scientists and other stakeholders, NGOs, and government agencies involved with the protection and or regional development plans, will need to collaborate with the residents in order to create holistic projects.

6.2.1 Protection

While the *sa dak* and Lu protect the mountains and water, around the *DzaChu* the people are very proud to also be taking care and protecting the river. Formal protec-

tion policy around the *DzaChu* is not successful in actually protecting this sacred region.

One old man told me:

Here we are living at the source of the three major rivers so it's very important.

We don't know how or why but we cannot protect this area. I think that these three major rivers are not only important for us, but also important for the entire country and also important for another many countries. So it should be that the place should be well-protected but we don't have the right to protect this. That's why, for example, last year we had this problem [protests over mining] and they [government officials taking money from the mining] throw some of the poison in the water. And some people, six or seven people already died.

If the Chinese government and the other Western countries including their people protect this area, it will be very well in the next ten years. It will be very beautiful no matter what [if it is protected]. The air, water and earth will be clean and the land will also be very good. That's what we are hoping [will be the case]. But if they do not do this, for example, if the central government, they let many people or mining groups come here and they continue the mining, then we will be very troubled; not only us local people, but people who are depending on this river [will also face difficulties]. For other countries, it will be so difficult for them. That's why the protection work here is not only for us but for this planet.

Sometimes, even Chinese laborers come here and they're working here while we talk. They keep on saying, "You should really look after your land. This is going to be very special in the future. There are many places like beautiful water more

than here but they don't have the snow land or grass, Snow Mountains and the grassland like you do here. In some other area, maybe they have very beautiful snow mountains but they don't have first grassland like you do here. So you really have everything here altogether. That is very special and also will be very special. (personal communication, summer, 2014)

When I asked nomads how they would protect the region, they replied in similar ways, requesting that mining come to an end and that trash be disposed of properly.

Preventing mining. Because where they are mining is always in mountains that are very special to local people. They are also mining from there. That should be stopped. And also keeping hygienic and clean environment is very important.

And thirdly is against pollution. (personal communication, summer, 2014)

6.2.2 Education and Infrastructure

Some people know not to throw plastic in the water because it will upset the lu, so they burn it. Some people believe that burning the trash will upset the mountain spirits, so they toss it down the side of the mountain, which usually lands in the water at the bottom. (personal communication, summer, 2014)

When I was living in Tibet, we had a backhoe dig a trash disposal site for us. It was unlined, and there will definitely be seepage of toxins into the ground water, but it was the best recommendation I had received to deal with the large amounts of new disposable materials entering the remote village with no infrastructure for such things. One man who knew about plastics told me:

The water is polluted by trash so I am very careful not to put trash in the water. I burn things like old clothes and any trash. When I go to harvest yartsegumbu on the mountains I carry a bag for trash, I carry it on my back. Then, I either bury it somewhere or burn it on the fire or I carry it all the way to put it in the designated place where we bury the trash. (personal communication, summer, 2014)

This research is an attempt to bridge the Chinese and Western interpretations of Tibet's ecological situation. In the following pages, Chinese environmental policies will be explained and Tibetan government in exile's proposals for a protected bio-region will be explored, together with the nomadic visions for the future of the area.

While scientific research is concerned with finding hard truths, phenomenological research is focused on the truths within the mind and the imagination. This research explores meditation practices and the perceptions of the nomadic people to expose the views that are rarely written about. The intention of the work is bringing Bon/Buddhist ecological perspectives of the nomadic people into the public.

6.3 Policies for Protection

It is clear from scientific, governmental and nomadic perspectives that the current policies for protection are not effective enough to keep the Mekong River flowing for generations to come. It is important that the nomads are recognized as our best witnesses to climate change and that their voice is part of the design, implementation and evaluation of environmental policy for the region. In comparing the stories of the nomads with the scientific data from the precious chapters, we reveal some certainties.

Generally protection policies can follow the same guidelines the nomads observe in respect of the *Lu* and *Sa Dak*:

1. do not dig,
2. do not cut trees,
3. do not pollute.

Policies being built around those broad guidelines should please all stakeholders, as long as they realize that the value of water is higher than any other resource in this world.

This research has also uncovered some realities regarding current protection policy in the region. It simply isn't working.

6.3.1 Worst Practices

The Government's rangeland policies of the Qinghai Tibet Plateau (QTP) are centered on three main approaches that have been shown to fail: "Rodent" eradication, fencing in of livestock into smaller rangelands, subsidizing and coercing nomads to move into cities (Harris, 2010).

- Rangeland Management needs to be designed and implemented with TEK. The fencing in of nomads clearly corresponds with severe grassland degradation. The rangelands policy of Qinghai Province is accelerating the degradation of the grasslands because it undermines the TEK, which the nomads have used to understand the grasslands for centuries. Nomads should have a major voice and rights in the process of rangeland management.
- Mining cannot be allowed in the protected regions. The loopholes through which mining companies have been mining in this region need to be closed. Corruption is still apparently alive and well in Yushu prefecture. The officials in charge of the headwaters of the DzaChu need to be reviewed, especially those in the offices of environmental protection.

- Eradication Programs need to be implemented with natural wisdom. The policies regarding the extermination of pikas need to be revisited. While the nomads have not clearly stated that the poisoning of these small animals has caused harm, the eradication programs have coincided with a major loss in bio diversity, in terms of their predators. The poisoned prey has in turn killed off the predators. Some of the predators are endangered and native species special to the region. Such an eradication policy inflicts chaos on the food system and needs to be discontinued. Since the poisoning of the small burrowing creatures, their population has actually increased, as they were able to rebound from the eradication program much faster than the larger mammals who usually keep them in check.
- The Lumber industry needs to be stopped. The wood being harvested in this region is not quickly regenerating soft woods. The hardwoods being harvested are difficult to replace. Forest protection areas need to be strictly enforced. Tibetans who have depended on wood for fuel and for building and for their livelihood need to be retrained and educated regarding the policies. Forest protection and regeneration programs can actually be an excellent livelihood for ex-lumberjacks who know the local forests intimately. The issue of deforestation was not mentioned much by the nomads because in *Gargon* and *Tajuk*, where they live within a forest protected zone, it is the nomads who are breaking laws by cutting trees.
- Education regarding pollutants and conscious consumerism must be spread throughout Tibet (and the world). The toxicity of plastic and highly pro-

cessed foods must be understood. Laws regarding governmental duties of waste disposal must be created, as the nomads have no place to properly dispose of waste. But more importantly is an organic movement for Tibetans- not for exporting- for them. Tibetans of this region are only about ten years into the consumption of these new foods and plastics, the desire for these products is high, but easily reversible with the right lamas saying the right things about this type of food.

- While leadership can be a contentious issue for Tibetans inside of China, there are some excellent environmental campaigns led by Tibetan leaders in exile. In fact, the region where many Tibetans live in India, on the other side of the Himalayas, Dharamsala has placed a ban on plastic bags. There are organic gardens being formed by monasteries and extensive reports being printed by some of Tibet's main spiritual leaders. Dissemination of information can be quite easy when lead by powerful figures. In Tibet the current vegetarian movement is led by one of the regions most respected lamas, *Khenpo Tsultrim Lodro* of Serta.

For years, the expert knowledge has been that of the scientists. The voice of scientists dominates the global environmental discourse. Scientists perceived symptoms/ecological problems, hypothesized the cause, and created a crisis type mentality, which laid blame all over the world. Andrea Nightingale incited that instead of seeking the impacts made by humans on the eco-system that we should rather look towards the relations of politics, culture and ecology (Nightingale, 2003). Human impact does come down to the relation of politics, a large piece of which is economy, culture, and ecology.

Slowly, science is turning around and recognizing the depth of local knowledge and traditional human/nature relations. We need to truly foster local knowledge. While the people of *Nangchen* do have extreme pride for their environment, they do not have the same respect for their nomadic livelihood and animist culture. Since Buddhism is the respected religion and modernity is coveted, there are many aspects of the traditional way of life that are being thrown away.

While conservation is important in the Himalayan region, it is crucial that laws do not impinge on the local livelihoods and that they are all conservation efforts are made in a fair and just way. China has taken strides towards protecting forests, by erecting checkpoints throughout wild areas including at least five in *Nangchen*. Unfortunately, the forest rangers have a tendency to let their family members break the law and cut wood. In understanding the local perspective of the sacred and being able to blend this with the law, there may be some benefit.

To distinguish between conservation and preservation was something I felt was lacking in Schaller's book: *Tibet Wild*. I feel that these terms need to be well defined as so no one has the idea that something, which is the nature of change could be held still. Schaller speaks of conservation as a journey and not a destination, which is true and can be further explained.

Environmental crisis is expected to stress existing issues of political, social and economic tension. It was decided in 1970 to identify certain rights and obligations of nations, including the following points:

States should exercise "equitable and reasonable use of international watercourses within their territories.

States should not cause significant harm to other states in the same river basin.

States should regularly exchange information and data about the watercourse.

States should consult with other watercourses about the effects of any planned measures.

States must give prior notification to other states within the watercourse about any planned measures, which may have significant adverse effect on their neighbors. (Jasparro, 2013, p. 136)

While resource nationalism may or may not cause conflict, it has been said, “The true value of water is not properly understood...not is the cost of water delivery, or the costs and benefits of alternative approaches to water management” (Jasparro, 2013, p. 165).

Just as education must be planned and delivered with care, the type of conservation efforts must also be cultivated with mindfulness. The region has powerful political and business influences, which complicates all aid and even grassroots efforts. Many international organizations have offered ecological conservation aid to the region but China has been reluctant to accept aid attached to any political agenda. Politics play a large role within the environmental discourse, we watch China and India making their own environmental policies and institutions, while smaller, poorer, less stable nations like Nepal depend on many international aid programs (including many from China) (Gunaratne, 2010). We look to distinguish the cultural-based, rather than the development driven conservation efforts.

China has been working diligently on its environment. The Kunlun Reserve and Arjin Shan reserve and Chang Tang reserve and the Kekexili Reserve are all part of

175,000 square miles of land that is protected and used by the Chiru (Schaller, 2012). After decades of work in China Schaller is behind the push for a four country International Peace Park or Trans-Frontier Conservation Area for Pakistan, Afghanistan, Tajikistan and China. While those borders are incredibly important for the wildlife of the Pamir Mountains, Schaller seems to overlook the needs of Southeast Asia (Schaller, 2012). Tibet not only serves as a refuge for many animals, but it also provides Asia with most of its water. Therefore, the zone of Peace would be of most benefit if it spread across the entire region of the TAR, Qinghai, Sichuan and Gansu.

This region must be closely monitored in order to offer the best support for its restoration and regeneration. Since climate change and the *Lu* are unpredictable in certain aspects, keeping close watch over the region will allow the scientists and nomads to respond immediately in more appropriate ways. The thermal and meteorological patterns have not yet emerged and may never be found.

In my opinion, the best approach is to be present and mindful in and of this region and its constant transformations. Improvement of this eco-environment depends on the utilization of the nomadic and scientific knowledge and collaboration of local people and Chinese government, as well as the global community. Climate change at the source of the Mekong will not only impact the nomads of *Dzado*. The impacts will flow downstream into Southern China and all the way to Vietnam. Monitoring and evaluation are useful, especially when having a balanced team of locals and scientists collecting and listening to data; however, the key to reestablishing soil quality and diverse vegetation will rest upon the governmental ability to adapt its policies to support the local people.

6.3.2 Best Practices

Social and environmental work is done best when it is well informed. Kham is a remote region of the world, with very little published about it, yet there are some existing organizations that work in the region listed in Appendix J. There are also dozens of environmental organizations across China that also have insight into Chinese environmental policy and protection plans that have some information available, the Chinese Environmental Organization list is Appendix I.

Soon after taking office in March of 2013, Chinese President Xi Jinping announced a review of all government seat holders and reform to sweep China clean of corruption at the state level. The corruption in Qinghai is still occurring despite efforts to crack down on corruption. The offices of protection need to be reformed, as China's paper parks are not working. As clearly reported by the nomads, and admitted by the government there is mining happening in some of the protected regions due to mismanagement of the areas. These regions are of great ecological and cultural importance and deserve the best protection the nation can afford.

World heritage sites will be discussed in the following section as a possible solution to the "paper parks" that are currently in place for the region. Chinese government has been trying to establish protection of these areas, it is clear. The nomads interviewed made the distinction between the mining companies and the government policies. The Tibetans said that the Beijing government was very clear with the local government after complaints were made regarding mining in this sacred area. China is in fact a signatory on the Convention of Biological Diversity and has made great leaps towards environmental protection. Unfortunately, there has been some corruption within the protected region governance.

Community co-management is a technique that *sanshui* and plateau perspectives have both been using in their conservation support of the *SanJie Yuan* region. A number of researchers have demonstrated through trials, research and programs that participatory grassland management techniques are most effective in this region. (Banks, 2003; Yeh, 2013; Foggin, 2011). Foggin, having an NGO called Plateau Perspectives working on conservation efforts of the *SanJie Yuan* area has had significant impacts using a new term for employing traditional land conservation techniques. Indigenous and Community Conservation Area (ICCA) are being used across the QTP with government partnership.

Helena Norberg-Hodge (2009) has written extensively about issues within the development world in Ladakh, a region very similar to that of Qinghai Province. The center that she helped to establish in *Leh*, named the Ladakh Ecological Development Group (Ledeg) works not to stop development in Ladakh, but to approach change mindfully. Engaging in globalization with awareness has helped the center raise respect for bio-cultural diversity and serves as an excellent model for the *shingkhams* center for sustainability, which is proposed later on in this chapter.

Ledeg is set up in the capital of Ladakh as an NGO with foreign sponsors and supported somewhat through international workshops at the center. But at the core of their work, the center focuses on the rural Ladakhis who remain nomadic despite the rising pressures of modernization in the urban center of *Leh*. The center's aims and objectives are well examined and refined for this very sensitive work.

- To encourage awareness in the people of Ladakh about the need to consider the long-term effects and impacts of conventional development the environment, ecology and culture.
- To encourage awareness amongst the people of Ladakh about the potential value of traditional culture, agriculture and conservation for the future sustainable development of Ladakh.
- To encourage the use of perpetually renewable natural resources in Ladakh.
- To test and demonstrate low-cost technologies which make use of such perpetually renewable natural resources.
- To provide financial assistance for appropriate, community based development projects.
- To raise funds for the achievement of the objective through donations, grants, collection etc., and through the carrying on of any business, this may help to promote the above objectives,
- And to pursue the above objectives with the goal of encouraging, an ecologically sound and sustainable future for the people of Ladakh and their land. (Retrieved from <http://www.ledeg.org/about-us/our-mission/> October 20, 2014)

The Mekong River Commission (MRC) has made many efforts to cross-political and geographical boundaries to communicate and protect the Mekong River and share resources. While there are issues with the MRC, such as its faithful attitude towards hydropower and its inability to involve China in its policies, there are also some very good practices. Holding conferences and bringing stakeholders from different regions to share

about what they and their people are experiencing is incredibly valuable for cooperation. The issue of Water shortage and climate change is not a crisis that can be solved by just one nation, nor can it be observed and studied from just one perspective. As scientists grapple with all the data, the local voices should be heard and shared.

One organization that is sharing information via the internet is called The Third Pole (<http://www.thethirdpole.net/>). The Third Pole is a sister project of China Dialogue (www.chinadialogue.net). While this site does a nice job of supplying information in English, Arabic, Hindi, and Nepali, it does not have an active discussion board and could be more user friendly in terms of providing a space for cross-cultural communication regarding observations and practices regarding Mekong river maintenance. These days with the influx of smart phones (many nomads spend their *yartsegumbu* income of the latest iphone) and availability of wifi (minus the censored sites in China which includes google) the internet is an excellent space to begin these conversations. Best and worst practice stories can be shared and translated so that everyone can understand and pick up what is needed. Using the internet as a tool for cross boundary cooperation spreads the responsibility for the wellbeing of the waters to the hands of the residents who live on the rivers shores, while allowing leaders, international scholars, and other interested parties to join in the conversation getting a better perspective of what is actually happening along the banks of this precious river.

While Nepal has touted the Himalayas and their natural wonders as a main tourist attraction, China has been unable to fully embrace foreign tourism. Instead national tourism has become quite popular. Tibetans and the Tibetan region are touted as tourist attractions and the ecological impact seems to be going unmeasured. In areas like

Khumbu, in Nepal, which have been developing through tourism since the 70's, the impact is quite clear. There are definite cultural shifts in the Sherpa households, where men are often away doing guide work, and the women are often left doing unpaid labor. The women are unable to hold up the entire household, without their male counterparts doing the traditional labor, this has torn apart Sherpa communities for years. (Ives, 1994)

The Nepali Kangchenjunga Conservation Area was developed by WWF in 1997 as a 'Gift to the Earth, Global 2000 eco-region'. It is a 2,035km² region managed by the Department of National Parks and WWF. The hope is that this reserve will grow into a national Peace Park with *Qomolungma* Nature Reserve on the Tibetan, Chinese side and *Khangchendzonga* Biosphere Reserve in Sikkim, India. (Ives, 1994)

While development through tourism does have a more participatory development feel, the host communities must completely understand the risks vs. the benefits of each situation they enter when becoming hosts to foreigners, whether they be from the same nation or from across the ocean. Outsiders not only bring different culture, but they also pull on different resources with a different consumption style.

In order to establish the site as a UNESCO world heritage site, China would enter the MHR on a tentative list and have it reviewed by an evaluation team. The MHR meets more than one of these requirements:

Cultural Criteria:

- 1. Represents a masterpiece of human creative genius.*
- 2. Exhibits an important interchange of human values, over a span of time, or within a cultural area of the world, on developments in architec-*

ture or technology, monumental arts, town-planning, or landscape design.

3. To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.

4. Is an outstanding example of a type of building, architectural, or technological ensemble or landscape, which illustrates a significant stage in human history.

5. Is an outstanding example of a traditional human settlement, land-use, or sea-use, which is representative of a culture, or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change.

6. Is directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.

Natural criteria:

7. Contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.

8. Is an outstanding example representing major stages of Earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.

9. Is an outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial,

fresh water, coastal and marine ecosystems, and communities of plants and animals.

10. Contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation. (World Heritage, retrieved 10/20/14)

The MHR qualifies as a mixed heritage site on many counts.

- *“Represents a masterpiece of human creative genius.”*

The nomads of the region are masters of a unique TEK, an important and endangered genius. Our current consumer mono-culture based in formally educated societies may struggle to embrace or even recognize this type of genius, which is precisely why this designation is necessary. UNESCO declaring Tibetan nomadic lifestyle as human cultural genius would be a bit unorthodox, as the nomads do not leave a trace, unlike cultures who have felt the need to create monuments at the cost of the earth, its resources and often many human and animal lives.

The Tibetan tents and their migration would be a sustainable and living preservation project. The term preservation is almost ill fit to such a project, as the desire here is not to freeze the culture in a picture, rather this designation would allow the nomads to advance with appropriate technology and education while enjoying protection from the grab of rural lands that is happening worldwide as population explodes. Offering this designation would be authentic according to UNESCO's various publications, which recognize and promote TEK and the protection of endangered wisdom. (Inglis, 1993; Laird, 2010; Mauro, 2000)

- *“Exhibits an important interchange of human values, over a span of time, or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning, or landscape design.”*

The human values that are exhibited when we simply look at the banak (black tent) demonstrates the human values towards nature. This dedication and understanding of living in harmony with nature can rarely be seen anywhere in the world as modern consumer culture consumes the indigenous ethical systems based on human nature connection. The banak have been altered in certain aspects over the course of centuries, yet its appropriateness for this landscape is utterly amazing. Watching and assisting in the seasonal transition between settlement camps has left me inspired (to the point that I even erected a yurt in a vacant lot in the middle of west Philadelphia- which was not as practical- still- a beautiful learning experience for the community).

- *“To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.”*

Chapter five: the last of the blackheads provides insight into the unique cultural Tibetan nomadic tradition that is now endangered through both climate change and globalization. Hopefully the creation of a heritage site would protect the culture from disappearing and encourage and support the nomads in their traditional livelihoods by demonstrating to them that the entire world values their “zero footprint” contribution. Again this designation would be unorthodox but quite fitting for our times. Instead of protecting buildings and celebrating human conquest over nature, the MRH heritage site would recognize and honor the contri-

bution of the Tibetan nomads, which is to leave no trace- to live in harmony and union with the natural world. In this way it is important that the site be classified as both a cultural heritage and an ecological heritage.

- *"Is an outstanding example of a type of building, architectural, or technological ensemble or landscape which illustrates a significant stage in human history."*

As previously stated, the *banak* is an example of the human capacity to survive with nature. Human history began with hunters & gatherers & nomads. What better tribute to our origins, than to protect the courageous survivors?

- *"Is an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture, or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change."*

The Tibetan nomadic adaptation to the extremes of the Tibetan plateau, an area that most humans get altitude sickness (the average landmass is over 4,500m) is commendable. As this dissertation has demonstrated the bio-cultural diversity is being threatened by climate change and while Tibetans and some scientists have hope that certain changes are reversible, there are many signs pointing to the permanence of the glacial loss that has already occurred.

- *"Is directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance."*

The nomadic living tradition and Tibetan belief system that goes beyond the “bon” and “Buddhist” systems that are being propagated in exile is on the brink of extinction. The universal significance of their culture is invisible, and that is its beauty. The living tradition that the Tibetan nomads embody of living in peace with the *Lu* and *sadak* will be invisible without their lives, and their example. The significance of their invisibility is crucial for the world to understand in this time of ecological crisis. The belief in water and land spirits and the Tibetan relations they have fostered with the unseen for centuries is more developed and more practical than the scientific belief in the invisible ozone layer. Although the formally educated are systematically taught to believe in science, it has not proven to forge a human-nature connection in its believers. Instead, many scientists use mass areas of rivers and mountains to perform dangerous and what Tibetans would consider disrespectful activities. Scientists and those studying the system also take the lives of fellow animals and perform experiments on their bodies, without recognizing the connection that they have with the subject. The deep and inspiring understanding of connection is what is missing from much of science. The beliefs of the nomads, while they may not be adoptable by those outside, are significant for outside societies to be aware of.

- *"Contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance."*

The fact that Tibetans call their home “the roof of the world” and that scientists call the region “the third pole” and “Asia’s water tower” speaks to the superlative natural phenomena of the region.

- *"Is an outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems, and communities of plants and animals."*

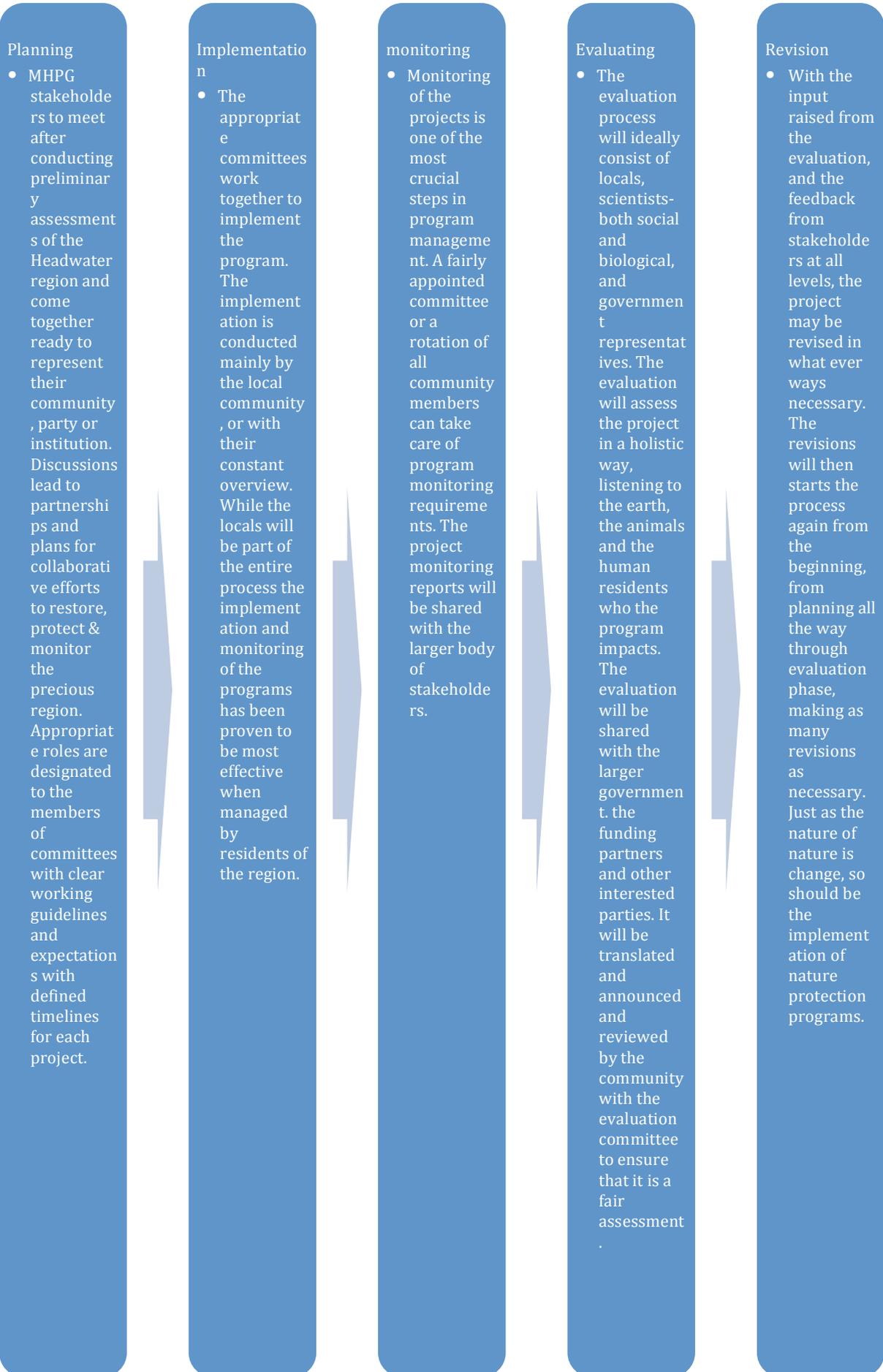
The biodiversity of this region has yet to be well documented. Many scientists have documented the diverse species that call this region home but there is much more work to be done. Protecting this region from mining and other ecologically devastating practices would hopefully allow these species to thrive.

- *"Contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation."*

The biological diversity in the MHR is considered part of a hotspot, dedicated by scientists as a significant place for biological preservation due to the amount of endemic species found in the region. The value of the endangered species of this region cannot be quantified, these animals and plants are not found elsewhere.

Snow leopards are the popular front for conservation efforts in the region, but there are numerous important birds and hundreds of plants that will be lost if not properly protected and supported.

(World Heritage, retrieved 10/20/14)



(The cycle for integrated project management of the MRHR, no date)

6.4 Shingkhams Center for Sustainability

Culture is degraded when the environment is degraded and vice versa. (Guneratne, year. p. 15). This work will be highlighting Traditional Ecological Knowledge in order to recognize what needs to be protected and supported. I draw inspiration for the Action part of this action research from Norberg-Hodge's (2009) work in Ladakh. In the community she lived with for over twenty years Helena began a center for sustainability, educating Ladakhis about the environmental impacts of plastics, the use of solar power and offering support to retain their TEK.

The Pureland project has already launched one of its most exciting and locally sustainable programs, the traditional Tibetan medicine internship. In this internship program four women trained as midwives have been placed with traditional Tibetan doctors to intern and learn how to identify, harvest, prepare and prescribe herbal medicines. The doctors have offered amazing interviews and from our discussions and with the support of some American donors we were able to begin the program. It is my hope that more conversations spur action and that we can have skill shares of traditional ecological knowledge happening at this grassroots level all across the "water tower" region.

The center for sustainability will work in seven major areas: Water, Food, Education, Livelihoods, Waste-management, Energy, and Co-operation.

Water

The MRH region is known for being sacred to both Tibetan nomads in a spiritual sense and also to scientists and politicians when viewing it as a precious resource. The center will work to gather, organize, synthesize and disseminate information about the

Mekong River from its headwaters to its basin. Working together with the MRC and the nomads, city dwellers and farmers along the watershed area to gather perspectives regarding changes, water quality, water management, degradation, and reparations. Dialogue will be created between shareholders- focusing especially on translating aural and visual dialogue for locals across cultural, geographic and political boundaries. Video messages will be collected, edited and exchanged between shareholders. The center will also create and moderate some online forums, for those who have access to smartphones and the internet, there will also be dialogue about water via the we-chat app.

Drinking Water

Clean drinking water is a human right that humans may be ignorantly stealing from each other. Creating this dialogue will allow people to share best and worst practices for water resource maintenance and protection. Most importantly this part of the project will create solidarity and hope. As well as offering adaptable appropriate technology for the nomads so that women are no longer endangering themselves (and often their unborn babies) by carrying heavy loads of water. Rainwater catchment systems, as well as circular wheel roll able water containers will be introduced at the center.

Shared Water

Involvement with the MRC will allow national and local resource management to become more transparent, in order for better project design, maintenance and evaluation. The use of online forums will allow for a new way of 360 degree water management.

Watershed Remediation Program

As previously mentioned, mining has caused some hazardous pollution to the Mekong headwaters. Contamination has not been clearly reported upon, and due to negligence has not been contained. Nomads suspect seepage of chemicals into the groundwater and into the headwater region. Preventing future contamination is a key step to secure the health of the river, but since much damage has already occurred, the major push should be on restoring the river to a healthy state. Environmental management takes a holistic approach as discussed earlier. Policies are just policies without monitoring and enforcement. The nomads are the only ones in this region to be near the mines each and every day. It is important that they are given authority and training to monitor and enforce the policies. The goal is to remove the mining companies entirely, but since we all use coal, gold, and aluminum for one thing or another, we are all guilty of creating demand for such projects.

Watershed remediation will focus on the most pressing issues first. Those sites that have toxins impacting humans and animals should be addressed immediately. The nomads in one area in *Dzado* are saying that there is poison in the water, but they have no other choice but to drink it! There needs to be toxicity testing done in that region of the watershed. If toxins are discovered they must be traced, those responsible for the pollution should be held accountable for the sickness and destruction that they have caused. A speedy environmental cleaning should be performed, restoring the river so that it may again fill with healthy life.

Food

One of the topics that emerged out of this research was that nomads miss their traditional food. While they obviously are attracted to the various plastic wrapped can-

dies and bottled up sodas, many participants reported that food is one of the biggest changes that they have seen in the past ten years. I have witnessed this myself. I never had trouble maintaining a sugar free organic diet when I lived in Tibet. Now when I make my annual visits it is very difficult to know the origins of the food I am served, and almost impossible to refuse a soda, when they are now offered with the same Tibetan persistence as butter tea once was.

Greenhouse Technology

The food projects will work to extend the growing season by building more greenhouses and cold frame houses. Fortunately these projects have really taken off! In 2008, before leaving I built two greenhouses with the *Gargon* community. Each family member sent one worker for two days to contribute labor. Laborers were given a salary, as the food from the greenhouses are used for the school, but in the process the Tibetans discussed agricultural techniques they saw being used by Chinese immigrants in *Nangchen* and *Yushu* and learned how to build a greenhouse. By the time I returned to the village the following year, a few families had imitated the greenhouse design and built a smaller version for their own home. Within two years most families in *Gargon* had built a greenhouse and the neighboring village had requested I come and built two for their school. What is needed now is a course on greenhouse agricultural systems so that the nomads can use this technology efficiently.

Organic Food certification and marketing

Tibetan ex-nomads are beginning to see organic yogurts and milks coming from China at a much higher price in the supermarket. Now aware that their traditional ways

are becoming sought after there are ideas of marketing their goods outside of the Tibetan region. Yak cheese is now selling on the international market, as is their salt.

The organic certification process does not seem as rigorous as in the U.S. The Center will hopefully attract a Chinese Agricultural expert to help guide Tibetans interested in exporting their surplus products in the organic certification process.

Composting

While nomads understand the decomposition of natural materials, most do not have experience with agriculture. Explaining composting systems to Tibetans has been much easier than explaining the cycle to Americans. The understanding of the natural cycles comes naturally! We began a compost system this year in *Gyalsum* village and we will see how the project takes, as they seemed to understand the concept. The dogs and yaks generally eat left over food waste, so there is actually not very much to compost, but hopefully there will be enough to amend the soil which is very thin at that altitude.

Food Preservation Techniques

Food Preservation has not been an issue for nomads when they followed the traditional diet. Today with the influx of different vegetables, the nomads suddenly want refrigerators. Teaching different vegetable preservation techniques that have been used in mainland China for centuries will be appropriate. The introduction of fermentation practices, pickling of vegetables and also even solar dehydration methods with solar ovens will be a great place to begin, rather than buying freezers that depend on energy for places that are very far from a grid strong enough to power a freezer.

Root Cellar Technology

Another alternative to freezer systems is the natural technique of building root cellars. I explained the system to the cooks at *Gyalsum* school to find that they built one immediately. Eager to extend the life of their vegetables, they use the root cellar during the summer to decrease the need to drive five hours into town to buy fresh foods for the school feeding program.

Energy

The destruction of the Mekong River is not only due to the mining that Tibetans are reporting. It is also due to the need for energy and the attempt by many governments and private sector corporations to provide “clean energy” in the form of hydropower. Everyone needs external energy these days. While the nomads lived with just the natural energies for centuries, over the past decade, they too have started requesting electricity. Electricity is now considered a necessity, as many of our conveniences are electronic technologies. For example, the electric butter churn saves women many hours of work each day, but automatically separating the fat from the milk and churning it into butter. Gasoline and motorcycles have given nomadic men the opportunity to herd the livestock in a quarter of the time it took by horseback and allows them to partake in more trade and other side business in towns and with villagers. But this type of energy consumption does not come without a cost. With its rapid population growth, China is desperately trying to harness its energy, to provide its population with the resources it needs lead the world’s economy with its products. Hydropower is still viewed by many as a clean and economically viable form of energy production. Hydroelectricity provides amounts of energy that PV solar technology is not yet able to harness, and wind energy is not yet producing.

Despite its high return on investment in ordinary scope, when hydropower is examined in terms of opportunity costs, there are huge environmental costs. Many environmentalists now consider hydropower to be the most dirty energy source. China has some of the world's leading environmental policies, yet the regulation of such policy often does not exist or maintains certain perspective that looks only at certain data to evaluate efficiency (Aden, 2006). Hydropower projects are known to cause flooding and erosion. Those environmental costs are often ignored in the evaluation of project efficiency.

The Center for Sustainability will work with nomads regarding efficient energy sources. Through the following initiatives.

Micro Hydro-electric projects

The energy from water will also be harnessed, but instead of disturbing the water spirits by building huge dams, changing the course of the rivers, micro hydropower projects will be designed and implemented. *Gargon* and *Gyalsum* villages already have built their own micro hydropower units. Unfortunately two small children died not understanding the dangers of electricity. Education around these projects is very simple and should be well managed.

Rocket stove technology

In order to more efficiently use fuel--be it wood, coal or dung--nomads can use rocket-stove technology. Clean stove building methods will be introduced, to heat and cook with better fuel efficiency and less smoke. The rocket-stove technology is simple to conceive of and requires very little material. The nomadic women will benefit from smoke free cooking.

Solar Photovoltaic Technology

Solar panel maintenance and repair courses will be offered so those with solar panels will be understand the system and not have to bring the inverters to a Chinese company to repair, rather they will be equipped with the skills to fix (minor problems) the energy systems themselves. Solar cookers and solar hot water heaters will also be introduced to communities to encourage the use of the suns energy to provide more comfort goods and luxuries that are drawing nomads into urban centers.

Cooperation

There is extensive environmental policy in China, many of the environmental initiatives are impressively ambitious. China has been under criticism for years due to its rapid rate of growth, its environment has taken a hit. In recent years China has been putting policy in place to reverse the impact of its rapid industrial growth. The most populated country in the world has no choice but to think about environmental sustainability. By using hydraulic boundaries rather than political ones, a cooperative approach to river wellbeing can be more successful.

Government & NGO Cooperation

Besides the Chinese government, NGOs are a growing presence in the environmental sector in China. There are 47 NGOs in the environmental sector, which leads even the amount involved in education by 5 organizations! (China Development Brief, 2013) NGOs can be a great alliance for levying support for environmental protection. Not only can NGOs provide crucial funding, they also have access to international experts in the fields of ecology, sustainability, waste management, water management, wildlife preservation and environmental restoration.

China runs the world's biggest economy, the economy runs on consumer goods which runs not only on energy but also on water. Besides the obvious agricultural water needs, manufacturing of goods commands a huge water need. The government has put in place a fee structure for water usage, yet the cost is not yet high enough to demand that companies consume less water, and pollute less water. NGOs and the central government can both play a big role in generating a sense of responsibility among manufacturers.

The governance of China's natural resources is tangled in the politics of consumption. The nomads of Qinghai are some of China's most financially impoverished, yet they protect the water, gold, and a lot of the coal that the Chinese middle and upper SES need to maintain their comfort. Sharing information across NGO and GONGO and local and national government along with local people will allow a cooperative governance of the region, ensuring that the planning and implementation of the projects is appropriate and will be a success.

The key to proper resource and waste management is good governance. With the help of the central government upholding its policies and NGO's supporting some simple infrastructure for waste management, protected area staffing and educational material production, the cost of environmental protection is quite low, especially when compared to the benefits- that span all sectors.

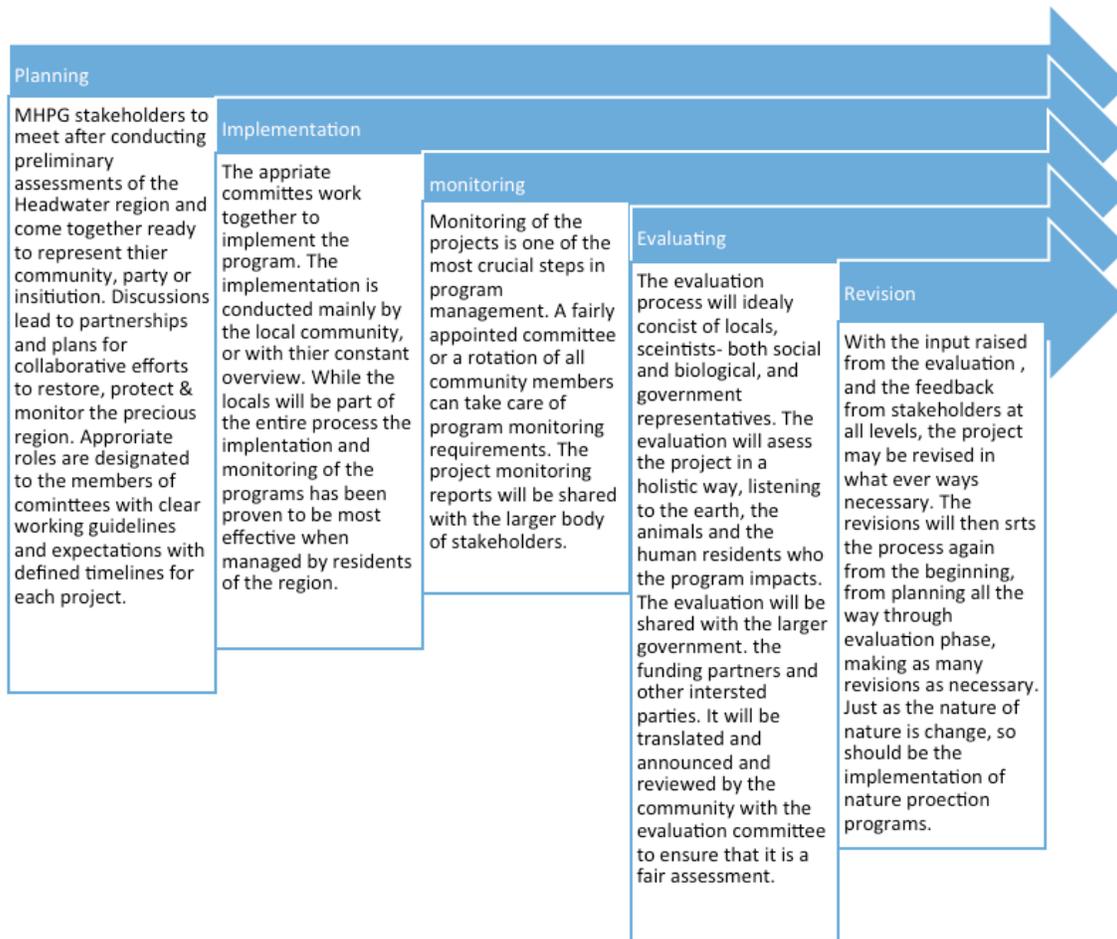
Collaboration with the MRC

The center will also communicate nomadic concerns with the MRC and involved government offices to recognize the tradeoffs made when planning power projects along the Mekong. China's laws around the environment both encourage and discourage dam

building. On one side the goal to get fifteen percent of its energy from renewable sources by 2020, pushes the nation towards hydropower, yet its protected areas where many of the rivers cut through are technically not supposed to have ecologically disruptive projects built within them.

The most debated of dams has been the three gorges project, which was actually opposed by the majority of Chinese leaders due to its environmental impact, yet the project still advanced and is causing the expected environmental damages. Hopefully it will not cause the earthquakes that were predicted due to its location along a fault line.

The *shingham* center would work to offer holistic analysis of proposed projects, involving social, economic and ecology expert opinions of the resilience or vulnerability of a power shed as proposed by McNally et al (2009). The collection of this data can be presented at the public hearings for these projects, when they are allowed. If the government refuses public hearings (as it often does) then the expert opinions can remain with international groups and other stakeholders to inform leaders about the programs that they may unknowingly be approving.



The cycle for integrated project management of the MRHR

6.4.1 Education

The success of environmental protection projects depends on education. If the nomads are not aware of the policies and if the policy makers are unaware of nomadic culture then the policy will be of no use. Just like the “Paper Parks” that were described in Chapter 6. Education needs to lead environmental efforts on all levels.

Informal Education

One of the best ways to transfer knowledge in nomadic culture is still through word of mouth. Songs and stories are key to sharing information between nomads. The *Shingkhams* center for sustainability will create posters, songs and car decals to generate public knowledge about sustainable resources usage and proper waste management. Tibetan songs often contain lyrics about the beautiful homeland. Singers and songwriters will be an excellent engine to promote sustainable practices. Song has been a traditional informal education technique for centuries in Tibet. With the use of modern technology, the power of song is even greater. Song can reach those whom the posters and decals cannot reach. Due to a high level of illiteracy in the region it is important that we use audio/ visual educational campaigns. The songs can be best promoted if China Telecom would use them for the hold music across Qinghai Province, as everyone with a cell phone would be singing along!

Formal Education

Nomadic society is still hierarchical. Nomads most highly respect their spiritual teachers. Having teachers such as *Garchen Rinpoche*, and *Kenchen Lodro* give teachings regarding sustainable livelihoods will disseminate the information quickly. High Lamas in exile such as the Dalai Lama and the Karmapa and *Drikung Kyabgon Chetsang Rinpoche* have all spoken and published widely about the issue of the environment. In Dharamsala, the seat of both the Dalai Lama and the Karmapa, plastic bags have been banned.

Waste

The new consumer culture entering Tibetan regions is producing waste. Nomads' previously lived virtually solid waste free lives. The nomads used to wrap their products

in skin bags and other items went in reusable wooden boxes. Each person has their own bowl, many keeping it in their *chuppa*, so they can drink tea and eat *tsampa* wherever they like. The bowl is then licked clean, so there is no use of soap or water. Now plastic cups are even appearing, and instead of drinking the local milk, many people are now addicted to the artificially sweetened and flavored sodas, teas and ‘juices’.

Solid waste treatment

Burning the trash is a popular way to deal with the issue of plastics. Many nomads have spent only about a decade with plastics, they still do not know that they cause sickness or do not biodegrade. There is no president for thinking in that way. Before now, all the things they had were natural and biodegradable. Some nomads instinctively know that the *sadak* would not like plastics burned, like burning meat- they would become offended by this behavior and punish them. Other Tibetans argue though that burying the trash will make the *sadak* just as angry, as it would be digging! When the pureland project began we had many back and forth conversations about the pros and cons of different solid waste methodologies. The best is for the trash to be shipped back to town where they have high temperature incinerators which are supposed to be the “best” method for disposing of trash. In most places the incinerator is very far away, so we have dug trash pits in two villages to bury the trash, rather than letting it be carried away in the rivers, contaminating the water. Burying the trash does allow toxins to seep into the ground water, yet it is a better option than burning, as the smoke from the trash impacts the lungs immediately, as most nomadic stoves do not even have a stove-pipe!

Conscious Consumerism Campaign

Just as many consumers' worldwide, Tibetan nomads do not think too much about what they are consuming. Each candy they eat with its little plastic wrapper and artificial colors and flavors has its impact on not only their body, but also on the earth. The conscious consumers campaign will educate the nomads about the hazards of plastic and artificial and highly processed foods, so they can make educated choices about these new products that are being marketed to them.

6.4.2 Livelihoods

The preciousness of Tibetan nomadic livelihood should be apparent by this last chapter. In Buddhism one of the vows that one can subscribe to is that of right livelihood. Right livelihood is practiced well by most nomads. They harm nothing (minus some yak slaughter) in order to live. In order to support their brilliant traditional lifestyle, the *Shingkhom* center plans to hold exhibits of Tibetan nomadic culture in foreign places, and Chinese cities in order to demonstrate the international respect that they nomads deserve. The center will also support the nomads in supplying appropriate technology grants and microloans to small enterprises to allow nomads to enter into the outside economic system with their own goods, which should yield a high profit, considering the market for pure, hand crafted, organic, fair trade goods.

New Nomadism

Many of my *Gargon* graduates still would like to be nomads after graduating. They love their culture and what to return to it rather than go to middle school they chose to return to the nomadic life. I encourage them to return to their traditional livelihood. But many have been lured to town, or to have more things, more "comforts". After some time of even just living in the village going to live in the tent can be difficult.

They are often out in extreme weather with the livestock, and even the tent doesn't give too much protection from the biting cold and wind that is the most common weather for the region.

One solution is a compromise. The students graduate primary school with some basic language and math skills, but hopefully some education about financing and marketing can be provided so that they are equipped to market and sell their valuable nomadic products outside of their community. In this way they will have some status and funds that make them a part of the main stream society, that so many of them respect, while not losing touch with the earth and the nomadic culture.



6.5 Summary

The Mekong is the longest river in South East Asia, from its source in Tibet. It is the pride of Yunnan Province, entering Myanmar, to Laos, Thailand and Cambodia, merging with the South China Sea from Vietnam. The river is at the foot of the KunLun mountain range whose glaciers are melting at an alarming rate as the region continues to warm three times faster than the average rate. The Mekong River is not only being dammed for hydroelectric energy by the Chinese government, it is also being built up by Thailand, and other Southeast Asian countries. Unfortunately hydropower is not without costs, the projects are causing dislocation of people and loss of many species that live in and around the river. Mining at the source of the river is another main concern. Mining not only disrupts the water table, but also pollutes it. Pollution at the source then gets passed through to about 60 million people downstream. As things change at the source of the river, the population downstream will be impacted. It is estimated that eighty percent of those downstream depend on the river for their livelihood, just as the nomads do. Already the impacts of climate change are changing the lives of many along the Mekong.

The nomadic reality of climate change is a sad story to tell. There is no doubt that the nomads of the *DzaChu* watershed are threatened by climate change. The weather has become unpredictable, causing a decline in the grass quality, which negatively impacts the health of the livestock, making it difficult for nomads to maintain a self-sufficient, healthy nomadic lifestyle.

Less carbon dioxide=more stable weather=healthy grass=healthy livestock=healthy nomads

The stories of the nomads collected through focus groups, interviews, photographs and video have demonstrated their resilience and deep admiration for their homeland and its spirit protectors.

This region is not only sacred to Tibetans, scientists have also recognized it as a crucial piece of the earth, calling it the third pole because of the amount of fresh water that it provides to the rest of Asia. The Chinese government has numerous environmental programs in Qinghai, having recognized the importance of this region centuries ago. This research revealed holes in the current protection plans, illegal mining, backfiring of fencing and extermination programs, incorrect education, and corruption. But it also translated some excellent suggestions for moving forward with protection policy, program implementation and management. The Tibetans are not hopeless people, but they know that their precious lifestyle and the waters are on the brink of extinction.

Many of the nomads requested that I continue to work on this crucial issue and find support both nationally and internationally. Most importantly they wanted outsiders to know that they are trying their best to protect these waters, not just for themselves and their grandchildren, but also for the millions downstream.

China already hosts 47 of UNESCO's world heritage sites. It has many pending requests, yet for some reason, there is not yet a request for the TRH. If the three rivers are too large of a region to enclose as a strictly protected area immediately--it sometimes takes UNESCO only one year to process requests--then it is my recommendation that the MRH be protected first, as the nomads of the region are calling for help, and the Yangtse and Yellow Rivers are already being assisted through the *Sanshui* and other organizations. The mining in this area is causing an immediate threat to the endangered

bio-cultural diversity of the third pole. This river carries the lives of millions and needs to be treated with utmost respect. Whether one's belief systems are steeped in science or the nomadic view, we can come to the same conclusion that the once abundant, resilient, diverse life that filled this region is dwindling due to disrespect of the earth. The consumer world that I am a part of is largely the cause of the environmental devastation that these nomads are facing. Recognizing this region and its people who are feeling the impact of others unconscious consumption will begin our reparations to the global damage that we are doing. It is my hope that together as an international community, we can recognize our responsibility as stakeholders in the issues of the third pole. Whether we perceive our relations with the environment to be judged by spirits or the ozone layer, our ecological karma will undoubtedly ripen.

This research has only exposed a tear drop's worth of knowledge held around the Mekong River. There is an ocean of wisdom held by not only the Tibetan nomads in this water shed, but also all the various farmers in Southern China, Cambodia, Laos, and Vietnam. The proposals here to move forward with the action research extension of this dissertation require the efforts of many. The suggestions of this last chapter, to host a 360degree water management forum, build a *shingkh* center for sustainability, and work towards establishing the headwater region as a UNESCO cultural and ecological heritage site are lofty, but logical proposals.

It is my hope that this region and these people who have given me so much will get the respect and treatment that they deserve.

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Appendix A. Glossary of Terms

Different parts of this study may speak to different audiences; therefore, scientific terms are only used in specific areas where the paper may be used for influencing policy-making. Otherwise, this work is intended for a general readership, hopefully this glossary provides clarity for those readers. I have organized the Glossary of Terms into sections: Western Terms: Tibetan Terms: Tibetan Place Names; Names.

Western Terms

Myth: Even though many other researchers may describe much of the Tibetan cosmological history as myth, I will avoid using this term because I find it to be somewhat degrading to the truth of the view.

Nature: I will be using the terms nature, environment and ecology, in Tibetan the same word is used.

Spirit: I will be using the terms deity and spirit interchangeably, as they can be understood by the Western context differently, the official translation of Lha would be god, yet Sa dak- a mountain god is more accurately translated as a spirit for its meaning.

Tibet: I use the term Tibet to describe ethnic Tibet, not the Tibet Autonomous Region. I use this word because my research spans Qinghai province which is not technically Tibet, but people consider themselves Tibetan. When asked “where are you from they will not say Pu- Tibet, they would say Kham- but this becomes too specific and complicated for readers, so I have chosen to use the term Tibet.

Science: I use the term western science in order to describe the commonly perceived scientific viewpoint. Of course there are numerous types of Science originating from all over the world, the global north and south, from eastern and western directions. **Bud-**

dhism: This term is itself sometimes referred to as a mind science. I use the term western science to include science, which is widely published and accepted within academia.

Climate change and global warming: These terms are both buzz words. As I studied the literature more carefully, I chose to use the term climate change because I find it to be a term that is generally more inclusive and less controversial. This project is intended to bring together views of the environment and link together lovers of nature from various fields. I began writing with the term global warming in mind, in places if I have reverted to the phrase please excuse the inconsistency and understand my intended definition.

THED: theory of Himalayan ecological degradation published about by Ives in the 1970 which has since been the topic of much controversy.

Biophilia: The emotional connection between human beings and other living organisms.

Tibetan Terms

List of Foreign words (in the order in which they appear)

Tibetan words are written first how they appear in the text, beside is the transliteration and the Tibetan U-chen text.

In order to honor the participants that created this project, I will use many local terms. The local terms will be used in Phonetic form in the body of the text, and listed below with the technical spelling and Wylie translation.

Phonetics/ Wylie/ Sanskrit (where used)/Definition

DzaChu, rdza Chu རྩ་ཆུ། literally the rocky water is the name for the Mekong river at its source.

Kham, khams ཁམས། literally translates as realm, but also considered the South eastern tibetan region.

Qinghai(chin), mtson snon (tib) མཚོ་སྐོན། Province the Chinese province that creates the northeastern boarder to the TAR. Most of Qinghai is inhabited by Tibetan nomads.

Lu, kLu ལུ (naga-skt.) water spirit.

Bon, bon བོན the animist world view held widely across Tibetan regions prior to the spread of Buddhism in the 8th century.

Nangchen , nang chen ནང་ཆེན an ancient tibetan kingdom located in *Kham*, or modern day Qinghai Province, It is predominately populated by Tibetan nomads, and holds the most Tibetan monasteries of any other county.

Amdo, am do ཨ་མདོ the North eastern tibetan region, which today is considered within Gansu, Sichuan and Qinghai provinces.

Tsang, gtsang གཙང the central Tibetan region, now considered the Tibetan Autonomous Region, of which Lhasa is the capital.

Lhasa, lha sa ལྷ་ས the ancient capital city of Tibet.

Jeykundo, skyi rgu mdo རྩེ་རྒྱ་མདོ (*Yushu-chin.*) often considered the wild west of Tibetan areas, it is known for its nomads and as the source of many rivers.

Ja Nak Sam Do ,rja nag sum mdo ཇ་ནག་སུམ་མདོ the point in which the Chinese declared source of the Mekong (the *Nakchu* ནག་ཚུ) and the tibetan source of the Mekong (the *Karchu* དཀར་ཚུ) join.

Karchu, dkar chu དཀར་ཚུ the Tibetan declared river that is the source of the Mekong. Literally white water.

Nakchu, nag chu ནག་ཚུ The Tibetan declared river that is the source of the Mekong. Literally black water.

ShenZhen (chin) 深圳 A city near Hong Kong, on the Eastern coast of China.

Yartsegumbu, dbyar rtsawa dgran abu དབྱུང་རྩ་དགུན་འབྲུ literally summer grass winter worm, cordyceps fungus which grows in Tibetan areas.

Chupa, phyu wa ལུ་བ (gu-Nagchenkay) a Tibetan gown, the traditional clothing for both male and female.

Dri, abri འབྲི A female yak.

Dzomo, mzo, mo མཛོ་མོ A female crossbreed of yak and cow.

Gyatse, rgya rtses རྒྱ་རྩེས་ Literally the Chinese date- understood as the Western calendar.

Lotak, lo rtaks ལོ་རྟམ་ལ་ Literally the sign of the year, understood as the Tibetan astrological year, as counted by 12 animals.

Shedra, bshad grwa བཤད་གྲུ་ A monastic university.

Dzado, rdza stod རྩ་སྟོད་ The county this research is mainly situated. Dzado is located in Kham, in Yushu prefecture, Qinghai Province.

Trim, grims སྤྱི་མཐུན་ The Law.

Shung, gshung གཞུང་ The government.

Terma, gtir ma གཏེར་མ་ This is the foundation of the Nyingmapa lineage of Tibetan Buddhism, where the founder and his consort hid teachings in space, earth, water. Today these teaching continue to be revealed treasures by masters.

Lha, lha ལྷ་ Sometimes translated as God (Lhamo, as Goddoess) due to the Christian translators who made the first Tibetan/ English dictionary. The closest english term may be understood as spirit.

Sa dak, sa bdag ས་བདག་ Literally, the protector, or owner of the land, understood as land spirits.

Ri lha, rhi lha རི་ལྷ་ May be translated as Mountain God, but understood as mountain spirit or protector.

Khampa, khams pa ཁམས་པ་ The inhabitants/ people of *Kham*.

Ma Drag Senmo, ma brak sren mo མ་བྲག་སྲིན་མོ་ The rock ogress who is thought to be the mother of all Tibetans.

Pa Trelgen Sangchup Sympa, pa swryl byang syms dpa ཕ་སྤྱེལ་རྒྱན་བྱང་སེམས་དཔའ་ The monkey thought to be the father of all Tibetans. He is said to be an emanation of the lord of compassion.

Chenrezig, spyan ras gzigs སྤྱན་རས་གཟིགས་ The lord of compassion.

Padmasambava, padma awyung gnay པདྨ་འཕྱུང་གནས The Buddhist master born in current day Pakistan who brought Buddhism to Tibet in the 8th century.

Bonpo, bon po བོན་པོ Those people who follow the Bon religion (or world view, as it can not be properly profiled as a religion).

Tonpa Shenrap Miwoche, ston pa gshen rab mi wo ལྷོན་པ་གཤེན་རབ་མེ་བོ The founder of Bon was said to have been born seven thousand years ago.

Theurang The space aspect in Bon elemental system.

Mi མེ The fire aspect

Nad (Lu) The physical body in Bon elemental system.

Don (yid) The spirit/ mind in Bon elemental system.

Mo, mo མོ The Tibetan divination system which is based in Bon tradition.

Tse, rtsis རྩིས The Tibetan astrological system which is based in Bon tradition.

Chi Gyu Tsen Nyi Thek Pa The Sutra.

Ngang San Wa Ngak Kyi Thek Pa སྔགས་གསང་སྔགས་ཀྱི་ཐེག་པ་ tantra.

Sang Wa Sem Chok la Na Me Oei Thek Pa The Dzogchen teaching also known as the self liberating path.

Yanas (skt) tig pa ཐེག་པ་ The Buddhist and Bon teachings or vehicles.

Nyingma, rnying ma རྟོང་མ The old school Buddhist tradition, which was first brought to Tibet by Padmasambhava.

Chashen A Tibetan way of Prediction, a diagnosis which uses techniques like *mo*.

Nangshen, gnang swyn གནང་སྦྱིན Making offerings to the spirits

Sichen The Way of the 'Magical' Illusion, magic.

Sadhana (skt) kha ton ཁ་ཏོན A Buddhist practice that is repeated at least daily from script or memory, describing a particular meditative prayer, based on a particular deity.

Mantra (skt) gzungs sngaks གཟུངས་སྔགས Sacred syllables that represent deities and states of mind which are repeated to evoke a deity or state of mind.

Mudra, mtsan sngags མཚན་སྒྲགས Sacred gestures which are used to invoke a diety or state of mind, often used in conjunction with mantras.

Samadhi (skt) ting atsin ཉིང་འཛིན A state of meditation and the resting of the mind.

La The Soul, or the Alaya consciousness which is what holds karmic imprints and reincarnates according to the Buddhist system.

Yi, yid ཡིད The mind that which holds the many layers of consciousness.

Sem, syms སེམས The mind, often also translated as the heart.

Tazik, stak gzig ལྷག་གཟིག A place in Western Tibet The first Buddha.

Trison Dettson, khari srong lde btsen བློ་སྣང་ལྷེ་བཙན The Tibetan king of the eighth century who invited Padmasambhava to spread Buddhism in Tibet.

Dalai Lama, ta lai bla ma ལྷ་ལའི་སྐམ The spiritual leader of Tibet.

Tenzin Wangyal, bsten atsin dwan rgyal བསྟན་འཛིན་དབང་རྒྱལ A Bon master in the current day who has written many books in the English language.

Dharma(skt), chos ཚོས The Buddha's teachings.

Bodhisattva(skt) byang chub syms dpa བྱང་ཚུབ་སེམས་དབང A follower of the Buddha's teachings who has taken the to stay in this world to relieve the suffering of all beings and bring them to freedom.

Yul Lha, yul lha ཡུལ་ལྷ Literally translated as the area god, understood as the area spirit who humans have relations with and must make offerings to in order to appease.

Mani pile (do bum), ma ni rdo abum མ་ཉི་ལྷོ་འབུམ the pile of hundreds of thousands of caved stones, often with the prayer of chenrizig, om mani pad me hung- hail to the jewel in the lotus.

ter dak, Gdhir bdag གཏིར་བདག Understood as local deities who must be appeased through offerings.

Khora, skhor wa ལྷོར་བ The circumambulation of a holy site.

Drikung Kagyu, adri gong bkha brgyud འབྲི་གོང་བཀའ་བརྒྱུད The sect of Tibetan Buddhism under the Kagyu tradition and more specifically the Drikung Kagyu teachings, founded in the 13th century by Jigden Sumgon.

Theravada(skt), gnas brden pa གནས་བརྟན་པ the Buddhist tradition followed in countries such as Thailand.

Mahayana(skt), tig pa chen po མེག་པ་ཆེན་པོ The Buddhist tradition followed in countries such as China and Tibet.

Rinpoche, rin po che རིན་པོ་ཆེ Literally translated as precious jewel, it is the term given often to high Tibetan Buddhist masters, almost always a Tulku, or incarnate lama who has proven their high status.

Srinagar, Kashmir A place North West of India, the meaning of this place full of lakes is great serpent.

Mahasiddhas (skt) Buddhist masters who are considered human forms of *Lu* (water spirits).

Shakti (skt) She was *Shiva's* consort and was at times depicted in the form of a serpent, denoting her wisdom.

Shiva(skt) lha dwang phug ལྷ་དབང་ཕུག The Hindu god, emptiness in male form.

Patajali (skt) The revered author of the Yoga Sutras.

Mahanaga(skt) kLu rgyal ལྷ་རྒྱལ A great naga.

Shesha (skt) An incarnate of the primordial seven headed serpent.

MahaLu (skt) A great Naga also understood to be *Gautama Buddha*.

Bodhgaya(skt) rdor rje gdan རྡོ་རྗེ་གདན The place in India where Gautama Buddha reached enlightenment.

Saranath(skt) bya rgod phung boai ri བྱ་རྗོད་ཕུང་བོའི་རི The place in India, where the Buddha gave his first teachings.

Nagarjuna(skt) mgon po kLu sgrub མགོན་པོ་ལྷ་སྤྱུབ A Buddhist *mahasiddha* from the 2nd century who was one of the main philosophical protectors of Buddhism.

Om Mani Padme Hung ཨོམ་ཎི་པདྨེ་ཧུམ The *mantra* of *Chenrezig*, the lord of compassion, can be translated as: hail to the jewel in the lotus, *Chenrezig (Aveloketeshvara)* being referred to as the jewel.

Nangpa cho, nang pai chos ནང་པའི་ཚོས་ The term for Tibetan Buddhism, Literally meaning the inside religion.

Kham kay, khams skhad ཁམས་སྐད་ The language of the people of Kham, within Kham kay there are numerous different dialects, including *Nangchen Kay* and *Yushu Kay*.

Lhasa kay, lha sai skad ལྷ་སའི་སྐད་ The dialect of Tibetan language used in the Lhasa, Tibetan Autonomous Region.

Golok kay, mgo log skad མགོ་ལོག་སྐད་ The dialect of Tibetan language used in the *Golok* region.

Amdo kay, a mdo skad ཨ་མདོ་སྐད་ The dialect of Tibetan language used in the *Golok* region.

Amnye Ngodrup, a mnyis dngos drup ཨ་མྱེས་དངོས་གྲུབ་ Grandfather (*Ngodrup* is a name meaning the realization of truth).

Ngakpa, sngaks pa རྒྱལ་སྐྱོང་པ་ A lay practitioner.

Nam shi, gnam gshis གནམ་གཤིས་ Literally, the sky's character, it is the term used for weather.

Char du, char dus ཚར་དུས་ The seasonal term meaning the time of the rains.

Ten Drel, rten abrel ཏེན་འབྲེལ་ The Buddhist philosophy of interdependence (*pratitya-samutpada skt.*). *Indira's net* The Indian philosophy that everything is dependent of each other.

Lay gym dre, lay rgyu abras ལས་རྒྱུ་འབྲས་ Karma, cause and effect.

ahimsa (skt.) འཕོ་མེད་ atso med The philosophy of nonviolence.

Tashi Kyiwa, bkhra shis akyil ba བགྲའི་ཤེས་འབྲིལ་པ་ *Tashi* meaning auspicious and *Kyiwa* being the source, this is the name of the Tibetan source of the Mekong River (*DzaChu*) in *Dzado*.

Nga Ru, na rul ན་རུལ་ A spoiled marshland, one that has rotting life in the pools of its waters causing an oil like residue on the surface of the water.

Zambala, zam bha la རྩམ་བླ་ལ་ The Tibetan deity of wealth.

Abras, a bra ཨ་བྲ་ The Tibetan pika.

Wa, wa ཨ་ Tibetan fox

Bi, rbi རི་ The Tibetan sand fox

Nawa, rna ba རྩ་བ་ The blue sheep (Pseudois nayaur).

Lawa, gla ba ལྷ་བ་ The musk deer (Moschus spp.).

Gowa, dgo ba དགོ་བ་ The Tibetan gazelle (Procapra picticaudata).

Sha, shba ཤ་ The Tibetan deer (Cervus spp.).

Yinchung, yi chung ཡི་ཚུང་། The spring in Gargon that is believed to be Rinpoche's spirit spring.

Namka Tulku, nam mka sbrul skhu ན་མ་མ་བའ་སྐུ་ལ་སྐུ་ The speech emanation of Gar Rinpoche who currently lives in Taiwan.

Garchen Rinpoche, mgar chen rin po che མགར་ཆེན་རིན་པོ་ཆེ་ The body emanation of Gar Rinpoche who currently lives in the U.S.A.

Ba nak, sbra nag རྩ་ནག་ The black tent has actually become a symbol for Tibetans of their resilience and self sufficiency.

Dronma, gron ma གྲོ་མ་ Tibetan wild sweet potatoes.

Wei wei (chi) 方便面 Chinese ramen noodles.

Drong, adrong འབྲོང་ Wild Yak (Bos grunniens).

Chu yak, akyug gyag འཇུག་གཡག་ The bull yak.

Surra, zog ra ཚོག་ར་ A nomadic cluster, where several families set up their tents together.

So-nyi, so gnyis སོ་གཉིས་ Literally, two toothed, or the baby *dri* until becomes fertile.

Drunma, thul ma ཐུལ་མ་ The *dri* who has just given birth and at the peak of her milk production.

Yarma, yar ma ཡར་མ The name of a *dri* who just gave birth the previous year.

Driyam, abri yam འབྲི་ཡམ A dry *dri*, one who is barren and not giving milk.

Namdruk, gnam abrug གནམ་འབྲུག Literally the sky dragon or thunder.

Chak ta, ljaks rta ལྷགས་རྟུ Literally iron horse, of motorcycle.

Torma, gtor ma གཏོར་མ A ceremonial cake usually made of *tsampa*, butter, sugar and tea, offered in the middle of a sadhana practice to appease the spirits and deities.

Dharmakirti(skt) cho kyi grags pa ཚོས་ཀྱི་གྲགས་པ། The great Philosopher that studied at Nalanda around the turn of the 7th century.

Tenma, brten ma བརྟེན་མ The Tibetan goddess of the earth.

Lagpa Chenpo The Tibetans believe this spirit to be the preserver of the earth.

Zanagrigen, rdza nag ri rgen ཇཱ་ནག་རི་རྒྱན One of the sacred mountains closest to the sources of the *DzaChu*.

Khenpo Tsultrim Lodro, mkhen po tsul grims blo gros མཁན་པོ་ཚུལ་བྲིམས་བློ་གྲོས One of the highest respected lamas, living today, teachings at Serta Monastery.

Qomolungma, jo mo gling ma ཇོ་མོ་གླིང་མ Nature Reserve on the Tibetan, Chinese side of Mt. Everest.

Khangchendzonga, gangs jen rtsong agag གངས་ཅན་ཇོང་འགག Biosphere Reserve in Sikkim, India.

Shingkhams, shing khams ཞིང་ཁམས A pureland, as imagined in Buddhism to be the land of perfection, each Buddha has their own pureland, where one may wish to be re-born.

Shanshui(chi) 山水 A Chinese NGO that works on the protection of the source of the 3 rivers.

San Jiang Yuan (chi) 三江源 The source of the three rivers nature preserve.

Appendix B. Translation of the Torma Offering for Lu

kLu gtor rgyas pa sbyin pe lang tsho. Nāga Menaka. The Splendor of Generosity. An Elaborate Torma Offering to the Nāgas COMPOSED BY Drikung Dharmakirti ENGLISH TRANSLATION AND TRANSLITERATION BY Khenpo Konchok Tamphel Edited by: Kay Candler

A vidyādhara who wishes to perform a very elaborate form of torma offering to the nāgas [should] receive the authorization (empowerment) of Nāgarāja first, then find a suitable place or an actual habitat of nāgas and earth-owners and sit on a comfortable cushion.

Grind the five types of grains—barley, rice, wheat, unhulled barley, and peas—into powder, add some nāga-medicine, and knead the mixture using the three whites and three sweets. Mold that into a round torma with a hood of writhing snakeheads, and some pills. Place them together on a clean precious plate and arrange it in front of you. Prepare [a bowl of] clean water with the three whites, three sweets, and nāga-medicine added. It is effective when done on a nāga day.

In addition to this, arrange all the other essential items. Abstain from all impious food and drink- meat, alcohol, garlic, onion and others- before and during the torma offering to the lu, and proceed as follows, first taking refuge and generating bodicitta and the four immeasurables.

All phenomena of appearance and sound lack true existence. From within that state manifests a seat that is made of a lotus arisen from the syllable pam and a moon arisen from the syllable āē. Sitting on that is my own awareness in the form of a hūi syllable

that is pale yellow and bright. Rays of light emanate from it, fulfilling the two purposes 1. The rays are reabsorbed and it transforms completely. I thus become Tathāgata Nāgendarāja. His body is white and above the neck is blue. Looking magnificent, with the adornment of the thirty-two major and eighty minor marks of enlightenment, his two hands are at his heart, in the mudrā² of liberating all nāgas from the lower realms. He is dressed in lower and upper Dharma robes of saffron color and is shining with a multitude of light rays. His forehead is marked with oī, throat with āē, and heart with hūi. Rays of light radiate from them. From his natural abode, Nāgendarāja, surrounded by the assembly of buddhas and bodhisattvas, comes. [With] vajra samājaē\ jaē hūi baī hoē Nāgendarāja, surrounded by the assembly of buddhas and bodhisattvas, [arrives] from his natural abode [and] becomes indivisible [with myself].

Once again, rays of light radiate from the seed [syllable] at his heart to invite the five families along with their retinues, the empowerment deities. oī pañca kula saparivāra arghai pratēccha svāhā till śapta. Thus, make offerings. oī sarva tathāgata abhiūiñcatu māi\ zhe sol wa tab pe wang gyi lhe\ oī sarva tathāgata abhiūekata samaya śri ye hūi\ zhe bum chü chi wo ne wang kur ku gang drima dag\ oī sarva tathāgata abhiūiñcatu māi. As I thus supplicate, the empowerment deities say: oī sarva tathāgata abhiūekata samaya śri ye hūi. Thus they confer the empowerment at my crown by means of the vase water, which fills my body and purifies the defilements.

The excess water overflows on my crown and transforms into Akūobhya as my crown ornament. Then the empowerment deities dissolve into me. At my heart, in the center of a moon is a hūi syllable which is encircled by the garland of mantra radiating rays of light that fulfill the two purposes. The rays are reabsorbed and dissolve into the garland

of mantra and the seed [also the seed] syllable. Thus visualize. tadyathā oī tathāgata bhagavān nāgarāja ādhiūūana ādhiūūate svāhā. Repeat this as many times as possible; it is self yoga.

Then: I visualize myself in the form of Ārya Nāgendrarāja. In front of me is an enormous garden, built with myriad precious jewels, as vast and extensive as the triochiliocosm, surrounded by mountains of precious jewels and filled with wish-fulfilling trees. Its valleys are meadows filled with pools where birds sing melodiously and a myriad of charming wild animals, such as antelopes, live and wander happily. It is [also] filled with infinite riches for enjoyment, including precious objects, medicines, forests, grains, and resinous medicinal plants.³

In the center of all this is a great blue lake which is vast and extensive; it looks spectacular, with precious staircases in all directions, and is filled with myriad charming water birds, swimming and singing sweetly. There are lakes filled with myriad precious objects, including wish-fulfilling jewels and others, and populated with countless animals of the nāga family, including frogs, snakes, fish, crocodiles, tortoises and others. Myriad flowers, including white lotuses and others, are arrayed on the surface of the lakes, displaying their beauty and blossoms, and the shores of the lakes are encircled by a vast forest of nāga trees.

In the center of the great lake, a precious white lotus with eight petals [manifests] from a pam syllable. In its center and the directions are phu phu syllables, from which manifest: nāga king Varuīa in the center, looking like an autumn moon, and on the petals, white Ananta in the east; blue Padma in the south; red Takūaka in the west; white Vāsuki in the north; white Mahāpadma in the northeast; white Śaḍkhapāla in the southeast;

white Karkoûaka in the southwest; and vermilion Kulika in the northwest. Each of them has a celestial body, folded hands, and a hood of snakeheads, and the lower part of the body is the coiled tail of a snake. They are clad in silk and adorned with myriad jewel ornaments, and the crown of each is bejeweled with an illuminating gem.

All around them are nāgas of the royal caste, the noble caste, the brahman caste, the commoner caste, and outcastes, along with their kings, queens, princes and ministers, and their subjects, retainues and wives. All around them, they are completely surrounded by the chiefs among earth-owners and the leaders of plague-causing spirits, including Tenma, the goddess of the earth, and Lagpa Chenpo, the preserver of the earth, and others. All around them, they are completely surrounded by the various forms of nāgas, earth-owners, and plague-causing spirits that inhabit the worlds of the trichiliocosm, obscuring [all around] like rain clouds.

oī nāgarāja saporivāra vajra samājaê. Thus summon with the iron-hook mudrā. jaê hūi baī hoê. Thus make each individual dissolve into himself. Say: oī nāgarāja saporivāra arghai pratīccha svāhā until śapta.

Homage and praise to the nāga king with his retainue, who completely dispels the darkness under the earth with the light of the blazing gem on his hood, and who has utmost admiration for the buddhas' teachings and incredible might and power.

Oī āê varūiaya hūi svāhā. Oī āê ānañtāya hūi svāhā. Oī āê padmāya hūi svāhā. Oī āê takūakaya hūi svāhā. Oī āê vāsukiye hūi svāhā. Oī āê mahā padmaya hūi svāhā. Oī āê śaḍkhapālaya hūi svāhā. Oī āê kulikāyala hūi svāhā. Thus recite. Show the nāga-pleasing mudrā and say: Oī hi li hi li mahā hi li phrum phu svāhā. With the torma con-

tainer filled with water, say this with the tusks bearer's (yakúa) mudrā: Oī vajra yakúa hūi. Thus cleanse. Show the vajra mudrā and say: Oī vajra jāla a na la ha na da ha pa tsa mātha bhañja raia hūi phaū. Thus enhance magnificence and blessing.

With the hollow-palm mudrā, say: Oī svabhāva śuddhā sarvadharmā svabhāva śuddho 'haī. Thus cleanse and purify. [All] becomes emptiness! From the state of emptiness arises a bhryī syllable which gives rise to a large and spacious precious vessel. Inside that, from oī, āē, and hūi syllable sarise a torma, a delight made of the three whites, and a myriad of resinous medicinal plants, everything that the nāgas, earth-owners, and plague-causing spirits enjoy, including a mass of food and drink, all substances required to heal their specific ailments, harms, and sufferings, lacking nothing and [as abundant] as the infinity of space.

Oī sarva vidyā pura pura sura sura āvarta āvartaya ho. Repeat three times. [Recite the] AKĀRO[mantraē] three times, followed by recollecting the names of the four tathāgatas.⁴ [Recite the] SAMBHARA [mantraē] three times⁵. Then recite the following, while offering the mudraē of your joined palms bending backward. Oī nāgarāja lokapāla kara Varuīa, Vāsukēmām, Ānant, Takúaka, Karkoūa, Padma, Mahāpadma, Śaḍkhopāla, Kulikapāla, Devati, Mahādevati, Somaśikhi, Mahāsomaśikhi, Daīdadhara, Mahādaīdadhara, Apāla, Hulun, Nanda, Upānanda, Sāgara, Mahāsāgara, Tapta, Mahātapta, Śrikant, Mahāśrikant, Ratnakant, Surýpa, Mahāsurýpa, Bhadrahika, Mahoraga, Śēli, Mahāśēli,

King of nāgas, world-guarding Varuīa, Ānanta, Vāsukē, Takúaka, Karkoūa, Padma, Mahāpadma, Śaḍkhopāla, Kulika, Goddess, Great Goddess, Somaśikhi, Mahāsomaśikhi, Staff Holder, Great Staff Holder, Apāla, Hulun, Nand, Great Nanda, Ocean, Great

Ocean, Heat, Great Heat, Glorious Beauty, Great Glorious Beauty, Jewel, Beautiful Jewel, Perfect Body, Great Perfect Body, Perfect Snake, Great Serpent, Moral-Ethics and Great Moral-Ethics, together with your retinues, Oî bhakúa bhakúa, āgaccha āgaccha, mahānāga adhipate bhurvahuwa phrum pēu svāhā, ai mam baling grihai kha kha khāhi khāhi. Repeat this seven times to make offerings to Varuia and his retinue, including the eight great nāgas.

Once again: Oî nāgarāja catri, nāga natri, nāga pramonatri, nāga phruta phuratri, nāga mudunatri rāja youhitā putra pariīakaya saparivāra ahi mam baling grihana kha kha khāhi khāhi. Three times. May the great nāgas belonging to the royal, merchant, brahman, commoner, and untouchable castes, together with their kings, queens, princes, ministers and retinues, be satisfied and pleased by this extensive feast of offerings. Oî pakhrag svate vesave satri bheva rakúa pritri saga dutri rāja youitā putra pariīakaya saprivāra ahi mam baling grihaia kha kha khāhi khāhi. Repeat three times.

The earth-owners, including Earth Goddess Tenma, Earth Guardian Giant Hand, and other earth-owners who are kings, queens, male and female ministers, and those who are powerful, limping, crippled, cotton-eyed, lame, crooked, blind, broken, twisted-handed, three-legged, and those who have extra or missing fingers, the old and the slow movers, the ones who can hear, the deaf, the eighteen types of lepers, the individuals, the pairs, the trios, the generals, the wrathful ones, the vanquishers, the hunchback, the bent man, the stupid, the dumb, the staggering, the violent one, the fierce one, and others; those who belong to the families of earth-owners be satisfied and pleased by the vast torma offerings. Oî kumāra phutri rājayouitā putra pari iakaya saparivāra ahi mam baling gōihai kha kha kha hi kha hi. Three times. Plague-causing spirits such as those of

fire, water, wood and sky, and those of various colors such as white, yellow, red, green, black, and others: may all [such] forms of plague-causing spirits also be satisfied and pleased by this vast tormā offering. Thus recite.

This vast offering of tormas is endowed with the five objects of sense-pleasures. Simply by seeing, hearing, touching, carrying, and eating them, and simply by drinking from this sea of elixir and bathing in it, may all forms of nāgas, earth-owners, and plague-causing spirits, including their kings, queens, princes, ministers, subjects and retinues of high, low and intermediate rank inhabiting the trichiliocosm and other worlds, be free from all the harm, obstruction, and damage heedlessly caused by us—guru and disciples, with or without our awareness, knowingly or unknowingly—to their abodes, bases, wealth, possessions,

and otherwise; may the decline in the health of their limbs, including the head; body parts, such as the fingers; five vital organs, such as the heart; six hollow organs, such as the stomach; and their flesh, blood, bones, marrow, muscles, glands and other parts be restored; and may their bodies be instantly healed to become impeccable and perfect celestial bodies. May they quickly become free from all suffering and harm resulting from the ripening of their individual karmas, and without even hearing the names of sicknesses, sufferings, harms and others, may they enjoy total joy and happiness as in the age of perfection⁶

and Kulika: to you, the lords of nāgas, today I make these offerings, which consist of sense-objects of your personal choosing, along with everything you need, including gardens, amusements and other things. Please enjoy and give rise to the intention to benefit. All of you have seen the Buddha face-to-face, and you possess the eye of primordial wis-

dom. Therefore, remember the commitments [you made] in the past and provide us with favorable assistance now. The royal caste, white, dominates water. May you pacify the poisons of thought. The merchant caste, yellow, dominates earth. May you pacify the poisons of sight. The brahman [caste], red, dominates fire. May you pacify the poisons of breath. The commoner and untouchable castes, black, dominate air. May you pacify the poisons of touch.

May all the poisons that are specific to the four types of earth-owners be forcefully summoned⁷ and the violence of killing pacified. May the five types of plague-causing spirits cease [inflicting] their mental poisons, swollen throats, and agonizing pain. Hey! Today through peaceful means, we—the master and disciples—repair, restore, and rectify the violations, trouble, harm, and violence that we have caused, deliberately or accidentally, to the earth-owners, nāgas and plague-causing spirits, including their retinues. Great nāga kings, you have seen the Conqueror and heard his Dharma teachings. Therefore, you are kind and do no harm to transient beings. However, the ordinary nāgas are arrogant and harm others due to their pride. The earth-owners and the plague-causing spirits are your subjects; they accept your commands and execute them. Therefore, I repair my violations in relation to all of you. By the compassion of you nāga kings, may the groves of precious trees become habitats for all nāgas. May this great ocean of pristine purity, the birds, wild animals, and so forth become a sublime sight for the amusement of the nāgas. May the frogs, snakes, fish, and so forth become assets of the nāgas now. May this beautiful torma made of three whites and the milky ocean made of three sweets pacify the troubles of nāgas, and thus become favorable substances for them.

May this ingredient nutmeg heal head injuries of nāgas. May cuttlefish heal injuries of the brain, and quartz those of the eyes. May utpala⁸ heal injuries of the nose, and green algae⁹ those of the cheeks. May vermilion heal injury of the flesh, cinnabaris that of the blood, marigold that of the tongue, cowrieshell that of the teeth, conch shell that of bone and saffron that of the [sense of] smell. May white sandalwood cure fever, and may peacock feather heal faded complexion.

May clothes in five colors and snakeskin heal skin damage, and may hog plum¹⁰ heal heart damage. May cowhage¹¹ heal damage to the kidneys, Elva Climber¹² that to the lungs, Fragrant orchid¹³ that to the hands, gharial claw¹⁴ that to the claws, cabalash¹⁵ that to the stomach, and Indian spikenard¹⁶ that to moralethics. May ingredients such as the tip of amber, asbestos, and white and red fibers heal injuries of the networks of veins and vessels of body fluid. May guduchi¹⁷ heal injury of the intestines, false black pepper¹⁸ that of the sense of touch, and yellow myrobalan¹⁹ that of the internal organs. May Common Mare's¹²⁰ heal injury of the thighbone, clove that of the life-vein²¹, and cardamom that of the kidneys. May Indian gooseberry²² heal bile, and Beleric²³ phlegm and bile, and may black cardamom heal damage to the stomach and the spleen. May red sandalwood cure blood fever and camphor all fevers [in general]; and may pine and bamboo leaves heal the limbs. May Sal tree²⁴ cure serum and fever. May orchid sprout cure the loss of hair and eyebrows. May the five precious substances²⁵ prevent the decline of the treasure house, the three whites and three sweets prevent shortage of beverage,

and grains prevent lack of food. In addition to that, may these beneficial ingredients restore any deterioration of abodes, palaces, retinues, and wealth. The bodies of us – mas-

ter and disciples – are made of flesh and blood; they are heaps of impure components.

Our speech has no substance, like an echo, and our minds are luminosity-emptiness, unidentifiable. Therefore, we offer today the enjoyments that are greater than our body, speech and mind. May they pacify the rages of all nāgas, earth-owners and plague-causing spirits. For the pleasure of your senses,

may you find enjoyment of whatever you desire. May nāgas, earth-owners, and plague-causing spirits be free from the suffering specific to your families, such as the dangers of eagles and hot sand, and may all harm and ordeals, such as sickness and migration to the lower realms, be pacified. Having attained freedom from the lower realms, may your lives be like Brahma's, and having generated the awakened mind, may you attain complete enlightenment. If there is any nāga, earth-owner, or plague-causing spirit who holds harmful intention towards us—master and disciples—and the infinite number of sentient beings without exception, kindly let it go.

Please release the captives and untie those who are bound. Please support and restore the suppressed. By the power of my pure intention, together with the powers of the blessings of tathāgatas and the dharmadhatu, may the hostility and anger of nāgas, plague-causing spirits and earth-owners be completely pacified; and may we fulfill our wishes in accordance with the Dharma. Thus dedicate.

With the intention to purify the evil deeds and obscurations of all Lu and plague-causing spirits, recite [as follows], the kaīkani (Akśobhaya Mantraê), the Root Mantraê for Purifying the Lower Realms, and

*the 100 Syllables three times each: oī vajra akśobha svāhā \ namo ratna trayaya \ oī
 kaīkani kaīkani \ rocani rocani \ trouāni trouāni \ trāsani trāsani \ pratihana pratihana \
 sarva karma paramparāīime sarva sattvānāñca svāhā \x3 Oī naiō bhavavate sar-
 vadurgatipariśodhanarājāya tathāgatāya arhate samyak saībuddhāya \ tadyathā oī śo-
 dhane śodhane sarvapāpaviśodhane śuddhe viśuddhe sarvakarmāvaraīavisuddhe
 svāhā \x3 Oī vajrasattva samayamanupālaya vajrasattva tvenopatiūūha dōçho me bhava
 sutoūyo me bhava supoūyo mebhava anurakto me bhava sarva siddhiī me prayachha \
 sarva karma suca me \ cittam. śriyaē kuru hūm. ha ha ha ha hoē bhagavān sarva
 tathāgata vajra māme muñca vajrī bhava mahāsamaya sattva āē \x3*

*In addition, the Dharani of Bestowing Joy to Nāgas, taught in Nāgarakūa is: In the lan-
 guage of India: nāga sarvasukhacari nama dharani \ In the language of Tibet: klu 'i rigs
 su gyur pa thams cad la bde ba sbyin pa 'i gzungs \ [In English: Dharani of bestowing joy
 to all nāga families.] Homage to the Bhagavan Tathāgata Nāgarāja!*

*Thus recite seven or twenty-one times. The benefits of this, as explained in the text: “Re-
 citing this dharani in a state of samadhi and making tormā offerings ensures pacifica-
 tion of the harm and torment inflicted on all sentient beings by nāgas; pacification of the
 suffering of the nāgas' body, speech and mind, thereby making them caring friends; im-
 provement of the earth's fertility; attainment of all common siddhis; timely rainfall; ex-
 cellent growth of grains and fruits; and pacification of fights and quarrels.” These and
 others are the countless benefits of reciting this dharani, and therefore it is very im-
 portant and a key point.*

*Thus, having satisfied the [nāgas] with gifts of material objects, love, and protection
 from fear, the gift of offerings is: Kyema! Nāgas, earth-owners, and plague-causing*

spirits, all of you without exception, heed my words. Everything is impermanent and illusory, none [of it] holds any substance. Joy arises from wholesome deeds, whereas suffering arises from unwholesome deeds. All phenomena arise from causes, and the Tathāgata has taught the cessation of those causes. Abandoning the non-virtues, practicing the virtues, and taming one's own mind—that is the teaching of the Buddha.

All compounded things are impermanent, and all contaminated things are suffering. All phenomena are devoid of self, and nirvana is peace. Seek refuge from the dangers of samsara. The path to accomplish this is the sublime Dharma, and good companions on the path are the Sangha. Generate aspiration bodhicitta, which is the wish for the infinitely many sentient beings to have happiness, be free from suffering, live happily without suffering, and be established in the state of equanimity, free from attachment to the near and aversion to the far. In order to put this [aspiration] into practice, abstain from harming others, strive to bring them happiness,

And engage in the sublime dharma in accordance with your personal capacity. The architect of samsara and nirvana is your own mind, which is free from the extremes, unified, and clear-empty; with nothing to subtract or add. Look perfectly at this perfect purity. The one who sees it is liberated, and that is the absolute bodhicitta. Take the vows of refuge and bodhicitta, and from this day go on, guard the principles related to them as if [they were] your life. Buddha, Dharma, Sangha, Element, Awakening, Qualities and Buddha Activities: these are the seven points. May you, plague-causing spirits, and earth-owners realize these profound Dharmas accurately. Thus give a Dharma discourse with loving kindness in your heart.

Hey, nāgas, plague-causing spirits, earth-owners, and retainues! We—master, disciples, and patrons—have today already amended and restored the harms, injuries, hurts and irritations we caused to your bodies, speeches and minds, including your habitats and properties. Therefore, from today until enlightenment, may you cease your intentions to harm and injure us—master, disciples, and patrons—and fulfill our wishes quickly with your helpful assistance. May you immediately desist from harming and injuring the mass of countless transient beings, and fill their space with benefit and joy

Should you transgress this samaya, there will be punishment from Vajrapani; there will be punishment from Hayagrivarāja, and there will be punishment from Nāgarakṣa. You will suffer the nine types of leprosy; you will suffer the fire of eye infections; you will go blind and deaf, and you will have scars, boils and tumors. There will be dangers from fire and sun. There will be dangers from eagles and hot sand. There will be the danger of the separation of your body and mind. There will be the danger of losing your habitat. There will be the danger of your wealth dwindling. There will be the danger of destruction to your country,

and you will fail to achieve the unsurpassed result. However, this has not happened yet. So accept these objects of sensory pleasure, including all of your favorite pleasures, and pacify your anger, hostility, and evil intentions. Dispel the harms, injuries, sicknesses and evil influences, and act for the benefit of all of us, with the tranquility and gentleness of supreme bodhicitta. Thus express. Nāgas, earth-owners, plague-causing spirits, and so forth, including your retainues, think of your own body as an example and abstain from harming others. Bring clarity to your mind and consciousness, and recollect the pledges and promises you made in the presence of Garuda, the Master of Secrets.

Without violating the commands and samayas, through the blessings of the mantras, medicines, and so forth, eliminate all sickness and harm. Remember the samaya of repaying kindness and return to your own abodes now: Oī nāgarāja saparivāra gaccha gaccha\ Snap the fingers. Show the garuda mudrā and say: Oī garuṣa ham sa he ca le svāhā\ Extensively recite words of auspiciousness and dedication prayers. Discard the tormā in a nāga habitat or in a hygienic place

This nāga puja has a slightly more elaborate format than the Vāsukē. It is supplemented with some dhāraṇīs, such as the Dhāraṇī of Bestowing Joy and others. This is because I find them very beneficial and authentic. I have placed the nāga medicines together with their effects and benefits to help find them easily. Many scriptures speak of the earth-owners and plague-causing spirits as members of the entourage of the nāgas. Therefore, it seems apt to include them in this tormā offering. It seems that the nāgas, earth-owners, and plague-causing spirits are closely related and they appear together; they bring harm to most sentient beings in this age of strife. Therefore, I have talked about them a bit more in detail. I have done a thorough editing of all the mantras across [the text], including the Dharani of Bestowing Joy to the Nāgas and others. Therefore, it will not be appropriate for the mantras to be amended in the future by those of substandard, intellectual understanding who only take into consideration the mere construction of words with vowels and consonants, and regards the mere knowledge of how to pronounce the mantras as a great legacy. Thus, with the hope to benefit all others and myself, this was written by Drikung Dharmakirti in the Female Fire Rat Year, on the 15th of the 5th Mongolian Month at the glorious Drikung palace of Tashi Tshug Kyi Re'umig Pema 'Od. ùubam sarvamangalam svastiśubhāi

Appendix C. Offering Prayer for Rilha of DzaChu Headwaters Region

Homage to the holder of the white lotus. Tsenjee Yutri Gongngong (this is name of the mountain god) you are the chief of the mountain spirits and the companion of Nagas and you are the messenger of high beings and lord of the land, you had offered your life to Guru PadmaSambhava and promised to be a protector of Dharma.

Hayagriva had prophesied that you will find many sacred texts written on pericardium by blood and hidden under the earth. You got teachings from Hayagriva and you were named Dorjee Gongngong. [He] gave you such a sacred name and put you in the south western area called Padma Barwa (blazing lotus) and you promised and prayed to be of benefit to all beings and also promised to help and support all beings in the future.

We offer you all the precious things, TORMAS and the best music, so now you have to conquer all negative spirits and those [negative spirits] will listen to your command.

Gya gya gya (sealed) Hung (amazement) In one moment of complete remembering. Emanating from the great vajra. From the Inner hearts light. The gods, ghosts, body less spirits power. Ram. Yam. kam.om.ah.hung.

Kyi. A rock mountain stood up to the sky in the west and there is a castle which is made from copper, you ride a red horse with complete miraculous power with a golden saddle and travel in three-thousand-fold time, you are always in the center of all wind and rainbows, very young with one head with a red face, two hands, the right one holding a flag and left one holding a red noose and you are wearing a blue dress with green leaves on it and with lot of white and red clothes hanging. An eagle's feather stands on your hat, on your hip you hang a sword. You are surrounded by all of the wrathful eight classes; your beautiful consort is sitting in front of you.

We are offering you all of the things that you like to be offered. So that you come right here as the guest of the Yogi, just come and follow your promise, just come without forget command, just come obey all orders, here we are offering you all of the outer inner and secret offerings we also offer you the five sense offerings, you will be satisfied with all these offerings, now you have to fulfill all our needs such as wealth, health, fame, long life and make all successful in whatever we wish, defeat enemies and all negativities, reverse human and livestock disease and loss, extinguish those religions which barbarians have faith and protect the Buddha Dharma.

As soon as I think of you, through your precious protection, therefore, you look after locals as your sons and help us to make our wishes come true.

Ge-o-trashi-shaldro.

Appendix D. List of Tables and images and hyperlinks

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https://instagram.com/p/tg8G4Nm_dU/ p83 prayer flags prayer flags hung near tashi
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https://instagram.com/p/u0tjcnG_Xu/ p98 finally sewing the panels together men rarely sew the tents in Kham, but this uncle is teaching his son so skills are not lost. Dzado 2013 NC.

<http://www.purelandperspectives.org/#!/sources/c22tz> p126 Protected Areas maps of protected areas from internet sources: see references.

https://instagram.com/p/u2qOe5m_Zl/ p140 their butter, yogurt, milk butter and cheese in wooden bowl. Gargon, 2013 MF.

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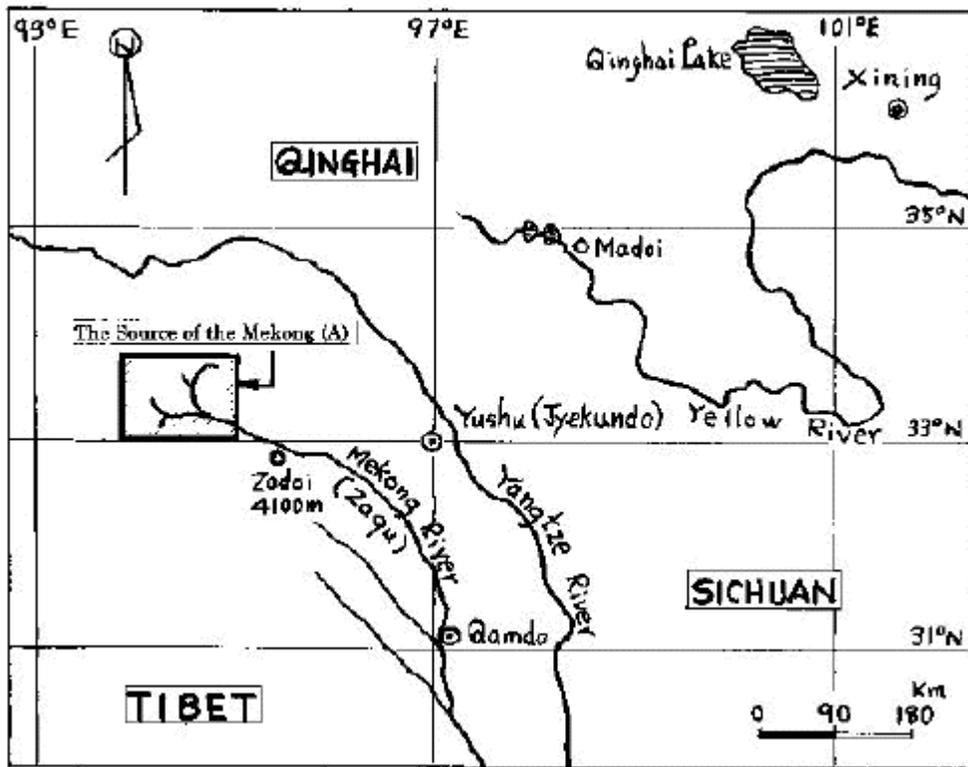
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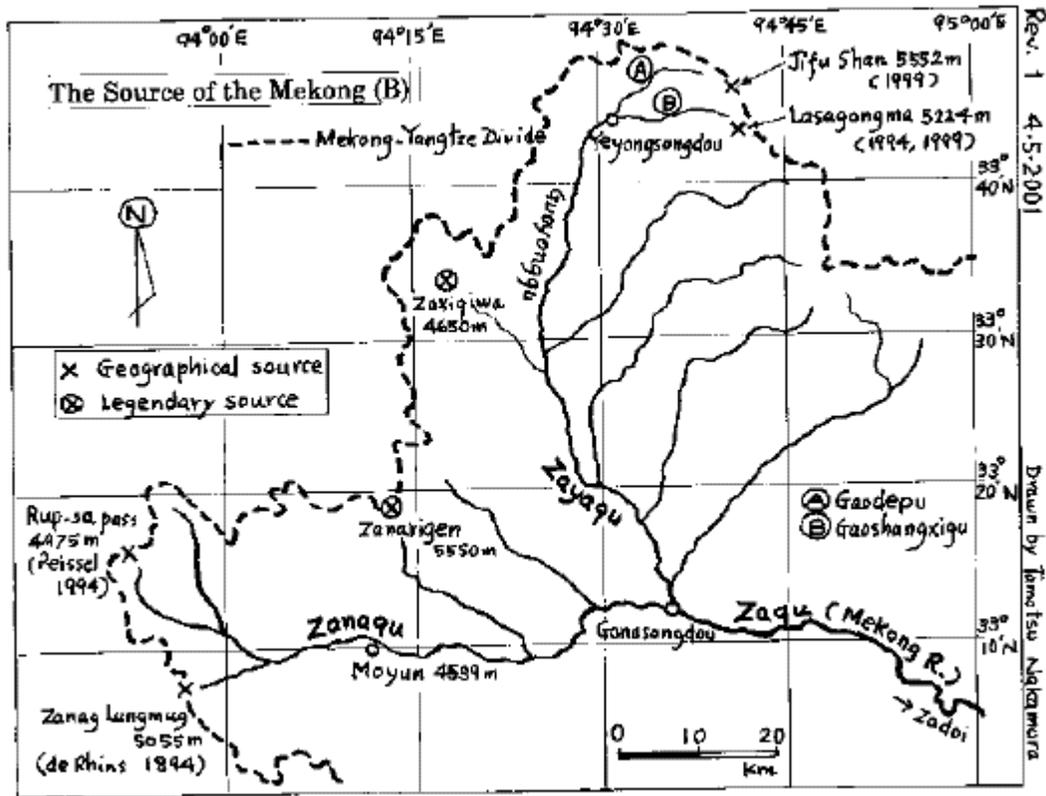
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Title of first map



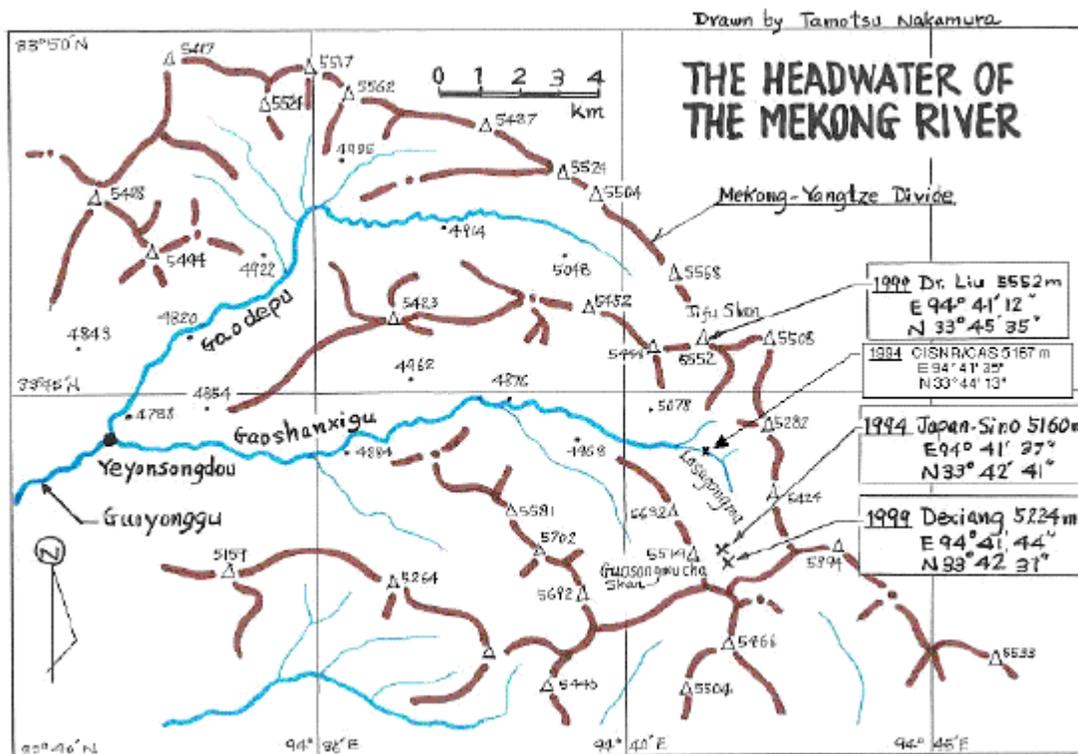
“This map shows the general location of the Mekong source with respect to Tibet, the towns of Yushu and Zadoi and the Yellow and Yangtze rivers on the Tibetan Plateau. Map from Japanese Alpine News, No. 1, 2001, drawn by Tomatsu Nakamura of the Japanese Alpine Club.”

Map of Spiritual Sources of the Mekong



“This map shows the spiritual sources of the Mekong (Lungmug, Zanaqin, Zaxiqiwa), the sources erroneously identified in 1894 (Lungmug), 1994 (Rupsa) and 1999 (Jifu), and the source first identified in 1994 and made official in 1999 (Lasagongma). Map from Japanese Alpine News, No. 1, 2001, drawn by Tomatsu Nakamura of the Japanese Alpine Club.”

Map of Chinese vs. Japanese source of Mekong



“This map shows the relative proximity of the 1994 Japanese location, the 1994 Chinese location and the 1999 Liu team location to the 1999 official location (Dexiang team) of the source of the Mekong. Map drawn by Tomatsu Nakamura of the Japanese Alpine Club.”

Map from <http://www.shangri-la-river-expeditions.com/1stdes/mekong/mekongsource/sourcemap.html>

Map of Mekong Whole



Map from <http://www.kinshipofrivers.org/the-two-rivers/maps>

Map of research Area



TIBET WATER DIVERSION SKETCH-MAP

This map shows the Western Route of the South-to-North Water Diversion Plan. The aim of the Western Route is to divert water from the Dri Chu (Yangtze) via the Nga Chu (Yalong) to the Ma Chu (Yellow River). Another branch would divert water from the Dadu River to the Yellow River. The data for this map is as yet unconfirmed and is thus subject to revision.

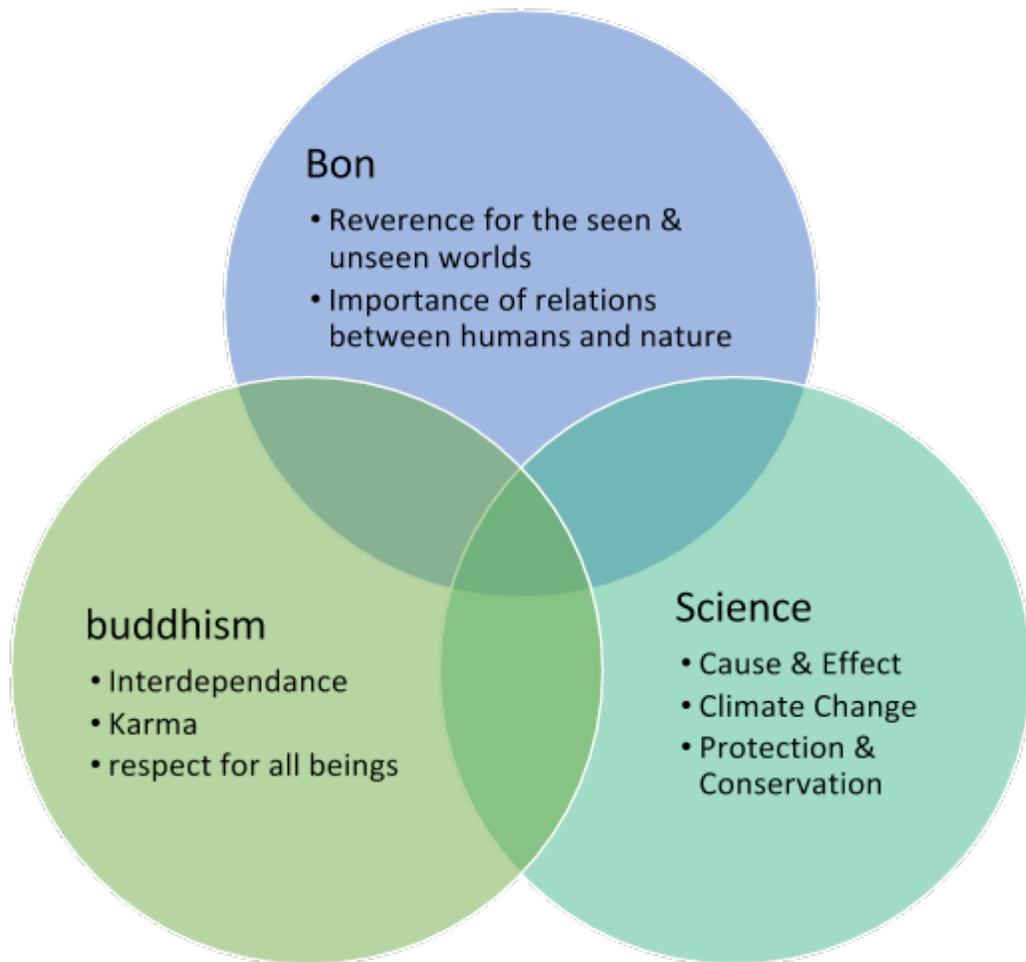
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Appendix F. Rivers of Tibet

Tibetan Name	Chinese Name	Other Names	Countries Passed through	length
<i>DzaChu</i>	<i>Lancang Jiang</i>	<i>Mekaung Myit</i> (Burma), <i>Menam Khong</i> (Thailand), <i>Tonle Thom</i> (Cambodia), and <i>Song Me Kong</i> (Vietnam). There are more name variations for upper, middle or lower reaches within China. In Vietnam, at the tail-end of the river, the sprawling Mekong Delta is called <i>Song Cuu Long</i> (Nine Dragons River).	Tibet, China, Laos, Burma, Thailand, Cambodia and Vietnam.	4,350 km
<i>Gyalmo Ngulchu</i>	<i>Nu Jiang</i>	<i>Thanlwin</i> (Burmese); <i>Salawin</i> (Thai)	Tibet, south-west China and Burma (shared with the Thai border), before finally emptying into the Andaman Sea	2,800 km

Yarlung Tsangpo	<i>Yarlung Zangbo Jiang</i>	<i>Brahmaputra</i> (Indian—but referring to the river within India); and <i>Jamuna</i> (Bangladesh)	Tibet, India, Bangladesh	2,900 km
<i>dri chu</i>	<i>chang jiang</i>	<i>jinsha jiang</i> (Chinese for the upper Yangtse),	Tibet, China	6,300 km
<i>Ma Chu</i>	<i>Huang He</i>	River of Sorrows.	Tibet, China	5,464 km
<i>Rongshar Tsangpo</i> or <i>Shishapangma Chu</i> / <i>Bhumchu</i> / <i>Mabchu</i>		Nepali, Bhoite Kosi/ Arun / Karnali River	Tibet, Nepal, India	
Senggye Tsangpo	Shiquan He	Sutlej River (Langchan Khambab)/ Indus	Tibet, Ladakh (Jammu/Kashmir) to Indus in Pakistan	3,180 km
<i>Nyagchu</i>	<i>Yalong Jiang</i>	Yalong/dadu/min	Tibet to China to Yangtse	1300 km

Appendix G. Venn Diagram of where Science, Buddhism, and Animism meet



Appendix H. Brief Timeline of Tibetan History



Appendix I. Table of Organizations working in the field of Ecology in China

Organizations collected from: <http://chinawaterrisk.org/resources/useful-links/ngos-china/#sthash.oF0yzq6k.dpuf> & China Development Brief

<http://www.chinadevelopmentbrief.org.cn/upload/userfiles/files/Special%20Report%20final.pdf> & Wikipedia http://en.wikipedia.org/wiki/List_of_non-governmental_organizations_in_China

Organization	Region/ Founder	Description	Website (if available)
<u>Friends of Nature (FON)</u>	Liang Congjie, a descendant of Liang Qichao (a prominent reformer of the late Qing Dynasty) and a member of the Chinese People's Political Consultative Conference (CPPCC), is the President of this organization.	The first environmental NGO in China was formally registered on March 31, 1994. This was the Academy for Green Culture, affiliated to the non-governmental Academy for Chinese Culture. It is mainly focused on biodiversity preservation.	www.fon.org.cn
<u>Global Village of Beijing and Green Home</u>	Beijing, China 1996	Together with Friends of Nature, they have become China's three main pioneering environmental NGOs. According to news released by the Sino-US environmental NGOs forum in November of 2001, there were by then over 2,000 environmental NGOs in China and millions of participants.	

Beijing Brooks Education Center	Beijing, China	NGO that is engaged in Environmental Protection Education and Citizenship Awareness Education.	www.brooks.ngo.cn
China Association for NGO Cooperation	Beijing, China	CANGO's mission is to create an empowered network of Chinese NGOs. They act as an intermediary and partner with foreign NGOs and bilateral and multilateral organizations to enhance fundraising, provision of technical support and capacity building.	www.cango.org
China Environmental Protection Foundation	Founded by China's former State Environmental Protection Administrator, Qu Geping, in 1993.	China's first non-governmental foundation for environmental protection.	http://www.cepf.org.cn/
China Foundation for Desertification Control	Beijing, China	Helps combat desertification in China.	www.cn5195.com
Conservation International	Beijing, China	Mission is to conserve the earth's biodiversity.	www.conservation.org
Desert Control Volunteers Network	Beijing, China	A Chinese NGO aims to fighting against desertification.	www.desert.org.cn

Environmental Defense China Program	Beijing, China	One of the major US NGOs working on air pollution in China, ED is known for its work on sulfur cap and trade programs. They are also working with the US EPA on environmental enforcement training in China.	www.cet.net.cn
Ford Foundation,	Beijing Office (US based)	The Beijing office opened in 1989 and gives grants in various fields including economics, law, environment and development and reproductive health.	www.fordfound.org
Forest Trends	Beijing, China	Forest Trends is an international non-profit organization that works to expand the value of forests to society; to promote sustainable forest management and conservation by creating and capturing market values for ecosystem services; to support innovative projects and companies that are developing these new markets; and to enhance the livelihoods of local communities living in and around those forests.	www.forest-trends.org
Fuping Development Institute	Beijing, China	Chinese NGO registered in 2002 aims to diminish poverty and maintain sustainable development in China. Connected to an organization called LEAD, funded by the Rockefeller Foundation that furthers environmental leadership. Cooperative Programs with World Resources Institute.	www.fdi.ngo.cn

Global Environmental Institute	Beijing, China	Established in 2004, GEI's mission is to design and implement market-based models for solving environmental problems.	www.geichina.org
Global Green-grants Fund China	Headquartered in Colorado, U.S.A	international non-profit organization provides small financial aids to small NGOs at their starting points.	www.greengrants.org.cn
Green Earth Volunteers	This group of volunteers started in 1996 with tree planting projects	but now also raises awareness and funds for the conservation of animals and environmental education. All projects are funded by the participants.	green_earth@yeah.net
Green Peace	China chapter	Major projects in China: Climate and Energy; Toxics; Forest	www.cn.greenpeace.org
Green River	registered at Sichuan Province	NGO aims to protect the headwater areas of Yangtze River and Yellow River	http://green-river.org
Green Web	Online	An online community for exchanging information on environment protection and enhancing liaison between various local NGOs and NPOs that focus on environmental protection.	www.green-web.org
Institute of Public & Environment Affairs	Beijing, China	This NGO focuses on water pollution issues in China.	www.ipe.org.cn

International Fund for Animal Welfare	Beijing, China	The International Fund for Animal Welfare (IFAW) is an international NGO focused on humane treatment of animals and animal protection.	www.ifaw.org
International Fund for China's Environment	Beijing, China	The mission of the International Fund for China's Environment (IFCE) is to help ensure the protection of the world's environment and its biological diversity by providing assistance to China in resolving its environmental problems.	www.ifce.org
International Institute of Rural Reconstruction	Yunnan province	Promotes people-centered, participatory, community-based approaches to rural	www.iirr.org
IUCN Asia Regional Office	Beijing, China	IUCN is the world's preeminent biodiversity conservation organization. It has three categories of membership – governments, scientists and NGOs. The United States is one of 110 country members, and almost every environmental NGO is, as well. Scientists meet in “species groups” to consider the health of various species, and IUCN's recommendations are central to the determining of endangered species lists.	www.iucn.org

The Nature Conservancy	Beijing Office, Kunming Office	The focus is on preserving biodiversity and areas of great ecological importance throughout China.	www.tnc.org.cn
Oxfam	Hong Kong	Works on long-term programs to eradicate poverty and promote justice. Focus is on development, emergency response, policy research and advocacy.	Chinainfo.oxfam.org.hk
Pacific Environment	Beijing, China	Provides small grants, capacity-building support and networking opportunities for dozens of grassroots groups in China.	www.pacificenvironment.org
Society Entrepreneur & Ecology	Beijing, China	A corporate social responsibility-focused NGO	www.see.org.cn
Tibetan Plateau Ecological Protection Society	Beijing, China	NGO focused on environmental and wildlife protection on the Tibetan Plateau.	www.qtpep.com
Upper Yangtze Organization	Beijing, China	NGO formulated by Tibetan people to promote environmental protection in Tibetan Plateau.	www.snowland-great-rivers.org
Wildlife Conservation Society	Beijing	An NGO focused on biodiversity conservation.	www.chinabiodiversity.com

World Wildlife Fund	Beijing, China, 1980	The first international conservation organization invited to work in China. Since 1980 WWF has been working on various projects - from restoring the Yangtze wetlands to environmental education and panda conservation.	www.wwfchina.org
<u>Green Hanjiang</u> (Xiangfan Environmental Protection Association)	based in Hubei Province	China environmental NGO	
<u>The Green Volunteer Union of Chongqing</u>	Sichuan province	An environmental NGO dedicated to environmental protection and sustainable development in the upper reaches of the Yangtze River in central China	
<u>Huaihe River Guardian</u>	Beijing, China	China environmental NGO	
<u>Green Anhui</u>	Beijing, China	China environmental NGO based in Anhui Province	
<u>Green Watershed</u>	southwestern Yunnan Province	advocating for sustainable watershed management programs	
<u>Green Camel Bell</u>	Gansu Province	China environmental NGO	
<u>China Dialogue</u>	ONLINE	Bilingual source of news, analysis and discussion on all environmental issues with a special focus on China	

<p><u>Institute for Public & Environmental Affairs (IPE)</u></p>	<p>Beijing, China</p>	<p>The aim of IPE is to expand environmental information disclosure to allow communities to fully understand the hazards and risks in the surrounding environment, thus promoting widespread public participation in environmental governance</p>	
<p><u>Center for Legal Assistance to Pollution Victims (CLAPV)</u></p>	<p>Beijing, China</p>	<p>Chinese NGO with the aim to improve the practice of environmental and natural resource law by providing legal assistance and protecting the environmental rights and interests of pollution victims</p>	
<p><u>Animals Asia Foundation</u></p>	<p>headquarters is in Hong Kong founded in 1998 by <u>Jill Robinson</u></p>	<p>plight of the <u>Asiatic Black Bear</u></p>	
<p><u>Badi Foundation</u></p>	<p><u>Macau SAR</u> in 1990</p>	<p>Junior Youth Empowerment Program, Environmental Action Program, Institutional Capacity Building Program and the School of the Nations.</p>	
<p>Bill & Melinda Gates Foundation (BMGF)</p>	<p>one of the largest private foundations in the world, founded by <u>Bill and Melinda Gates</u>. It was launched in 2000</p>	<p>Global Development Program active in China</p>	<p>http://www.gatesfoundation.org/</p>

<p>Blue moon fund</p>	<p>run by Patricia Jones Edgerton (daughter of W. Alton Jones) and her daughter Diane Edgerton Miller,</p>	<p>blue moon fund works to build human and natural resilience to a changing and warming world. We use natural, social, and financial capital to implement new models in high-biodiversity regions around the world.to build human and natural resilience to a changing and warming world. We use natural, social, and financial capital to implement new models in high-biodiversity regions around the world.</p>	<p>http://www.bluemoonfund.org/</p>
<p>Bremen Overseas Research and Development Association</p>	<p>In Asia since 1979</p>	<p>Decentralized Water Supply, Decentralized Wastewater Treatment (with DEWATS), Community-Based Sanitation (CBS) Decentralized Solid Waste Management , Decentralized Energy Supply Knowledge and Quality Management BORDA-SA and its partners have been contracted by international development organizations, including GIZ (Germany, in particular with the formerly GTZ and InWent), AusAid (Australia), and CEU, as well as national and local governments.</p>	<p>www.borda-net.org</p>
<p>Caritas Hong Kong</p>	<p><u>Caritas</u> founded by the Catholic Diocese of Hong Kong in July 1953</p>	<p>Computer recycling project</p>	<p>http://www.ccw.org.hk/english/</p>
<p>Conservation International (CI)</p>	<p>1987 <u>nonprofit environmental organization</u> headquartered in <u>Arlington, Virginia</u>.</p>	<p>The organization's mission is to protect <u>nature</u>, and its <u>biodiversity</u>, for the benefit of humanity. Focus on biodiversity hotspots.</p>	<p>www.conservation.org</p>

Partnerships for Community Development	Hong Kong, 2001	Conservation & sustainable living	http://www.pcd.org.hk/
<u>Ecolinx Foundation</u>	Cali , USA	Sustainable future for china	http://www.ecolinx.org/
Environmental Defense Fund or EDF	United States–based <u>nonprofit environmental advocacy groups</u> since 1967	Environmental economics, air quality, health.	www.Edf.org
Environmental Investigation Agency (EIA)	<u>NGO</u> founded in 1984 by <u>Dave Currey</u> , Jennifer Lonsdale and Allan Thornton, three environmental activists in the <u>United Kingdom</u>	goal is to investigate and expose <u>crimes</u> against <u>wildlife</u> and <u>the environment</u> .	www.eia.org
Forest Stewardship Council (FSC)	promote responsible management of the world's <u>forests</u> . Its main tools for achieving this are <u>standard setting</u> , certification and labeling of forest products.	International not for-profit, multi-stakeholder organization established in 1993	WWW.FSC.ORG
<u>Global Environmental Institute</u>	GEI est in USA in 2003 Beijing Chaoyang District Sustainable Global Environmental Institute in China (GEI-China)	design and implement market-based models for solving environmental problems in order to achieve development that is economically, ecologically, and socially sustainable.	www.geichina.org

Green Society Environmental Action Network	GSEAN, founded by a group of Chinese youth in December 2004	independent website for environmental activists to exchange experiences, share information and learn knowledge. We share and spread ideas and information to influence more people, to help develop the environmental organizations	http://orgs.tigweb.org/green-society-environmental-action-network
<u>Green Camel Bell</u>	established on November 4, 2004 as the first civic environmental organization in the Gansu region in China.	devoted to <u>environmental protection in western China</u> , and it contributes to the improvement of the compromised and declining <u>ecosystems of western China</u> . GCB plays an active role in Gansu's <u>environmental protection, environmental education</u> , and the growth of local environmental organizations. In keeping with its <u>constitution, purpose, and objectives</u> , GCB has focused on the following work since its establishment:	http://www.greencambell.ngo.cn/
<u>Heifer Project International</u>	1994 USA <u>Dan West</u>	<u>nonprofit</u> working to eradicate poverty and hunger through sustainable, values-based holistic community development distributes livestock and does trainings	www.heifer.org
Friends of the Earth (HK) Charity Limited (FoE (HK))	<u>Hong Kong based environmental organization</u> founded in 1983. Commonly known as Friends of the Earth (HK) or FoE (HK), it has a membership of more than 12,000 individuals.	The organisation is active in environmental campaigns and environmental education. It is not a member group of <u>Friends of the Earth International</u> , owing to disagreements over the latter's policy against commercial sponsorship.	www.foe.org.hk

<p><u>Heinrich Böll</u> <u>Foundation</u></p>	<p>German org 1980</p>	<p>The foundation's main tenets are <u>ecology and sustainability</u>, <u>democracy</u> and <u>human rights</u>, and <u>self-determination</u> and <u>justice</u>. Particular emphasis is placed on gender democracy, meaning social emancipation and <u>equal rights</u> for women and men.</p>	<p>www.us.boell.org</p>
<p>American Himalayan Foundation (AHF)</p>	<p>San fran USA founded by <u>Richard C. Blum</u>. The late <u>Sir Edmund Hillary</u> was a Director of the foundation for more than 20 years.</p>	<p>helps <u>Tibetans</u>, <u>Sherpas</u>, and <u>Nepalis</u> living throughout the <u>Himalayas</u>. AHF builds schools, plants trees, trains doctors, funds hospitals, takes care of children and the elderly, and restores sacred sites</p>	<p>http://www.himalayan-foundation.org/</p>
<p><u>Institute for Sustainable Communities</u></p>	<p>1991 by <u>Madeleine Kunin</u> USA VT</p>	<p>ISC provides environmental training, technical assistance and financial support to communities, nonprofits/nongovernmental organizations, businesses and local governments.</p>	<p>http://www.iscvt.org/</p>
<p>International Crane Foundation (ICF)</p>	<p>Founded in 1973,^[3] ICF moved to its current 225-acre (91 ha) headquarters in <u>Baraboo, Wisconsin</u></p>	<p>research, education, habitat protection, captive breeding, and reintroduction.</p>	<p>www.saveingcranes.org</p>

Panthera	2006, USA, UK	Panthera currently focuses its range-wide conservation strategies on the world's largest, most imperiled cats - tigers, lions, jaguars, and snow leopards, and has conservation projects on Iranian cheetahs, cougars, and leopards. Panthera supports research and conservation activities on a multitude of cat species, and cultivates the next generation of wild cat experts, through our various grant programs. We have formed numerous partnerships to amplify conservation efforts in regards to genetic research , education and even human health.	http://www.panthera.org/
<u>International Development Enterprises</u>	founded in 1982 by <u>Paul Polak</u> USA, CO	devoted to the manufacture, marketing, and distribution of affordable, scalable <u>micro-irrigation</u> and low-cost water recovery systems throughout the <u>developing world</u> . iDE facilitates local manufacture and distribution of these products through <u>local supply chains</u> that sell to farmers at an affordable price which they can repay in one growing season	www.ideaorg.org
<u>International Fund for Animal Welfare</u>	1969, <u>New Brunswick, Canada</u>	one of the largest <u>animal welfare and conservation charities</u> in the world. The group's declared mission is to "rescue and protect animals around the world."	www.ifaw.org

<p><u>International Rivers Network in China</u></p>	<p>1985 berkley CA</p>	<p>We work with an international network of dam-affected people, grass-roots organizations, environmentalists, human rights advocates and others who are committed to stopping destructive river projects and promoting better options.</p>	<p>http://www.internationalrivers.org/programs/china</p>
<p><u>Kadoorie Charitable Foundations</u></p>	<p>HK</p>	<p>promote <u>biodiversity conservation</u> in Hong Kong and south China, and greater environmental awareness. It is located near <u>Pak Ngau Shek</u>, encompassing <u>Kwun Yum Shan</u> in the central New Territories</p>	<p>http://www.kfbg.org/</p>
<p>Jane goodall insitiute</p>	<p>beijing</p>	<p>Roots and shoots providing a platform for young people, in schools of all levels and universities, to organize extra-curricular environmental, humanitarian and animal protection activities in their local communities. With over 600 R&S groups in primary, secondary schools and universities across China, we are building awareness and changing the behaviors of tens of thousands of young people.</p>	<p>http://www.jgichina.org/</p>
<p>Wildlife Conservation Society (WCS)</p>	<p>Beijing, China. 1895 USA</p>	<p>WCS China Education Program</p>	<p>Wcs.org</p>

<p>Lanzhou University Center for Western Environmental and Social Development</p>	<p>2007, Lanzhou china</p>	<p>Lanzhou University Center for Western Environmental and Social Development (Lucwesd) was registered at Lanzhou University, and its sister organization Gansu Center for Western Environmental and Social Development (Gawesd) was registered at Gansu Civil Affairs Administration, China. Both organizations are non-governmental organizations that focused on integrated rural community-based development, climate change addressing and relative field research and action. Since foundation of both organizations, they have successfully implemented over 50 diversified development programs including CBDRM (community-based disaster risk management), livelihood improvement, environmental rehabilitation, women's health and environmental education, de-desertification and climate change addressing.</p>	<p>http://www.gefngo.org/</p>
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<p><u>LEAD China</u></p>	<p>Beijing, China</p>	<p>It LEAD this nearly 20-year history of the International Sustainability Leadership Training based network integration rooted in China's social innovation practices to help to do practical things, to tell the truth of Chinese social innovation leaders clarify knowledge and action for sustainable development line, a deeper understanding of our age and the domestic and international environment, meet former monk Chinese social innovation and sustainable development fields, networking.</p>	<p>http://www.lead.org.cn/</p>
<p><u>LSM Rural Reconstruction Center</u></p>	<p>With OXFAM, UK beijing</p>	<p>ssue of climate change and food security, the Oxfam and YPARD (include CAAS) can search for further cooperation</p>	<p>http://www.ypard.net/</p>
<p>National resource defense council</p>	<p>1970 usa beijing</p>	<p><i>Natural Resources Defense Council (NRDC) and the China Environmental Culture Promotion Association (CECPA). It is China's first web resource devoted to strengthening environmental protection in China through law, policy and the power of the public</i></p>	<p>www.greenlaw.org.cn</p>

<p>oisca-international</p>	<p>japan</p>	<p>OISCA International contributes to Humanity's environmentally sustainable development through a holistic approach emphasizing the interconnectedness of agriculture, ecological integrity, and human spirit. To accomplish this, OISCA International implements and advocates hands-on experiential programs for world citizens of all ages, transmitting knowledge and skills, and cultivating spiritual qualities as dedication, self-reliance, and universal brother-sisterhood</p>	<p>http://www.oisca-international.org/</p>
<p>Rockefeller Brothers Fund (RBF),</p>	<p>New York City in 1940</p>	<p>promote social change that contributes to a more just, sustainable, and peaceful world; through its grantmaking</p>	<p>http://www.rbf.org/</p>
<p>Save chinastigers</p>	<p>Italy 2000</p>	<p>raise awareness of the plight of the Chinese tiger and to strive for its protection and preservation through public education, introduction and experimentation with advanced conservation models in China and abroad, and raising funds to support these initiatives.</p>	<p>http://english.savechinastigers.org/</p>
<p>Sea Turtles 911</p>	<p>Hainan island, China.</p>	<p>non-profit organization dedicated to the conservation of sea turtles.</p>	<p>www.seaturtles911.org</p>

Television Trust for the Environment (tve)	1984 by <u>Central Television</u> , <u>UNEP</u> and <u>WWF</u>	to raise awareness of, and stimulate debate about, environment, development, health and human rights issues worldwide through the production, coproduction and distribution of television programmes and other electronic media, and through webcasting	http://en.wikipedia.org/wiki/Television_Trust_for_the_Environment
China Foundation Center	1996? beijing	bring transparency to philanthropic markets through access to the highest quality data, news, and analytics, thereby enhancing the social impact of philanthropy.	http://en.foundationcenter.org.cn/
David and Lucile Packard Foundation	1964 CA USA Packards	The foundation's goals, through the use of grants, are to "improve the lives of children, enable creative pursuit of science, advance reproductive health, and conserve and restore earth's natural systems	www.packard.org
Energy Foundation China	Beijing in 1999	grantmaking charity organization dedicated to China's sustainable energy development. It is registered under the Ministry of Civil Affairs as Energy Foundation Beijing Representative office and supervised by the National Development and Reform Commission of China. It is a part of the Energy Foundation, which is based in San Francisco, California, U.S.A	http://www.efchina.org/

<p>Ford foundation</p>	<p>1936, NY USA Fords</p>	<p>Our work seeks systemwide improvements for disadvantaged groups. We focus on helping poor communities, women, migrants, minorities and other groups to:</p> <ul style="list-style-type: none"> Utilize the developing justice system Retain access to sustainable natural resources Make informed choices about their families and careers Complete their school and college studies Engage with government agencies Access the services they need through civil society organizations 	<p>http://www.fordfoundation.org/</p>
<p>John D. and Catherine T. MacArthur Foundation</p>	<p>1975, Chicago, USA MacArthurs</p>	<p>In addition to selecting the MacArthur Fellows, also known as "genius grants", topics of interest to the foundation include international peace and security, conservation and sustainable development, population and reproductive health, human rights, international migration, community development, affordable housing, digital media and learning, juvenile justice, and public interest media, including public radio and independent documentary film.</p>	<p>www.macfund.org</p>
<p>The Mountain Institute (TMI)</p>	<p>1972, DC Bishops</p>	<p>International non-profit organization dedicated to protecting the world's mountains by conserving mountain ecosystems and empowering the people in mountain communities.</p>	<p>www.mountaininstitute.org</p>

The Nature Conservancy	1951, VA	conserve the lands and waters on which all life depends	www.nature.org
International Union for Conservation of Nature (IUCN)	Switzerland & france 1946	Supports scientific research, manages field projects globally and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy. IUCN is the world's oldest and largest global environmental network—a democratic membership union with more than 1,000 government and NGO member organizations, and almost 11,000 volunteer scientists in more than 160 countries	http://www.iucn.org/
Tibet foundation	1985 UK	practical support to Tibetan communities in education, health care, social welfare and economic development, and helps Tibetan and Mongolian people to sustain their unique culture and spiritual traditions. Tibet Foundation Aims: To promote the culture, religion and way of life of people of Tibetan origin, To relieve poverty amongst Tibetan peoples, To raise the standards of education and healthcare in Tibetan communities and To support the continuity of Tibetan Buddhism and culture, and to create a greater awareness of His Holiness the 14th Dalai Lama's message for peace.	http://www.tibet-foundation.org/

Tibet poverty alleviation fund	1998 by Arthur Holcombe- yunan	Provide microcredit, health education, employable skills training and other assistance to enable Tibetans in China to improve their incomes and general well-being.	http://www.tpaf.org/
Trace foundation	1993 USA Andrea Soros	Through our work in Community Development, Scholarships, Contemporary Culture & Heritage Preservation, and Research & Documentation we're making a difference for the future of Tibetan communities.	http://www.trace.org/
Buddhist Compassion Relief Tzu Chi Foundation (simplified Chinese: 慈济基金会; traditional Chinese: 慈濟基金會; pinyin: Cíjì Jījīnhuì; Pèh-ōe-jī: Chû-chè ki-kim-hōe	1966 Chen Yen, Taiwan	Compassionate Relief", is an international humanitarian organization and a non-governmental organization (NGO) with an international network of volunteers that has been awarded a special consultative status at the <u>United Nations Economic and Social Council</u> .	www.tzuchi.org.tw

<p>Wetlands International</p>	<p>1954 Netherlands</p>	<p>Sustain and restore wetlands and their resources for people and biodiversity. It is an independent, not-for-profit, global organisation, supported by government and NGO membership from around the world</p>	<p>http://www.wetlands.org/</p>
<p>WildAid</p>	<p>2011? Sanfran USA</p>	<p>mission is to end the illegal wildlife trade in our lifetimes</p>	<p>http://www.wildaid.org/</p>
<p>Innovation Center for Energy and Transportation (iCET)</p>	<p>Beijing and California</p>	<p>strengthen international collaboration and provide decision makers at all levels with the urgently needed innovative solutions to solve the energy, environment, and climate crises that the world faces today.</p>	<p>www.icet.org</p>
<p>Wildlife Conservation Society (WCS)</p>	<p>1895 as the New York Zoological Society (NYZS)</p>	<p>works to conserve more than two million square miles of wild places around the world. Based at the Bronx Zoo, the organization maintains approximately 500 field conservation projects in 65 countries, with 200 PhD scientists on staff.</p>	<p>http://www.wcs.org/</p>
<p>World Vision Inc</p>	<p>Pierce in 1950 USA</p>	<p>Evangelical Christian humanitarian aid, development, and advocacy organisation.</p>	<p>Worldvision.org</p>

World wildlife fund for nature	1961, Switzerland Prince Bernhard	To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature. much of its work focuses on the conservation of three biomes that contain most of the world's biodiversity: oceans and coasts, forests, and freshwater ecosystems. Among other issues, it is also concerned with endangered species, pollution and climate change.	www.wwf.org
Department for International Development (DFID)	1997 UK	To promote sustainable development and eliminate world poverty	www.dfid.gov.uk
United States Agency for International Development (USAID)	1961, USA DC	to partner to end <u>extreme poverty</u> and to promote resilient, <u>democratic</u> societies while advancing the security and prosperity of the United States	www.usaid.gov
Yunnan Econetwork	2008 yunan	Yunnan EcoNetwork (YEN) accomplishes YEN 'S mission by conducting activities of innovative environmental education, sustainable development concept promotion to assist the alleviation of poverty as well as protection of ecological & cultural resources in Yunnan.	http://www.yen.ngo.cn/

Appendix J. Table of Organizations working in Qinghai

Organization	Region/ Founder	Description	Website (if available)
The Kilung foundation	Based in Wa. USA works in Shesul region on DzaChu.	The Kinlung Foundation brings humanitarian aid to DzaChuka in wast Tibet while answering the call for Buddhist Teachings in the west.	http://www.kilung.org/
The Pureland Project	Based in philadelphia, PA. Work in Kham, Nangchen. Meg Ferrigno (Pema Lhamo) 2005	works to empower grassroots movements for environmental sustainability and community wellness through experiential education. The project serves to give voice and support to underserved communities using the principals of compassion and non-violence.	www.thepurelandproject.org
Tibetan Village Project	Co,USA	non-profit, non-political organization dedicated to promoting sustainable development while preserving the cultural heritage of Tibet.	http://tibetanvillageproject.org/
The surmang foundation	Co, USA & Beijing, China	Surmang clinic, maternal health, midwifery project.	http://www.surmang.org/?page_id=127

The Bridge Fund (TBF)	With The Philanthropic Collaborative / Rockefeller Philanthropy Advisors was established as a not-for-profit organization in 1996	The Bridge Fund promotes cultural and environmental conservation, humanitarian initiatives, and sustainable business development in Tibetan communities located in China and Tibet, and Tibetan and other communities located in neighboring countries	http://bridgefund.org/
rokpa	The Tibetan doctor and meditation master, <u>Dr Akong Tulku Rinpoche</u> , the Swiss actress <u>Lea Wyler</u> , and her father, the eminent lawyer <u>Dr Veit Wyler</u> , founded ROKPA in 1980. Zurich.	ROKPA is one of the most active organisations in the world aiding more than 6 million Tibetans in the Tibetan areas of China.	http://www.rokpa.org/
Tibet aid	Woodstock NY	Works with pureland in Tibet on rural schools for nomadic youth in nangchen.	http://www.tibetaid.org/
Love Qinghai Tibet Rescue Aid	China	Our mission is to execute justice for the oppressed, feed the hungry, clothe the naked, set free the prisoners, lift up the bowed down, and uphold the fatherless and the widow.	http://www.loveqtra.org/

<p>Machik (with mothers wish foundation)</p>	<p>2002, Kham-Chungba. Dr Lobsang rabgye & Dr Tashi Rabgye</p>	<p>Our work is currently organized around six program areas: The Chungba Project, Summer Enrichment Programs, Women's Initiative, Youth Leadership, Social Entrepreneurship, and Governance.</p>	<p>http://www.machik.org/</p>
<p>ASIA foundation</p>	<p>Founded in 1954, Central Intelligence Agency,[2][3] the U.S. Agency for International Development, the World Bank, the Asian Development Bank, the United Nations Development Program, official development assistance agencies of Australia, Canada, Netherlands and the United Kingdom, an annual appropriation from the U.S. Congress, and contributions from private corporations and foundations.</p>	<p>"development of a peaceful, prosperous, just, and open Asia-Pacific region." The Foundation supports Asian initiatives to improve governance, law, and civil society; women's empowerment; economic reform and development; sustainable development and the environment; and international relations</p>	<p>http://www.asiafoundation.org/</p>

Kunde	1999,UK	KunDe means health and well-being for all. Our aim is to help people reach these goals. As they depend on good nutrition, safe water, effective sanitation, sufficient income, quality education and health services, our activities include many of these.	http://www.kundefoundation.org/
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shanshui	Beijing 2007	<p>China's local conservation organizations of civil organization dedicated to conservation practice rooted in Chinese society and culture, and promote China to ecological and fair inflection point. Landscape science-based, to carry out field work in the western Chinese region of surviving intact, naturally create value by protecting and bring well-being of local rural communities, and to cooperate with the government, demonstration of ecological, economic, and new models of community balance; through from the field promotion, product, participation, protection of the natural link China with mainstream society, access to social support, and effective conservation action to attract more Chinese investment in the community and long-term support for nature conservation.</p>	<p>http://www.shanshui.org/ http://www.hinature.cn/</p>
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<p>Pentpok insititue</p>	<p>2009 hainan</p>	<p>grassroots development non-profit organization working to provide quality education for Tibetan girls in China.</p>	<p>http://www.pentok.org/</p>
<p>Plateau Perspectives</p>	<p>2005? Scotland</p>	<p>Plateau Perspectives is a non-profit organization that aims to promote conservation and sustainable development in the Tibetan Plateau region of China. We work closely with local government, local communities and other organizations as well as national and international academic institutions:</p> <ul style="list-style-type: none"> To protect the headwaters of the major rivers originating on the Tibetan plateau including the Yangtze, Yellow and Mekong Rivers To conserve the unique biological diversity of the grasslands and mountains To promote more sustainable livelihoods in the fragile alpine environment To enhance quality and access to social services for local communities 	<p>http://www.plateauperspectives.org/</p>

Save the children	United Kingdom in 1919	improve the lives of children through better education, health care, and economic opportunities, as well as providing emergency aid in natural disasters, war, and other conflicts.	http://blogs.savethechildren.org.uk/
Terma Foundation	1993, CA, USA	implements public health programs including nutrition, education, primary and preventive health care, acknowledging traditional belief systems, and integrating low-tech, low-cost western technology where appropriate in Tibet	www.terma.org
Seva foundation	1978 berkley CA USA	known for treating blindness	www.seva.org
Volunteers in Asia	1980 USA	combine English teaching with work at grassroots NGOs focused on community development, health, and education. Posts are available in seven provinces, from urban areas in eastern and southern China to rural locations in central and western China. VIA has several posts in Yunnan and Qinghai provinces that are not listed	http://viaprograms.org/

		below. Please contact the VIA office for more details.	
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<p>Winrock</p>	<p>1985, rockefellers, USA, Ark</p>	<p>Winrock International is a nonprofit organization that works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources. Solutions for Tibetans to protect their natural resource base and prosper economically become even more important. TSERING activities build on successes while directly responding to the needs of Tibetan communities. The TSERING project operates in China in the four provinces of Gansu, Qinghai, Sichuan and Yunnan, as well as the Tibet Autonomous Region.</p>	<p>http://www.winrock.org/</p>
<p>World Bank</p>	<p>July 1944, DC USA</p>	<p>a United Nations international financial institution that provides loans[3] to developing countries for capital programs. The World Bank is a component of the World Bank Group, and a member of the United Nations Development Group.</p>	<p>www.worldbank.org</p>

<p>Children in Crisis</p>	<p>1993 UK</p>	<p>Where resources are few, where education is needed to heal the nation, and where it is too remote for others, our aim is to support children to read, write, think, pursue their life goals and contribute positively to their communities. (no longer works with jinpa)</p>	<p>http://www.childrenincrisis.org/</p>
<p>Jinpa Foundation</p>	<p>2001? Yushu Tashi Tsering</p>	<p>Jinpa is a small charity working in the remote area, West Nangchen, Qinghai Province of what was once Eastern Tibet. The area is just over the border from Riwoche in the Tibetan Autonomous Region. Jinpa was founded by a monk Tashi Tsering (co-ordinator) and friends to help to relieve some of the suffering in this area. It is just a drop in the bucket of a very big problem. The poverty, misery and suffering of Tibetan Nomadic people of West Nangchen is completely overwhelming.</p>	<p>http://www.jinpa.org/</p>

Snowland servie group	2001 tsering	SSG empowers Tibetan communities through sustainable community development projects in education, renewable energy, and basic infrastructure in Yushu Prefecture. Our grant supports scholarships to middle- and high-school students in Yushu, where more than 60 percent of students are unable to complete their studies, with the aim of increasing students' academic opportunities and future employment options.	www.globalfundforchildren.org
Rabsal	Reg in USA 2010	Rabsal uses multimedia technology to creatively capture aspects of Tibetan culture and to invigorate interest among young Tibetan people in their representations and regeneration of their culture.	http://rabsal.org/
Pundarika Foundation	Germany, Austria, and Switzerland	Tsoknyi Rinpoches nuns endowment fund	http://www.tsoknyirinpoche.org/

<p>Eurasia Foundation</p>	<p>China in 2007</p>	<p>The first NGO resource center in Qinghai, which has provided more than 150 local groups with training on project design, proposal writing and management. As a result of EF's support, approximately 40 percent of the proposals submitted by these local organizations have received funding from donors in Hong Kong, Germany and Japan. The Center has also been instrumental in registering seven new NGOs.</p>	<p>http://www.eurasia.org/countries/china</p>
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Appendix K. Focus Group Questions & Consent

Consent

As the majority of the interviewees do not use written language the consent is read aloud in Tibetan khamkay, and the interviewee can offer a fingerprint as is often done when agreements are made.

I am trying to collect stories on the nomadic connection with the earth. My research project has been reviewed and approved by the Prescott College Institutional Review Board (IRB). You may contact the PC IRB chair, Dr. Noël Cox Caniglia, at 928-350-3201 with any questions regarding your rights as a research participant.

By giving a fingerprint or signature on this paper, you (or your child- 18 years or younger) agree to participate in the focus group, interview, or by making video recordings.

Although I would like to ask some general information regarding your name, where you come from, your age, and your history, this information will not be associated with you.

If you would like a copy of this paper I can give it to you. You can stop answering questions at anytime and we will remove your information from the book and video we hope to make.

If you have any concerns about the process you can speak to me (Pema Lhamo) or Jamyang.

Thank you for your participation!

Meg Ferrigno (pema lhamo)

Prescott College Doctoral Student

Fingerprint of partici-

pant _____

Focus Group Questions

Beginning questions:

What is your name?

Where are you from?

How old are you?

What work do you do?

Focus group questions:

1. Tell me about this region and why it is special.

2. What are your most precious resources?

3. Where is your water source?

4. Has your water source been changing?

- if yes, how has it changed?

-if yes, since when have you noticed changes?

- if yes , how does that impact you?

-if yes, where do these changes come from?

5. Have you noticed any changes in the grasses?

-if yes, how has it changed?

-if yes, since when have you noticed changes?

- if yes , how does that impact you?

-if yes, where do these changes come from?

6. What is your relationship with the water?

7. Tell me about the Lu and Sa dak (the water and mountain protectors).

8. What pleases the lu?

9. What displeases the lu?

10. What changes have you been seeing in the last 10 years?

11. What change do you expect to see in the next 10 years?

12. What are the most important things you would like people from around the world to know about Tibet.

13. Is there's anything else you would like to share with me?

14. Can you please draw a map of your water source together?

THANK YOU FOR YOUR TIME!

Translated questions

ལའོད་ཀྱི་མཁའ་ལ་ཅི་ཟེེན།

ལའོད་གང་ནས་ཡིན།

ལའོད་གཞོན་ཡིན།

ལའོད་ཀྱི་ལས་ཁ་ཅི་ཞེས་ཡིན།

༡ ས་ཆ་འདྲིའུ་ལའོད་རྒྱས་དང་འདྲིའུ་ལའོད་ལ་ཁང་པར་ཅན་ཡིན་དུམ་ཅི་ཡིན།

༢ ལའོད་ཆོའུ་མའོད་ལུངས་རྒྱན་ཐང་ཆེ་ཤོས་དེ་ཅི་ཞེས་ཡིན།

༣ ལའོད་ཆོའུ་འཐུང་ཆུ་གང་ནས་ལེན་གྱིན་ཡིན།

༤ ལའོད་ཆོའུ་ཆུ་མགའོ་གང་ན་ཡིན།

༥ ཆུ་མགའོ་ལ་འཐུང་བ་བྱང་མའོད་ངམ།

མའོད་ན། ཅི་ལྟར་བྱང་བ་རེད།

མའོད་ན། ག་དུས་འཐུང་བ་ཐེེས་པ་ཤེས་རའོགས་བྱང་།

མའོད་ན། འཐུང་བ་དེས་ལའོད་ལ་འགལ་རེན་ཅི་ཞེས་བཟའོས་སའོད་།

མའོད་ན། འཐུང་བ་དེ་གང་ནས་བྱང་བ་རེད།

༦ ཆུ་ས་ལ་འཐུང་བ་བྱང་བ་ཤེས་རའོགས་བྱང་ངམ།

བྱང་ན། འཐུང་བ་ཅི་ལྟར་བྱང་བ་རེད།

བྱང་ན། ག་དུས་འཐུང་བ་ཐེེས་པ་ཤེས་རའོགས་བྱང་།

བྱང་ན། འཐུང་བ་དེས་ལའོད་ལ་འགལ་རེན་ཅི་ཞེས་བཟའོས་སའོད་།

བྱང་ན། འཐུང་བ་དེ་གང་ནས་བྱང་བ་རེད།

༧ ལའོད་དང་འཐུང་ཆུ་ཡི་འབེས་ལ་ཅི་ཞེས་ཡིན།

༨ ལུ་དང་གཞེས་བདག་སའོག་ཅི་ཞེས་རེད།

༩ ཅི་ཞེས་གཞེས་ལུ་རྒྱལ་མཉེས་པ་བེད།

༡༠ ཅི་ཞེས་གཞེས་ལུ་རྒྱལ་མཉེས་མཉེ་དགའ་བ་བེད།

༡༡ འདས་པའུ་ལའོད་བའོད་ནང་འཐུང་བ་ཅི་ཞེས་མཐའོད་།

༡༢ མ་འཁྱོད་བའམི་ལཱོ་བལྟའམི་ནང་འབྱུར་བ་ཅུའི་ཞུལ་མཐཱོང་འདུན་ཡཱོད།

༡༣ བཱོད་ཀུའི་ཆཟེས་རྩ་ཆཟེ་བའམི་དཱོན་དག་ཅུའི་ཞུལ་འཛཱ་གུང་གུའིས་ཤཟེས་ན་འདཱོད།

༡༤ ལཱོད་རང་ལ་བཤད་འདཱོད་པ་གཞན་ཡཱོད་དམ།

༡༥ ལཱོད་ཚཱོའམི་རྩ་མགཱོ་ཡཱོད་སའམི་ས་ཞུའི་འབུའི་ལུབ་བམ།