

**The role of Tibetan Buddhism in environmental
conservation under changing socio-economic conditions in
China**

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Abstract

The failure of and conflict related to environmental conservation projects can be partly attributed to the lack of attention paid to the social and cultural systems of the people involved. Combining social and ecological methods, and a case study in Daocheng (Tibetan: Dabpa) County, Sichuan Province, this thesis explores how Tibetan Buddhism shapes human relations with the natural environment in the context of social and economic changes under the economically liberalised Chinese state. Using interviews and participant observation, I find Tibetans to be orientating themselves towards the environment by means of local cosmology incorporating gods and spirits in the landscape, ideas of karma, and Buddhist moral precepts. I question the concept of the sacred by highlighting differential ritual attention paid towards local gods, and their uncertain boundaries. Using the concept of authority, I explore how religion, the state, and economic markets are shaping relationships with the environment. Ritual authority lent weight to understandings of local gods, and politicised environmentalist discourse transported through global connections was beginning to give new meaning to the environment. State environmental regulations were reinforced by alignment with religious norms and monastic involvement in forest protection, although there were contested ideas regarding state tree planting policies. The booming trade in caterpillar fungus (*Ophiocordyceps sinensis*) has exacerbated resource conflict, and changed consumption patterns and norms on sacred land. Using quantitative recall data from households, I explore access to provisioning ecosystem services contrasting subsistence and market based products. Access was structured according to wealth indicating community heterogeneity, although there was high dependence on caterpillar fungus for livelihoods across all households. Direct use surveys of firewood collection show that representations of local gods did not consistently translate into spatially defined areas of non-extraction, and instead illustrate the dynamic nature of sacred sites interacting with social and political systems through history. I set the case study in its wider geographical and policy context to show that sacred sites exist across Daocheng, but have different histories and ecological constitutions. The wider perspective demonstrates the issue of scale in environmental studies, and the need for conservation interventions that span levels of governance. I reflect on the implications of the research on conservation, highlighting the value of anthropological research for nuanced, collaborative and locally appropriate practice, and I lastly explore opportunities for future work in Daocheng.

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Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except where specifically indicated in the text and acknowledgements

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Abbreviations & acronyms

AIC	Akaike's Information Criterion
ARC	Alliance of Religions and Conservation
CF	Caterpillar Fungus
df	degrees of freedom
DMC	Democratic Management Committee
ES	Ecosystem Service
GDP	Gross Domestic Product
GIS	Geographic Information System
GLM	Generalised Linear Model
GPS	Global Positioning System
ha	hectare
IUCN	International Union for Conservation of Nature
MEA	Millennium Ecosystem Assessment
NFPP	Natural Forest Protection Programme
NGO	Non-Governmental Organisation
NTFP	Non-timber Forest Product
PLA	People's Liberation Army
PRA	Participatory Rural Appraisal
PRC	The People's Republic of China
PSB	Public Security Bureau
RMB	Renminbi (a unit of Chinese currency)
SE	Standard Error
SLCP	Sloping Land Conversion Programme
TAR	Tibetan Autonomous Region
TEK	Traditional Ecological Knowledge
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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A note on the text

Tibetan words are transcribed phonetically according to Kham dialect and given in italics (except proper nouns) in the text. The Wylie transliteration (Wylie, 1959) for these words can be found in Appendix i along with the English translation. Both Chinese and Tibetan names for places are used locally. I have generally used the Tibetan name unless the Chinese is more commonly used, and given, in either case, the alternate name in brackets if known. Chinese words are written in italics using standard *pinyin*.

1. Introduction

The environmental problems which conservation aims to solve are largely related to people, but through its history conservation has on the whole been carried out by biologists and rooted in theory from the natural sciences. In a bid to conserve rapidly disappearing parts of the natural world, people have been sidelined, excluded or worse expelled from their lands resulting in conflict and social injustice (Ghimire & Pimbert, 1997; West et al., 2006). As the conservation paradigm continues to move away from building ‘fences’ and ‘fortresses’, towards community based models, people are becoming rightfully recognised as part of linked socio-ecological systems, and as such integral to solutions to our environmental problems. Despite the promise of this shift in thinking, community projects have had mixed success (Kellert et al., 2000; Lund & Treue, 2008; Weber et al., 2011), and the rhetoric of ‘community participation’ often does not match the reality on the ground (Goldman, 2003). Part of the problem is the lack of attention paid to the social and cultural systems of the people involved (Heinen, 1996; Waylen et al., 2010). In a positive response, anthropology and the social sciences are starting to forge links with conservation, and there are calls for constructive engagement between disciplines (Brosius, 2006; Redford, 2011) with the vision of a longer term and socially sustainable model of conservation that works with people, rather than alienating them and simplifying their needs and perspectives.

Although their own incentives are often morally situated, given the economic basis of most political decisions, conservationists continue to focus on the practical benefits and economic models in their justification and incentive structures for conservation (Balmford et al., 2002). But people do not act as rational automatons driven only by single motives. In some circumstances, policy based on economic incentives is counterproductive, undermining the moral basis for actions (Bowles, 2008). Salafsky et al. (2001) found that conservation behaviour was associated with high levels of non-cash benefits, including social factors such as ‘community confidence’. In fact, valuation systems may not be appropriate at all for people who do not separate themselves from non-human nature, but rather understand natural resources as a

“source of personhood, society and sustenance”, such as the Gimi people of Papua New Guinea (West, 2006). Some argue that these kinds of relationships with the natural world, based on ‘indigenous knowledge’ embedded in culture, could be a foundation for more sustainable environmental and development interventions (Berkes et al., 2000). People have certainly developed social rules and systems for natural resource management. A study in Uganda, for example, showed that different institutional arrangements governing behaviour explained major differences in the physical and biological conditions of forest (Becker & Ostrom, 1995). But clearly these rules alone have not prevented destruction of the environment in many cases, due to external drivers and the systems themselves changing.

Norms and behaviour with ecological impacts can belong to the religious sphere of human social and cultural life. Taboos, for instance, are almost ubiquitous around the world and apply to a number of threatened species. For example, the endemic mud turtle *Kinosternon oaxacae* is completely avoided by Sonoran desert tribes in North America (Colding & Folke, 2001). Informal institutions called ‘fady’ affect behaviour in Madagascar including taboos which prevent the killing of certain families of lemurs thought to embody dead ancestors (Jones et al., 2008a). Conversely, cultural norms such as those around hunting may promote exploitation of resources in some communities (Gibson & Marks, 1995). In recent years, there has been a growing interest in environmental practices related to religion, in particular the concept of the ‘sacred natural site’ which appears to form the perfect nexus between culture and conservation. These sites are geographical areas of religious significance often cited as “the oldest form of protected area” (Dudley et al., 2005) because religious norms associated with them are thought to restrict extractive behaviour.

From a theoretical perspective Eastern philosophical and religious traditions have received the most attention in the West for their potential to promote an environmental ethic. In 1967 Lynn White published a short but influential paper in which he blamed Western Judeo-Christian traditions for the world’s ecological crisis. White proposed that exploitation of nature had grown out of scientific and technological advances informed by religion, particularly ideas found in the book of Genesis. The paper spurred an interest in the roles religion and culture play in environmental sustainability, especially Asian traditions which at the time were popular inspirations within the counter-culture movement in the USA and Europe. Buddhist philosophy certainly appears to promote virtues in tune with modern environmentalism. But how does this relate to understandings and practices on the ground? Just as local communities have been vilified as destroyers of the environment, they have also been romanticised. An idealised image of Tibetan Buddhists, in particular, living in harmony with nature and now threatened by

modernity and development from the outside, continues to circulate (e.g. Norberg-Hodge, 2007), but has tended to avoid critical empirical review. More generally, there is a lack of knowledge about the relationships between ecosystems and the religious, cultural and spiritual services they provide (De Groot et al., 2005).

White's thesis is based on an idea that society's attitudes are rooted in religious beliefs based on doctrine, but this takes a rather limited and skewed perspective of religion. There has been a particular tendency to ignore the elements of power and authority inherent in religion, and the wider social context in which it is embedded. The same premise applies to culture more generally. Culture does not exist in a vacuum outside of history, and it is important to examine and understand the wider socio-economic and policy context (Igoe, 2004). This is especially pertinent given that threats posed by political and economic drivers of natural resource exploitation are often greater than the impact from local communities (Balmford & Bond, 2005). A range of unprecedented pressures, notably population growth and unrestrained consumption rooted in unsustainable economic systems, are driving ecosystems and the services they provide humanity towards critical limits (Steffen et al., 2007; Godfray et al., 2010). Rural subsistence economies are increasingly affected and dictated by new global markets. Take for example, the booming oil industry in parts of Africa which has disrupted previous production patterns, changed land use, increased conflict, and resulted in failure to recover agriculture after market collapse (Shaxson, 2005). Government environmental policy can also have profound consequences for local natural resource management practices, potentially disenfranchising people, and resulting in negative social and environmental effects (Peluso, 1993).

In the face of these powerful external drivers, it is perhaps no surprise that community conservation has not produced the improvements that practitioners hoped for. But the difficulties inherent in community conservation do not mean we should abandon participatory and socially just approaches, but rather get better at them. In attempting to understand multi-dimensional and multi-scalar human relationships with the environment, studies need to draw upon both natural and social science (Bawa, 2006), but much social research for conservation has been fast and formulaic, aiming to extract information and simplify situations rather than work with communities (Brosius, 2010). Ethnographic research using a 'cultural lens' instead allows understandings of different values, perceptions and the associated behaviour towards nature, aiding negotiation between interest groups (Peterson et al., 2010).

This thesis uses an inter-disciplinary approach with an emphasis on in-depth social research to investigate the role of religion in human-environment relationships. It is centred around a case study in Daocheng (Dabpa) County, in Western Sichuan, China in the Kham

region of ethnographic Tibet, a region recognised for its high level of biodiversity and endemism by conservation organisations (BirdLife International, 2012; Conservation International, 2012). The forested uplands provide vitally important watershed protection, preventing soil erosion, but have suffered deforestation and degradation during the last century (Harkness, 1998). In response to devastating flooding in the Yangtze River Basin in 1998 the Chinese government implemented environmental policies aimed at restoring and protecting the forests (Zhang et al., 2000). China has seen unprecedented but geographically uneven economic growth over the last twenty years. For rural Tibetans this has brought resource commodification and increased cash wealth. With economic liberalisation, has also come a resurgence in Tibetan Buddhism. This thesis is based on the premise that an understanding of these social, cultural and economic factors is required for effective and collaborative development of culturally appropriate environmental policies with local communities.

The overall aim is to gain an empirically based understanding of how Tibetan Buddhism shapes people's relations with the natural environment in the context of state policy and market changes, in order to inform conservation interventions. I approach the question by using a case study of one valley community named Samdo in which I examine people's religious ideas about the environment and use of natural resources. By focusing on the sacred landscape, I explore the spatial relationship between religion and environmental actions, specifically forest use. I set this case study in its institutional context by examining the relationships of authority which give force to environmental knowledge, and in a wider geographical context by relating it to forest and sacred land at the county level.

The conceptual framework (Figure 1.1) simply sets out the different concepts and institutions in the study, and the relationships between them. Religion as a multi-dimensional concept is at the heart of the research – as both a cultural phenomenon, and an institution with socio-political functions. I base the analysis on four lines of inquiry, separable in analytic terms, regarding how religion may affect environmental notions and actions in the study community, which are based on the literature and my own preliminary field work:

- 1) Retribution from local gods: notions and actions related to reciprocal exchange with local deities and spirits
- 2) Karmic retribution: notions and actions that revolve around the idea of karma - the natural law governing rebirths and good fortune in this life based on moral actions.
- 3) Religious ethics: notions and actions related to the moral precepts laid down in Buddhist doctrine.

- 4) Religious authority: the ability of the monastic community and religious elites to influence people's notions and actions.

Religion may also have an influence on and be intertwined with economic institutions, with implications for resource use. Max Weber (2009), for example, proposed that the Protestant ethic which sanctified methodical work and the acquisition of wealth, formed the basis for a 'spirit of capitalism', and therefore our modern economic system. In the Tibetan Buddhist context, the linkages between religion and economic institutions may be in the form of patterns of religious-economic exchange between households and the monastery, the feudal agricultural system which was historically centred on religious power; and economies based around the household rather than individual-centred wealth accumulation (Mills, 2006a). These ideas are concerned with institutional-level connections between religious culture and economic systems, and as such go beyond the scope of this study.

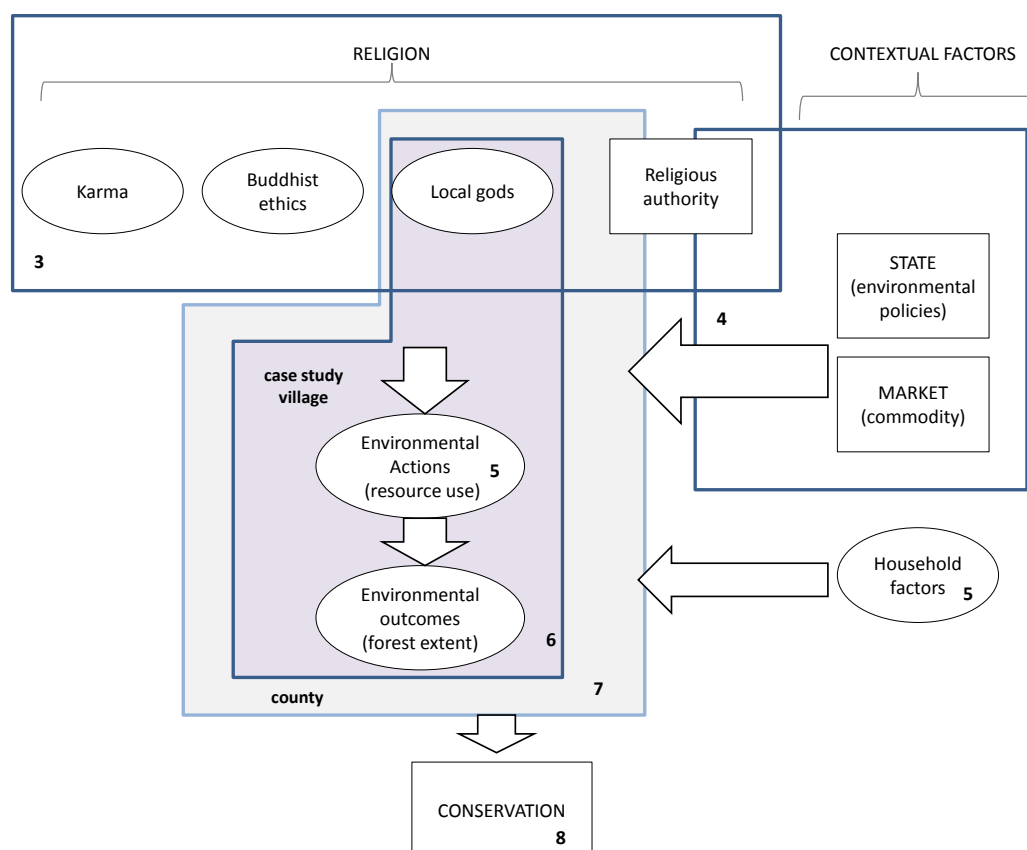


Figure 1.1. The conceptual framework

Numbers 3- 8 indicate the chapter in which the element in the framework is addressed. Ovals denote concepts and variables related to households within the case study community; rectangles represent structures and institutions.

Chapter 2 provides background to the theoretical approach and case study in Daocheng. Before attempting to explore the relationships between religion and conservation, these concepts are examined and defined. I then introduce the case study including an overview of Tibetan Buddhism, and the environmental issues and policy at the site. As the research question spans social and natural science realms, it is most effectively approached empirically using a combination of anthropological methods and those rooted in the natural sciences. I lastly explore the difficulties in interdisciplinary studies, and outline my own methodological approach.

Chapter 3 focuses in on the case study community of Samdo, exploring the religious dimensions of environmental understandings. I examine religion as local cosmology consisting of gods and spirits in the landscape to which ritual attention is paid, and as a system of moral guidance including Buddhist doctrine and the concept of karma. The chapter aims to add a contemporary and empirical perspective on Tibetan Buddhist environmental relationships using ethnographic data. I question the concept of the sacred as a distinct category based on the complexities of the findings.

Chapter 4 turns to the social, political and economic dimensions of human-environment relationships in the case study community. Using the concept of authority, I examine how the institutions of religion, the state and economic market are shaping discourse and actions towards the environment.

Chapter 5 provides a household level analysis of natural resource use patterns in Samdo using quantitative recall survey data. Using an ecosystem services framework, I explore the factors which determine access to provisioning services within the village – contrasting subsistence services (firewood) with market based products (caterpillar fungus and matsutake mushrooms). I examine how these services contribute to livelihoods and wealth, and how use has changed through time.

Chapter 6 aims to link elements of the previous chapters, to understand how notions regarding local gods, state restrictions, and historical factors explain natural resource use in the local area of Samdo. I use direct observations of firewood extraction across six different sites combined with qualitative data. The chapter paints a complex picture of sacred sites as dynamic phenomena interacting with religious, as well as with social and political systems through history.

Chapter 7 zooms out to put the case study community in its geographical and wider policy context. Drawing upon participatory maps produced by seven other communities across Daocheng County, alongside key informant interviews, the chapter shows the existence of sacred sites in the form of local gods in every village, but with site-specific details. It also draws attention to the issue of scale in conservation, and the need for multi-layered perspectives.

Chapter 8 offers discussion on the implications of the study for conservation. I reflect on the emerging discourses around the idea of ‘cultural conservation’ and ‘sacred natural sites’, arguing for a nuanced approach with the participation of local people. I lastly offer recommendations based on the work for future research and conservation in Daocheng and more broadly.

2. Theory & background

The way in which the relationship between nature and culture is conceptualised in the West is reflected in conservation theory and practice. I firstly examine the changes in thinking about nature and culture, and ask what kind of behaviour constitutes conservation. Lynn White's hypothesis is attractive to many in the West because it appears to provide a simple yet radical antidote to our environmental crisis based on alternative religious traditions. Yet the formulation of religion upon which it is based is focused heavily on doctrine rather than practice. I go on to explore the difficult concept of religion to offer a broader picture of religious practice and how it can be studied. I then outline the interdisciplinary approach used in this thesis, and lastly introduce the case study in Daocheng County, providing background on Tibetan Buddhism, and environmental history and policy in the region.

2.1 Approaching the nature and culture question: theory and concepts

Reconceptualising nature and culture

Historically conservation has been about protecting nature from the destructive forces of people. The modern conservation movement began its history in the 19th century with efforts by elite groups in the USA and Europe to preserve 'wilderness' and sustain game populations for imperialist hunters (Adams, 2004). It is therefore rooted in Western conceptualisations of nature as separate from culture, and colonial mindsets (Bhattachary et al., 2005). The nature-culture dichotomy makes a distinction between things like wilderness and forests which belong to nature, and those in the cultural category like towns and farms which are tamed and domesticated (Cronon, 1996). This simplified viewpoint is at best facile, and at worst has formed the foundation for socially unjust policies often imposed by rich countries onto poorer ones, or by powerful groups onto weaker ones. Another element of the separation of nature and culture

in Western thinking is the idea of the ‘noble savage’, an innately good person not tainted by the corrupting forces of civilisation and therefore living in harmony with his surroundings (Redford, 1991). But the image is equally polarised and based on a pre-conceived archetype set in contrast to the West. Tibet has long existed at the centre of romantic images in Western imaginations as an isolated and wild place, its people involved in mysterious rituals (Korom, 1997). The story now has an added twist in which Tibetan Buddhists are an “ecologically benign society” (Norberg-Hodge, 2001) in counterpoint to oppressive modernity.

Later academic studies attempted to break down the barrier between nature and culture. Culture here is taken to mean the system of beliefs, values, perceptions and social relations that encode shared learning (Korten, 2006), and founded in the distinctly human ability to conceptualise the world and communicate this symbolically through language (Just & Monaghan, 2000). Cultural ecology in particular aimed to show the adaptive value of different cultural forms in regulating human relationships with the environment. Rappaport (1968) argued that ritual cycles of a tribe in New Guinea acted as a regulator of environmental variables such as pig populations and land allocated to cultivation. Despite making a bold link between the symbolic and material, the analysis has been widely criticised as a crass interpretation due to its functionalist use of both an outdated equilibrium model of ecological systems, and an idea of communities frozen in time (Dove & Carpenter, 2008).

Traditional anthropology treated non-European communities as bounded and isolated – as people without history (Wolf, 1982) - but cultures and communities are now rightly recognised as heterogeneous and influenced by the wider political and economic structures in which they are embedded (Robbins, 2004). Moving away from stereotypes in the latter part of the 20th century, researchers began to take a more nuanced view of human-nature relationships. Most famously, Fairhead & Leach (1996), questioned the divide between nature and culture by showing that forest islands within savannah in Guinea previously thought to be ‘remnants’ were anthropogenically created and enriched through unconscious everyday actions. Humans have shaped landscapes throughout history so that what may look like nature might actually be culture.

Rather than either romanticising or reviling communities, arguments have also been put forward that indigenous peoples are in possession of unique systems of knowledge - traditional ecological knowledge (TEK) - which are the basis for sustainable natural resource management (Posey, 1985). This concept promotes indigenous people as models of conservation, and simultaneously champions indigenous land rights. Knowledge is considered to be expressed in culturally embedded institutional frameworks, developed in the context of the distinct

environment in which people live. Where these institutions are robust there may be no need for the externally derived or formal enforcement mechanisms of conventional conservation interventions (Pretty, 2011). Many indigenous peoples certainly hold a wealth of ecological knowledge (Gadgil et al., 1993) but there is considerable debate about whether they can be considered conservationists.

What counts as conservation?

Studies have examined whether traditional ecological knowledge translates into ecologically positive behaviour towards nature. Conservation outcomes cannot be assumed from expressions of reverence towards nature, or from people's perceptions of the likely outcomes of their actions. Conversely, researchers have somewhat overzealously deduced conservationist attitudes purely from environmental outcomes. For example Sharma et al. (1999) interpret the presence of commonly used tree species at the religious sites of early settlers in the Himalayas as evidence that these people were purposefully conservationist, tagging the sites “religious resource conservation points”. There is some empirical evidence of seemingly functionally adapted norms and behaviour (e.g. McDonald, 1977), but some have argued that what appear to be environmentally conservative practices may simply be the result of demographic characteristics like small populations, and patterns of subsistence (Ellen, 1986), or the result of open access natural resources and their relative abundance (Alvard, 1998).

Interpretations depend somewhat on the definition of conservation used – its scope and the actions it encompasses, and whether it denotes intention and adaptation. Different behaviours that we could place under the umbrella of ‘environmental’ may not be dependent on similar factors (Poortinga et al., 2004), and likewise conservation can encompass many activities. In a review of research on this topic, Smith & Wishnie (2000) define conservation as actions that prevent or mitigate biodiversity or habitat loss and are designed to do so (either through conscious intention or through adaptive processes). This is to distinguish it from sustainable use of natural resources in which the intention may be to sustain resources for future use, and has been found in many small scale societies. Using this definition it may be very difficult to find evidence of intentional conservation since conservation is a Western concept generated under a particular set of political, economic and environmental conditions (Nadasdy, 2005), and in response to dramatic environmental degradation in recent history. Indeed, few studies have paid sufficient attention to indigenous conceptions of environmental degradation and conservation (Dove, 2006). This thesis aims to transcend the debate to some extent by focusing on how people conceptualise their place in nature, and how they discuss and shape the environment.

Only in the last chapter of the thesis will I explicitly interpret the results directly in relation to modern Western conceptions of conservation.

The approach taken here will focus on the interaction between the biophysical environment and people's environmental knowledge taken to mean the skills, ideas and models that people employ to interpret and act on the world (Barth, 1995; Huber & Pedersen, 1997). People develop cultural knowledge about the environment through living in the environment with other people (Ingold, 2000). How humans come to know the world depends on the world which they perceive, which governs behaviour towards it, in turn shaping landscapes. In that sense people and their environments are co-created – they constitute each other (Ingold, 1992). This relationship is also dynamic: just as ecological theory has moved away from the idea of 'balance of nature' towards non-equilibrium dynamics, complexity and uncertainty, social and cultural systems are also considered to adapt, shift and change in interlinked relationships with the environment (Scoones, 1999).

As cultural beings with language, humans can describe and give accounts (to ourselves and others) of our environmental knowledge or notions discursively through language. A discourse is a shared way of understanding the world made manifest in language. All claims about nature are discursively mediated (including those of environmentalists and conservationists) and these can "create their own truths". By embodying power through language, they can have material effects on the world (Dryzek, 1997). For example, the differing social discourses about the causes of soil erosion influenced conservation and environmental degradation in Bolivia (Zimmerer, 1993). The problem set out by the thesis requires investigation of the relationship between environmental knowledge people hold and discuss, in particular in relation to religion, and the environment as a material biophysical phenomenon.

What is religion?

Approaches to understanding the role of religion in ecology have generally been split between two scales. Large scale historical and geographical perspectives tend to view religion as a 'super-organic construct influencing cultural landscapes' (Kong, 1990). Other studies have used social-psychological methods to test out Lynn White's hypothesis at the level of the individual. Using predictive models of behaviour, they concentrate on beliefs which are accessed through survey methods on propositions related to religious orientation (e.g. Eckberg & Blocker, 1989; Dominguez et al., 2010). These studies have focused on Christianity and its denominations, and generally taken place in Western, industrialised and materially wealthy places, which do not represent most of the world's population, and so their findings may not translate across societies

and cultures (Henrich et al., 2010). Both types of approach have tended to focus upon doctrine and belief as the overarching religious influence on people's actions, but the concept of belief appears to be a particular Western idea and does not even exist in some languages and cultures. In Buddhist philosophy, for instance, faith is founded on practice and experience rather than blind faith (Harvey, 1990).

Early anthropologists viewed religion simply as a belief in spiritual beings (Tylor, 1871). Cultures were seen as having practical and intellectual elements, the latter being the cause and explanation of the former; practice was thought to be directly based on philosophy. Studies continue to privilege the concept of belief as the most important element in religion. The standard model is that beliefs are propositions that are consistent with respect to each other and to actions, and form a basis for motivation alongside goals. If a person holds a belief, they should know that they believe it, and be able to state it (Eller, 2007). Conceived of in this way, however, there are empirical problems with the idea of belief as the basis for religion. Émile Durkheim's (2002) proposition that religion is a "unified set of beliefs and practices" does not appear to explain observations. The distribution of beliefs is not uniform and contradictory beliefs are common. For example, there are heterogeneous understandings and environmental orientations across denominations of Christianity (Hand & Van Liere, 1984). Religious beliefs and symbols can also shift dramatically. Take for example, the totemic python on Mount Kare in Papua New Guinea, previously the focus of rituals for fertility and now thought to be the cause of a gold rush by the Huli and Paiela people, who enthusiastically endorse and participate in environmentally destructive mining activities (Biersack, 1999).

There is also the problem of accessing people's beliefs; people may not put forward propositions about their religious ideas, but rather have a way of looking at the world that is taken for granted. In the history of Christianity in the West, religious practice moved away from connecting with the world through divine powers to a more personal experience of God, but in other contexts religion is more connected with worldly concerns, and such a strong distinction between sacred and secular is not made. For example, rituals may be performed with the aim of securing material or pragmatic ends (Tomalin, 2009). In fact, the concept of belief in the West is associated with the Reformation of the 16th Century when there was a new emphasis away from ritual which was associated with 'magic', towards personal beliefs as the foundation of true religion (Thomas, 1973; Ruel, 2002).

Non-human beings can also be part of society, as in Robin Horton's (1997) definition of religion as "an extension of the field of people's social relationships beyond the confines of human society". Meaningful action can be seen as the expression of intentions and beliefs

(Bourdieu, 1977), and in this way religion can be distinguished by the focus of actions – towards non-humans and other forces. Members of a society may not make propositions about their religious beliefs but they may communicate about their inner religious life in various ways – in rare avowals, behaviours, rituals, and in their everyday lives.

As religion forms part of a larger socio-cultural systems it is not immediately clear where the religious sphere starts and ends. In fact, it is difficult to set up an abstract definition that would be universally applicable (Lambek, 2002). Despite this, religions do contain certain ideas and conceptions about the kinds of things that exist in the world which can be described – the beings, forces and facts of religious reality (Eller, 2007). A common language has developed for concepts such as deities, the sacred and ritual which form elements in religious systems. Each culture occupies its own universe of meaning and value, ideas and practices which needs to be understood in its own terms. The approach taken here does not focus on belief and ritual alone but contextualises religious behaviour within a social framework and exposes the links between religion and other aspects of the social and natural world (Bowie, 2006). Social-psychological studies have also shown the difficulty in untangling religion from other social variables, for example religious fundamentalism in the USA is associated with conservative political orientations, and so cannot be clearly associated with a particular degree of environmental concern and action (Greeley, 1993). Sherkat & Ellison (2007) highlighted how environmental actions may not be related to religion ideologically but could be the result of its effectiveness as an institution that mobilises people. Moving away from the doctrinal approach, religion can also be approached as an institution which produces knowledge, formalises rules and holds authority and power.

2.2 Tibet: geography and history

As a political or legal entity Tibet's history is complex – ranging from the large Tibetan empire of the early 9th century which reached Mongolia, to at various points in time being under the suzerainty of China. It is now governed by the People's Republic of China (PRC). What is less contested is the historical existence of a Tibetan civilisation on and around the Tibetan plateau broadly linked by ethnicity, religion and language. It is often denoted by scholars as 'ethnographic Tibet' (Richardson, 1984; Goldstein, 1998) and today includes the Tibet Autonomous Region (TAR) and parts of the provinces of Qinghai, Gansu, Yunnan and Sichuan. In this thesis I will simply refer to this region as Tibet. The area is divided into four subregions: U-Tsang, Amdo, Kham and Ngari. The study site lies within Kham (Figure 2.1). Populations in the four regions have historically maintained contact through trade, pilgrimage and the movement of monks to study in the large monasteries (Samuel, 1993). Despite this, and the now strong sense of Tibetan identity, there is much heterogeneity across Tibet – with ethnic subgroups, dialects and different traditions related to these regions.

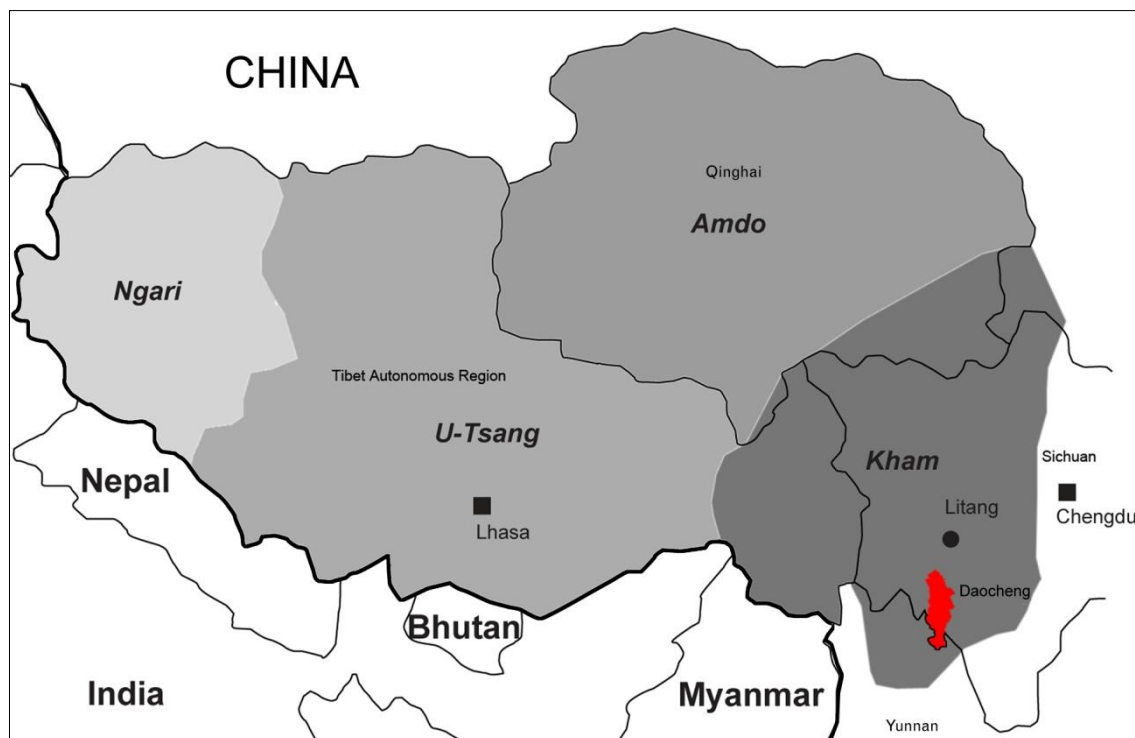


Figure.2.1. Map of Tibet

Daocheng County is shown in red. Grey areas show the four regions of Tibet. Black lines mark borders of provinces within the PRC; names of provinces are in small unitalicised text; and thick black line the border of the People's Republic of China.

The area of Tibet covers a sparsely populated expanse of 2 million square kilometres and is the highest land mass on earth. As the source of most of the major rivers systems of Asia, it is of significant ecological importance, and its grasslands and the forests of its south-eastern river valleys form the habitat to a range of extraordinary wildlife including the chiru (*Pantholops bodgsonii*), wild yak (*Bos grunniens mutus*), snow leopard (*Panthera uncia*), pheasants and an array of plant species. There are two basic modes of subsistence which are still practiced by most rural Tibetans today – pastoralism and agriculture. The current population of Tibet according to census figures is approximately 11 million people, 48% of which are ethnic Tibetans but this proportion varies across counties and prefectures (Rong, 2010).

In representations of their history, the Tibetan people are the offspring of the monkey emanation of Chenresig – the Bodhisattva of compassion - and a wild rock-demoness, which explains their dual nature, both compassionate and religious but wild and aggressive. Tibet was first unified under King Srongtsen Gampo in the 7th century, and exposed to Buddhism under the influence of his foreign queens. During the rule of Trisong Detsen in the late 8th century Buddhism was formally established as the state religion. He invited two practitioners from India – one of whom, Guru Rinpoche, is said to have bound the hostile demons under an oath of allegiance to Buddhism. The political rivalry and fragmentation that started at the collapse of the early Tibetan empire in the 9th Century lasted until the start of the Dalai Lama's theocratic regime in the 16th century (Samuel, 1993).

The history of Chinese rule in Tibet is a controversial topic: the Qing dynasty certainly held some administrative authority over Tibet from the 18th century, but by the mid 19th century its influence was small and symbolic (Goldstein, 1997). Chinese forces invaded in 1910 but were expelled from Lhasa in 1912, beginning a period of political independence for Tibet, although this did not officially include areas of Eastern Tibet (see the section on Kham below). This was halted by the invasion by Chinese communist forces – The People's Liberation Army (PLA) - in 1950 and Lhasa's acceptance of a 17-Point Agreement for Chinese sovereignty over Tibet with political autonomy. After rumours of a potential plot to kidnap the Dalai Lama on 10th March 1959, thousands of Tibetans surrounded his palace, resulting in what is termed the Lhasa Uprising against Chinese rule. Its suppression led to the flight of the 14th Dalai Lama to India along with more than 70,000 refugees, where he set up the Tibetan Government in Exile in Dharamsala (Shakya, 1999).

In 1965, the approximate area under the control of the Dalai Lama's government in 1950 was renamed the Tibet Autonomous Region (Xizang), incorporating it directly into the PRC's administrative system. Less than half (46%) of Tibetans living in the PRC reside within this

boundary, the majority occupying Tibetan Autonomous Prefectures in the provinces of Qinghai, Gansu, Sichuan and Yunnan (Rong & Naigu, 1994). The PRC now classifies Tibetans as one of 56 ethnic groups in the *Zhonghua Minzu* – ‘the multi-ethnic Chinese nationality’.

Tibetans suffered alongside their Chinese neighbours under Mao Zedong’s rule, most notably widespread famine caused by the policies of the ‘Great Leap Forward’ (1959-1962) – an economic and social campaign for rapid industrialisation and collectivisation in which, according to newly opened records, 45 million people in China died unnecessarily (Dikötter, 2010). In 1966 Mao launched the ‘Cultural Revolution’, a decade-long political campaign intended to instil a socialist consciousness in the people of China through mass radical action. The religions of minorities in China such as Tibetan Buddhism were targeted in the campaigns because they were considered the antithesis of the new socialism, and pernicious remnants of the feudal past (Smith, 1994). In every village people were mobilised to destroy religious artefacts, lamas and religious figures were publicly humiliated and imprisoned, and ‘struggle sessions’ were conducted with anyone considered a counter-revolutionary. Portraits of Mao replaced paintings of Buddhist deities and radicalised ‘Red Guards’ organised vandalism against all cultural sites in China. Almost all of Tibet’s thousands of monasteries were destroyed (Fenby, 2008; Shakya, 1999).

After Mao’s death in 1976, Deng Xiao Ping led cultural and economic liberalisation and a more pragmatic approach to minority groups. The Chinese government then took the view that assimilation would be achieved through natural ‘acculturation’ and also wanted greater development in western regions to extract raw materials for the new economic development of China (Shakya, 1999). This required opening up (*gaige kaifang*) to outside investments and a loosening of state control. Liberalisation was ushered into Tibet from the early 1980s. This centred on dissolution of the commune system and the establishment of the Household Responsibility System, in which households could contract land and other facilities, allowing them to take responsibility for profits and losses, as well as a system of economic subsidies for Tibetans (Smith, 1994).

Protests, nonetheless, broke out in central Tibet in 1987-1989, leading to a period of intensification of religious and political control over Tibetans. The government in Dharamsala at the same time launched a political campaign, gaining international support (Goldstein, 1997). The 1980s had been a period of investment towards the coastal regions of China, and in 1999 a campaign to Develop the West (*xibu da kaifa*) aimed to steer this investment and private capital into the Western regions, including TAR, Qinghai, Sichuan and Gansu, in part motivated according to party chiefs by a need to increase ‘stability’ in the region (TIN, 2000). The scheme includes diverse agendas of infrastructure development and increasing production, in particular

through tourism, technology and education, opening up the region to migrant labour, and environmental protection (McNally, 2004). Tensions regarding Chinese policies and Tibet's political status remain. In 2008 approximately 150 protests broke out across 50 cities and towns in TAR, Sichuan and Qinghai. Activity ranged from peaceful protests to often violent revolts across Tibet, the majority lying outside TAR in Kham and Amdo. Conflicting representations by both Western media and the Chinese state focused on the violence, detracting attention from the likely reasons for the protests (Barnett, 2009), which span a range of concerns over religious restrictions, education policies, economic inequities, as well as nationalist sentiments (Smith, 2010).

2.3 Tibetan Buddhism

Originating in India and spreading throughout Asia, Buddhism is not a monolithic tradition. In Tibet, Buddhism arrived in the 7th century, and is conceived as a process by which Buddhist tantric practitioners used their abilities to subdue the earthly deities (Mills, 2003). Contemporary religious practice varies geographically, and contains ritual re-enactments of this process. The suppression of religious practice by the Chinese state during the last century and its subsequent revival means that Tibetan Buddhism is being restructured in its current political context (Goldstein & Kapstein, 1998). The explicit goal of Buddhism is enlightenment or Buddhahood, transcending the suffering of the normal cycle of rebirth (*samsara*), to gain understanding of the true nature of reality. The pathway is one of morality, meditation and insight, through taking refuge in the Buddha, the Dharma (his teachings) and the Sangha (the monastic community) (Harvey, 1990). It has evolved into a variety of practices around the world with differing interpretations and cultural and social contexts.

The Buddhism that took root in Tibet was a mixture of monastically based Mahayana (Great Vehicle) emphasising the Bodhisattva path to salvation – one of gradual cultivation of compassion and insight – and ritual and meditative practices of the Vajrayana (Diamond Vehicle) with an emphasis on fast results (Gellner, 1990). A Bodhisattva is a being motivated by compassion to be dedicated to attaining enlightenment. Within Tibetan Buddhism itself different schools developed, and there are broadly four schools today, which have emerged at different times, and have different emphases. The oldest, Nyingma is associated with the early dissemination of Buddhism (7th to 9th Century). Sakya and Kagyu formed in the 11th century based on later developments in Indian Buddhism. Kagyu - the oral lineage - is concerned with

the experiential dimension of meditation. The monastically focused Geluk School emerged in the 14th century and is the tradition which came to political prominence with the Dalai Lama's theocratic government. Bengpo monastery in Samdo valley belongs to a subsect of Kagyu – the Karma Kagyu - headed by the Karmapa lama.

The philosophy and practice of Tibetan Buddhism is too complex to give more than a brief outline of some of the distinguishing features. Tantra (in the Vajrayana vehicle) is a key element of Tibetan Buddhism, and can be defined as ritual access to divine modes of realities through alternate states of consciousness as a vehicle for the attainment of enlightenment, and to evoke supernatural powers (Harvey, 1990). Practitioners use gestures, mantras and mandalas (sacred diagrams of the supernatural world) as aids in the mediation and achievement of spiritual power. Visualisations are central in the meditation, allowing the practitioner to identify with a particular deity. Samuel (1993) describes Tibetan Buddhism as having broadly three interconnecting 'orientations' of religious activity: 1) Enlightenment – the salvation dimension which is a strongly social or altruistic and carried out largely through tantric practice; 2) Karmic – the natural law which governs movement between rebirths, dependent on the moral actions taken in an individual's life which accrue merit; it also affects good fortune in the current life. This is largely the realm of clerical Buddhism; 3) Pragmatic – concerned with health and prosperity in this life, and conceived of in terms of interactions with local gods and spirits, and also related to tantric practice.

Tantra is carried out through tutelage from an experienced lama who initiates the student in the methods through 'empowerment' and written and oral instruction. A lama may be a celibate member of the monastic community but can also be a lay yogi, married householder, or solitary hermit (Samuel, 1993). Tibetan Buddhism, to some extent, lies at the point of intersection between clerical monasticism and a kind of shamanism, a point at which the lama forms a synthesis (Samuel, 1993; Mills, 2003). The lama is a central figure in Tibetan Buddhism, and in particular the idea of the incarnate lama (*tulku*) with successive reincarnations is an innovation of the form. The strong devotion to these emanations of divinities has been an important element in the revival of the religion in the last twenty years (Goldstein, 1998). Monasticism, as in other types of Buddhism, is a central foundation of religious life in Tibet, and is characterised by a hierarchical structure, discipline, scholarship and spiritual development. The monastic community also hold ritual responsibilities towards the community – to restore harmony within the cosmos and community including for example exorcism, death rituals, rites towards local gods and Buddhist protector deities.

Faith and spiritual development is expressed by Buddhists in regular ritual acts of devotion including prostrations, making offerings to Buddhas and Bodhisattvas, chanting, and circumambulation of *chorten* – architectural structures holding religious relics – and temples. Pilgrimages to sacred sites are taken by most Tibetans at some point in their lives. Relationships between person and place are formed through mental acts such as meditation, and physical actions like circumambulation and prostration in order to purify the body (Huber, 1999a). Pilgrimage perfectly demonstrates the multiplicity of practices, ideas and goals in Tibetan Buddhism including esoteric tantric ritual and everyday material concerns, social aims and salvation (Huber, 1999b), although a common pool of symbols, metaphors, practices, and themes exist.

The emphasis in the West on doctrine and philosophy in religion led many scholars on encountering Tibetan Buddhism to see inconsistencies between the morally challenging doctrinal and philosophical dimensions of the religion (centred on Enlightenment) and what was being practiced by the people on the ground (Ramble, 1990). The ‘little tradition’ of the peasant society is seen to be distinct but comprehensible only in relation to the philosophical ‘great tradition’ belonging to the intellectual elite (Redfield, 1956). The local or worldly elements including local gods and spirits of Tibetan Buddhism have come under the heading of “folk religion” practised by the laity as distinct from and peripheral to “authentic Buddhism” (Tucci, 1988). There is a historical dimension to this characterisation, in which the folk religion is thought to reflect the animist pre-history of Tibet. But history should not define the characterisation of current religious practices, and the localised deities of Buddhism have been incorporated and developed within the Buddhist pantheon (Obeyesekere, 1963). Local deities are not peripheral to Buddhism in practice. Mumford (1989), for instance, explored overlapping discourses in the meeting of two traditions, each in dynamic production with unfinished meanings. Anthropological approaches to religion emphasise an analysis of Buddhism in different contexts, as practiced by ordinary people rather than attempting to define the boundary of ‘authentic Buddhism’ (Gellner, 1990).

Chinese state policies towards Tibetan Buddhism

During the Cultural Revolution, religion was an example of the ‘Four Olds’ which should be eliminated – old ideas, old culture, old customs, old habits (Smith, 1994). With economic liberalisation in the early 1980s came a reversal of these policies, with publication of Document 19 which emphasised “respect for and protection of the freedom of religious beliefs” but with clear constraints. The state constitution then stipulated that citizens would be able to “enjoy freedom of religious belief” but within a patriotic and socialist framework that did not threaten

the unity of China. The long term aim was still to see the natural withering of religion (Shakya, 1999) following Marxist thought. In the 1980s, under these conditions, many monasteries were rebuilt and reopened. After the protests in the late 1980s, and the imposition of Martial Law in 1989, policies towards religion aimed to strengthen control (Goldstein, 1997) and suppress dissident or 'separatist activity' emerging in the growing monasteries. Religion in China must be state sanctioned, and is only acceptable if comes under state control, an arrangement which influences any analysis of religious authority. The day to day affairs of Tibetan monasteries became controlled by Democratic Management Committees (DMCs), under the supervision of the State Religious Affairs Bureau (US Department of State, 2010) who control the nomination and selection of committee members. In Ganzi there have also been particular restrictions on the scale and frequency of religious meetings and the number of monasteries and monks. 'Patriotic education campaigns' began in Sichuan in 1997 including the forced denouncement by monks of the Dalai Lama (TIN, 1999). In 2012 it was announced that monasteries in TAR will come under the direct rule of government officials rather than the DMCs in the 'struggle against separatism' (HRW, 2012), but this has not been extended outside TAR to Kham.

2.4 Eastern Tibet – Kham

Kham has had a somewhat turbulent political history, and has aggressively asserted its independence from both the Tibetan administration to the west and the Chinese to the east, and during much time retained *de facto* political independence. The people of Kham – Khampas – have a reputation for being independent, wild 'bandits' as compared with the more refined central Tibetans (Shakya, 1999: p.174). Due to this reputation, the region remained a 'closed land' for most Chinese people and foreigners until the mid 20th Century according to explorer Joseph Rock (1931). The region is largely defined by the valleys of four great rivers: the Salween (Tibetan: Ngul) Mekong (Dza), Yangtze (Dri) and Yalung (Nya) – a tributary of the Yangtze - and the high plateaus in between. It now comprises 50 contemporary counties in the PRC, and six Tibetan prefectures mostly in Sichuan, but also the TAR, Yunnan and Qinghai.

The early history of this region before the 17th century is little known, but it is likely that local chieftains ruled territories with hereditary titles bestowed by the Tibetan Government in Lhasa (Richardson, 1984). In 1727, after Mongolian tribes invaded Tibet, the boundary between the Dalai Lama's realm and Kham was officially made at the Ning Ching shan (BumLa) mountain range, when under the suzerainty of the Chinese Manchu emperor, the Dalai Lama's

government was given control of the former, and the latter became semi-independent feudalities (Goldstein, 1991). After the invasion of Tibet by British Indian forces led by Francis Younghusband in 1904, the Chinese Qing government intervened more determinedly, occupying Lhasa in 1910 and setting up magistracies in eastern Tibet. After further fighting, an agreement between the Tibetan and Chinese governments officially gave sovereignty to China over the Kham region east of the Yangtze (including Daocheng) in 1932, and it became part of Xikang Province. Authority was not, however, exerted in most of the magistracies (Shakya, 1999). In October 1950 Communist forces – the Peoples Liberation Army (PLA) crossed the Yangtze and took Chamdo and the rest of Lhasa-held Kham (Goldstein, 1991). The invasion was helped along by defection by Eastern Tibetans who were equally ambivalent towards the rule from Lhasa as that imposed by Communists (Fenby, 2008). In 1955 Xikang was abolished, and integrated into Sichuan province, and in 1956 the Tibetan autonomous districts in Kham were established including Ganzi Autonomous Prefecture where Daocheng lies.

1955 also saw the launch of full scale ‘democratic reforms’ in Tibetan areas outside TAR as they were considered part of China-proper and not given special consideration in accord with the 17-Point Agreement. This included the redistribution of land, some measures to settle nomads, and restrictions on religious institutions (Shakya, 1999). By September 1956 it is reported that 95% of the population were in collectives in Ganzi (Ling, 1968), whereas this did not happen completely until the mid 1970s in TAR. Rebellion broke out in Kham by late 1955 in response to these measures. Armed with cheap guns left over from World War II and the Chinese civil war, and later covertly supported by the CIA, there was fierce fighting which by 1957 was led by a 15,000 strong pan-Khampa resistance movement named the Four Rivers, Six Ranges (*Chu zhi gang drung*) – the ancient name for Kham (Norbu, 1997). The rebels fled to central Tibet, and the revolt culminated in the Lhasa uprising.

2.5 History of land use, forestry and hunting in Eastern Tibet

There is a long history of deforestation near settlements in Tibet (Ryavec & Winkler, 2006). Under Mao trees were treated as a raw material for industry, and consequently, it is estimated that forest cover decreased in Western Sichuan from 30% in the 1950s to 14% in the 1980s (Li, 1993). The 1980s saw a drastic reduction in timber stocks, and increased recognition of the value of standing forest, and in 1989 cutting quotas and efforts to reduce the effect of forest fires were implemented (Harkness, 1998). The forestry industry was a state monopoly and logging

enterprises were province and county owned. Over the last 30 years the Chinese government has radically changed its policies on forestry from production and exploitation to protection of resources and conservation of biodiversity. New forestry policies were introduced in 1999 under the Western Development Programme which has potentially contradictory environmental effects (Harris, 2008); protecting forest whilst at the same time building roads for the more effective extraction of mineral resources (ITN, 2002). There are two major forest programmes:

Natural Forest Protection Programme (NFPP): Initiated in 1998 in reaction to the devastating flooding of the Yangtze River earlier that year and the Yellow River drought, the NFPP was the first explicitly environmental forestry policy in modern China. It covers 18 provinces and autonomous regions, and was extended in 2000 for a projected 11 year period requiring a huge investment of \$11.6 billion. The policy as implemented by the provincial government of Sichuan prohibits logging on state owned ‘natural’ forest, and has stopped commercial logging (Zuo, 2001), which has been officially banned since September 1998.

Sloping Land Conversion Programme (SLCP): This reforestation programme, also known as ‘Grain for Green’, has the stated environmental goals of reducing water and soil erosion, and increasing China’s forest cover, alongside poverty alleviation and assisting farming households towards ‘sustainable structures of production’ (Bennett, 2008). There are twin initiatives under this programme: *huanlin* - “retire cropland, restore forest” administrated by the State Forestry Administration and provincial counterparts; and *huancao* - “retire cropland, restore grasslands” administrated by the Ministry of Agriculture. The programme aims to reduce soil erosion by reconverting 14.67 million hectares of cultivated land by 2010, including 4.4 million hectares on slopes of over 25 degrees, and afforesting an equal area of ‘wasteland’ by 2010 (WWF, 2003). This would result in a 10% decrease in cultivated land in China. Implemented in 25 provinces and 2000 counties, across a hugely heterogeneous area, ecologically and economically, it is the world’s largest land conversion programme. It is ostensibly a ‘Payment for Ecosystem Services’ programme, but is conducted via a top down approach whereby quotas are given from the provincial government which then allocates quotas to county offices, and then villages (Zuo, 2001). The survival rate of the trees for compliance is 75%, and cash subsidies are set at 300RMB (£30) / hectare which households will receive every year for a total of eight years. Subsidies of grain are also given in some regions.

Although the scheme has increased vegetation cover (Figure 2.2), and may reduce soil erosion, there is concern over social, economic and environmental effects of the programme

(Cao, 2011). Importantly, the programme lacks mechanisms to ensure the permanence of the forest planted (Bennett, 2008). Inappropriate choice of species especially in the arid and semi-arid regions of China resulted in reduced soil moisture and reduced understory growth, in fact reducing vegetation and diversity compared to the natural recovery in an abandoned plot (Cao et al., 2009a).



Figure 2.2 Poplar trees planted near Daocheng County town under Grain for Green

Policies have also been implemented towards grasslands with the explicit goal being to restore grassland health and biodiversity, such as the controversial ‘retire livestock, restore grasslands’ (*tuimu huancao*) programme which has removed pastoralists and their livestock from the land, combined with a resettlement programme moving households into urban areas. Since rural people in Daocheng are largely settled or semi-nomadic, these policies have not affected a great number of people and will not be examined in detail.

Hunting & wildlife: There is evidence of hunting across the Tibetan Plateau since the beginning of human habitation (Huber, 2005); a practice necessary for survival for many pastoralists. Hunting increased during the 20th century due to the social-political turmoil of the Cultural Revolution

(Goldstein & Beall, 1989), the introduction of more lethal and efficient technologies, and increased demand for animal products (Huber, 2005). There are several important commercial animal products in Tibet most notably musk from *Moschus* deer species used for medicine and perfumes; the gall bladder of black bear (*Ursus/Selenarctos thibetanus*) and Asian brown bear (*Ursus arctos*); and the antlers of white lipped deer (*Cervus albirostris*). Wildlife conservation in China is primarily based on the 1988 Wildlife Protection Law which designates all wildlife as belonging to the state, and prohibits killing of individuals of certain taxa that are given special protection. The law also encourages local bureaus to set up national reserves, but makes no other clear restrictions on habitat loss (Harris, 2008).

The hunting of wildlife has been effectively prohibited in Daocheng since 1989, but the 1996 firearms law had a more direct effect on hunting practices in China. In 2002/2003 the Public Security Bureau confiscated firearms from farmers and pastoralists in remote western regions of China including Daocheng. Despite protective measures, there are anecdotal accounts of continued hunting in Tibet, and doubts that the infrastructure to monitor and enforce the rules, or sufficient incentives are in place to stop hunting (Harris, 2008). The first nature reserves in China were set up in 1956, but it was not until the 1980s that interest in nature conservation resulted in a large explosion in numbers of protected sites. By the end of 2003 there were about 2000 protected areas (Xie et al., 2004) - almost 15% of China's total land area. Protected areas are often aimed at protecting particular species or habitats, and are intended to severely limit human influence with little regard for the social impacts and livelihoods (Harris, 2008). In reality, there is often a lack of funding and management, and local governments are responsible for income generation often through tourism which can do more to damage than protect the environment (Xie et al., 2004; McBeath & McBeath, 2006). Most notably, the rate of deforestation in the Wolong nature reserve in Sichuan increased after it became a nature reserve (Liu et al., 2001). Overall there remain large discrepancies between what is encoded in policy and what is happening on the ground (Harris, 2008). Despite this, there is some evidence of improvements, including increased engagement with local people (Ren et al., 2004).

2.6 The study site: Daocheng County and Samdo valley

Daocheng county (Tibetan: Dabpa) is situated in the Kham region of Tibet, in The Ganzi (Garze) Tibetan Autonomous Prefecture. Its total area is 7323 km², 191km in length, lying east of the Yangtze river on the south bank of the Shuiluo (Dab) – a tributary of the Yangtze, approximately 150km south of Litang. Before the 20th Century this area was part of the Tibetan state of Litang ruled by a hereditary lay dignitary according to William Rockhill in 1894 (Samuel, 1993). In 1911 Daocheng was a magistracy of the Qing dynasty in Xikang but according to local government documents the traditional feudal system was revived in 1917, and the government only managed land around Daocheng town. Political rights were held by feudal leaders, village heads and monasteries. In February 1951 Daocheng was officially ‘liberated’ by Communist China (Daocheng County Administration, 1995), and it is likely that land was communised in the mid 1950s eliminating the traditional leadership system.

Daocheng is now divided into three districts - Dabpa, Guling, Dongyi - and 14 townships. The population in 1913 was recorded as 10,245 and 4312 families (Daocheng County Administration, 1995). According to the County Annals the population was 29,112 in 2005. 96% of the population were Tibetans in 1990 but it is likely that the Han Chinese population has risen substantially in the last twenty years due to migration. 96.8% of land in the county is state owned, and the rest is communal land run by villages. 36.1% of the land is forested (Daocheng County local records compilation Committee, 2009). The county has 15 monasteries – six of the Kagyu school, six Geluk, two Sakya and one Nyingma. The most significant religious and now tourist destination is the three peaks of Rigsum Gampo (also given the name Dapba Lhari by the 5th Dalai Lama), the highest Mount Chenresig rising to 6032m. It now forms the focus of Yading National Nature Reserve. There is also a lesser known protected area – Haizishan - in the north of the county. 208,954 tourists are estimated to have visited the county in 2005 (Daocheng County local records compilation Committee, 2009), and government investment focuses on this industry as the primary industry for revenue. Plans for an airport were finalised and building work began in 2010. The GDP per capita was estimated at 4706RMB in 2005.

Sangdui (Tibetan: Samdo) township (*xiang*) includes three ‘groups’ of villages (*cun*) across three valleys. There are 10 villages in Sangdui township and 2500 people in total. The most northerly group of villages, holding the township government offices, is the case study valley, named Samdo (Figure 2.3). Souchong and Jiye are the two valleys lying further south. A road running through the township from Litang to Daocheng county town was built in 1962/3.



Figure 2.3 The case study valley - Samdo

Samdo lies at an altitude of 3950m at 29°11'51N 100°06'40E. It is composed of five traditional villages, but considered as one community. This aligns with other research in which Tibetan communities are valley-based and served by one monastic establishment (Crook & Osmaston, 1994; Mills, 2003). Village 2 and 4 were consolidated into one administrative village in 2009. Each village has a different village leader who is elected by ballot every three years. As it contains the township centre, along the main road of Samdo there are government offices, a police station, shops, a primary school and a tourist hotel. Houses lie mainly to the west of the main road surrounded by agricultural land. Bengpo monastery (Figure 2.4) lies to the north of the valley in Samdo. It belongs to the Karma Kagyu school of Buddhism, and was reported to have been built in 1169 by the 1st Karmapa, and the monastery has a strong association with this line of lamas. The monastery was destroyed in 1959, and rebuilt again after liberalisation in 1982. It now houses approximately 100 monks. A monastery school was opened in July 2007 and there were now 90 students at the time of research – both monks and lay children from the township.

Samdo Township has been the centre of work of the World Pheasant Association (WPA) in Daocheng, a conservation organisation focusing on species within the order of the

Galliformes. The WPA were drawn to Daocheng due to its population of the near threatened white eared-pheasants (*Crossoptilon crossoptilon*) and intrigued by the monks feeding the birds every day in Bengpo monastery. Dr Wang Nan from Beijing Forestry University and a research associate with WPA has been carrying out ecological studies on the birds since 2002 as well as implementing small scale environmental education activities. In 2007 an MSc student from Imperial College London, Lucy Garrett conducted a study on 'Attitudinal values of sacred groves' in Daocheng.



Figure 2.4 Bengpo monastery in Samdo valley

2.7 Interdisciplinary studies: bridging the natural and social science divide

The research requires an inter-disciplinary approach, drawing upon empirical data regarding religion – in the social sphere - and environmental actions and outcomes which use methods grounded in the natural sciences.

Defining the problem: the difference between the sciences

There is clearly a need for a more integrated approach to studying environmental problems, spanning the cultural and natural; social and ecological; and material and symbolic realms. Conservation is fundamentally a social and political process, and so practitioners must extend their focus beyond the realms of the traditional conservation biologist trained in the natural sciences. There are encouraging signs of inter-disciplinary work and collaboration between ecologists and social scientists in recent years (Millennium Ecosystem Assessment, 2005; SCB, 2012), yet there remains a gap between the two cultures. The two sciences have divergent histories, topics of interest and methods, as well as often entrenched beliefs about what lies over the divide and there are few incentives for collaboration (Fox et al., 2006).

The main problem in reconciling approaches lies in the different frameworks of theory and philosophy about both the nature of reality (ontology) and the way knowledge of these phenomena under study is gained (epistemology). The natural sciences have tended to hold a positivist ontology in which external material reality exists independently of human perception and is governed by law-like systems. Valid knowledge of the system is gained cumulatively through observation alone which is considered to be objective. Predictive models about the relationships between phenomena observed are made using measured, quantitative data, and tested using statistical methods. This has been a successful strategy in studying the physical world, but the extent to which social life can be studied in the same way as nature remains a key debate in the philosophy of social science.

Observation in social studies becomes much more problematic because the objects of study are self-reflecting humans. Social facts are therefore determined by the researchers' interpretation, and the interpretations of the people being studied (Flyvbjerg, 2001). Feminist critiques of science in particular have also found the natural sciences to be historically contingent, reflecting the society in which they are produced (Haraway, 1991), casting doubt on value-free knowledge creation at all. Although some social sciences – especially sociology, psychology, and economics - attempt quantitative, explanatory forms of science akin to the

natural sciences, as a whole the practices have tended to be more qualitative, interpretative and inductive, making for a different kind of science. The complexity of social phenomena means they cannot be readily reduced to discrete variables or general laws. Social groups have culture and history, and this context cannot be removed or controlled for (Blaikie, 2007). Anthropologists in particular have long taken a contextual approach, and through ethnographic methods study specific encounters with particular people and places, focusing upon what Max Weber called '*verstehen*' or 'understanding' through participatory and interpretative approaches rather than explanation and prediction (Flyvbjerg, 2001).

The postmodern turn in social theory suggested that truth and reality lie in the meanings inter-subjectively negotiated between social actors (Lyotard, 1984). But by acknowledging that reality is not independent of the observer's perception, are we necessarily led down a path of relativism where there are no absolute truths, and knowledge is entirely socially constructed? Although studies of the social world are necessarily grounded much more on interpretation, this does not mean that 'anything goes'; the world does not tolerate all understandings of it equally (Kirk & Miller, 1986). Knowledge produced must be built on claims of validity, as in any scientific endeavour. In natural science, claims are based on tests of statistical significance, but this method is not transferable to understanding socio-cultural norms and meanings and their relationship to behaviour which are indirect and not readily reduced to numbers.

Although the social sciences have not identified absolute criteria for validity and reliability, there are several means of ensuring quality. Silverman (2006) proposes that researchers should aim for an 'authenticity' which includes attempting to falsify initial analyses and hypotheses, a process approaching the scientific method. It is important to account for the procedures used during the research process and provide concrete evidence in analyses (Silverman, 2005). In fact, the centrality of reflexivity in ethnography – self-awareness and discussion about researcher relationships with people and the field of study – is critical for reliability and validity (Delamont, 2007), and many writers have openly drawn upon their reflexive thoughts. The use of narrative in analyses, in particular, allows the descriptive richness needed to approach the complexities and contradictions of real life (Flyvbjerg, 2001).

The thesis approach

Despite the difficulties of applying a scientific method to social phenomena, the natural & social sciences are not completely at odds: at their heart is systematic inquiry through empirical observation. Inter-disciplinarity is knowledge production through the integration of ideas and tools typically used by two or more traditional research subjects (Khagram et al., 2010). It accepts

that different approaches are good at producing different kinds of knowledge, and in doing so takes a pluralistic rather than reductionist philosophy. Good research should be problem not methodology driven (Flyvbjerg, 2006) and I integrate methods from anthropology and natural science in order to best answer the research questions which ask about the religious social worlds, the material natural world and the relationship between these domains. I take a strategy of complementarity – addressing different aspects of the research question with different but complementary sets of data (Brannen, 2007). In doing so I do not aim for a complete, fully integrated data-set representing parts of a complex system, which would require distorting and leveraging different kinds of data into an unsuitable model, but rather for intellectual coherence (Strang, 2009).

Although inquiring about the way in which the environment is culturally or socially produced, I acknowledge through the natural science aspects of the study the biophysical basis of its constitution (Escobar, 1999), especially since environmental change was the problem which formed the initial impetus for the research. And it is after all, what the physical elements of the environment can ‘afford’ – their inherent properties - which shape environmental knowledge (Gibson, 1986). This approach subscribes to a broadly realist ontology, in which phenomena have existence independent of the observer, but which is ‘critical’ (Bhaskar, 2008) or ‘cautious’ because it acknowledges that understanding is based upon selective inquiry and experience, and that observation is an interpretive process. Therefore I subscribe to an interpretive approach to inquiry (hermeneutic epistemology) and an acknowledgement of the actual existence of problems (realist ontology) (Dryzek, 1997).

The work is grounded in ethnographic field work (see below) on the discursive, social, cultural (in particular religious), and material dimensions of human-environment relations at the case study site. The interpretive knowledge gained is not relative therefore, but contextual, giving phenomena their immediate meaning, but I also set the case study within a wider context to allow for more general significance. This means that the approach does not deny that there is individual agency involved in people’s actions, but suggests that society is systematised and structured in some way that shapes practices (Scoones, 1999). I used questionnaire survey as a standardised and specific means of testing how phenomena vary across cases, for example people's natural resource according to wealth and livelihoods, using meaningful indicators. The same approach would not be possible for religion and other multi-faceted elements of social life.

Finally, I follow Flyvbjerg (2001) in aiming for a value rationality, in which the aim of social science is social commentary and action. Whilst recognising that my approach is interpretive, and reflects to some extent my relationships with research participants, I aim for it

to also be dialogical – in that I attempt to represent voices of the local people, recognising the importance of local knowledge (West, 2005). In examining actions and discourse of the state, local government, the monastic community as well as that of the conservation movement, I aim to contribute to ongoing social dialogue regarding the environment, rather than claiming definitive knowledge.

Approaching social data: actions, norms & representations

Social life can only be represented in a complete way through studying the relationship between notions people hold and verbally state (their knowledge of the natural and social world) and the actions they perform. Caws (1974) classification breaks down notions into sets: the representational model corresponds to the way individuals think things are; the operational model is the way the individual practically responds and acts (broadly equivalent to norms). Using this model, Holy & Stuchlik (1983) present three domains of social reality which will be used as a basis for social inquiry in this thesis:

- *Actions:* Actual practices and behaviour. Types of actions that could influence ecological systems in this context include: logging; firewood and other non-timber forest product collection; hunting; and active protection of the environment. Religious actions such as ritual are also examined, as well as actions carried out by the monastic community and the state.
- *Norms:* Standards or rules stating what people should / should not do under *specific* circumstances. Actors invoke different norms for deciding upon particular actions. Norms are brought to bear on actions in the course of the attainment of specific goals. For example, ethical principles, religious rules, and ritual prohibitions related to land use influence personal actions such as tree cutting.
- *Representations:* The indigenous logic and rationales linking actions and norms, or people's understanding of cause and effect. These are informative rather than instructive notions. For example, a person in the community is said to be ill because they collected firewood from land believed to be a deity.

By linking actions and norms, representations are the rationales according to which people act, and because they are culturally defined may not be meaningful in a Western scientific framework, but only in their own terms. The underlying logic which organises experience of, expression of and responses to particular phenomena is termed the 'explanatory model', an idea drawn from medical anthropology when studying differences between indigenous understandings of illness and healing, and western categories of disease and medicine (Kleinman, 1981).

The model distinguishes what people say from what they do as different spheres of social reality, which has implications for the value these different types of data have in field research – they should not be treated as substitutable. The social data drawn upon in the thesis combines both observations – on actions, events, natural conversation - and informal and formal interview data to understand notions. Interview data, or what people say, cannot be interpreted as standing for their inner experiences. As discussed above, the social world has already been interpreted before the researcher arrives, so that interview data are not raw but situated in the particular context in which the interview is held (Rapley, 2004). The way in which people choose to represent an event or idea is partly dependent on the social interaction in which they find themselves.

The model does not prescribe a mechanism by which notions affect behaviour as is assumed by cognitive psychological models, most notably the Theory of Planned Behaviour (Ajzen, 1991), which uses cognitive and measurable concepts of attitudes, norms and perceived behavioural control (underlain by beliefs) to predict individual intention and behaviour. Rather, an anthropological approach is used to attempt to understand knowledge and its relation to action on its own terms. In describing people's actions, norms and representations, I recognise that people within a community are not homogenous, and therefore what they say and do can be contested, rather than presenting a totalising image of a religion and culture.

I take a case study approach using one valley community - that is an in-depth investigation into one group of people, and set this within its geographical and institutional context. This method produces the 'context-dependent learning' needed for effective social inquiry as described above, allowing for a richer and more holistic understanding. Rather than using many samples in order to generalise as in natural science, a case study carefully chosen can have strategic importance to the research question (Flyvbjerg, 2006). Samdo is strongly linked to Bengpo monastery so that religion is likely to be an important element in people's lives. Being close to the county town, government influence is also relative high, and it is a productive area for caterpillar fungus and so experiencing market changes. Selection of this as a case study, therefore allows examination of the interplay of these institutions. Discourse is used as an analytic tool to examine the relationships between different groups that act at the field site, specifically the laity, religious clerical community and government.

2.8 Qualitative ethnographic methods

The research rests upon three field trips to Daocheng during 2009 and 2010 totalling eleven months, and the broad set of ethnographic methods used will be described here. I also used specific methods related to particular lines of inquiry, which are described in the relevant chapters: semi-structured interviews (Chapter 3) quantitative social surveys (Chapter 5), ecological surveys (Chapter 6) and participatory mapping (Chapter 7).

Data collection

I used a mixture of structured questions, in-depth unstructured interviews, key informants and participant observation. Anthropological fieldwork of this kind is based on the simple idea that if we are to understand the social world of a group of people fully, the best approach is to observe them by interacting over an extended period of time (Delamont, 2007). It allows detailed description, contextualisation, and flexibility in the research (Bryman, 1988). Spending as long in the field as possible increases the ability to observe the regularities in every-day situations such as language, relationships and ritual. During the first field work phase in May and June 2009 I began with quite a loose, inductively orientated approach using semi-structured key informant interviews and focus groups to draw out key themes and test ideas. I did not impose particular variables and research frameworks beyond the broad research themes, and used this as a scoping trip to hone the research framework.

In 2010 (January to April; August to December), I conducted household questionnaires on natural resource use and livelihoods in Samdo, and during the same interviews asked households about their religious activities and notions relating to the environment (see Chapter 3 for detailed methods). In-depth knowledge was also gained through discussions with people who became ‘key informants’ – those with particular expertise, openness, knowledge and reflectivity (Bernard, 2006). During the field work in Samdo I lived in a family home which also serves as a shop, restaurant and provides accommodation mainly to passing truck drivers. It lies on the main road in the township centre and during the day receives a number of local people stopping to sit around the stove to chat, and drink tea and beer. Living in the community in this way, I was able to observe and participate in village activities for example New Year (*Losar*) celebrations, a wedding ceremony and religious teachings as well as the more mundane activities of everyday life. I had a Khampa field assistant from outside of the valley with me for much of the stay who could speak fluent Kham dialect, English, and Chinese, and so could help with translation. I

recorded the details of my daily interactions and observations which I have drawn upon in the analysis and narratives. My field notes not only provided ‘flat’ descriptions of events and conversations, but impressions and thoughts, which formed an ongoing analysis and enabled progression and development of the research.

Qualitative data analysis

By initially going into the field with a relatively open and unstructured research design, I drew upon ‘grounded theory’ which uses induction, by aiming to discover ideas within data without imposing preconceptions (Dey, 2007). It was an iterative process which also involved deduction, in that implicit theories and assumptions guide all research (Silverman, 2006). The analysis process involved sorting and sifting data to identify phrases, relationships, patterns and themes, differences between subgroups, and common sequences (Miles & Huberman, 1994). Data were stored in NVivo 9 (QSR International, 2010) - qualitative data software that allows these multiple strategies to be used concurrently (Bazeley, 2007). Coding is the creation of categories for pieces of data, so that different instances of the same code are grouped together, and is central to qualitative data (Figure 2.5). Interview transcripts and field notes describing events reflect the “undigested complexity of reality” (Patton, 2002), and coding assists in linking this to concepts. I carried out two iterations of coding: during the summer of 2010 I built descriptive codes reflecting the language and categories found in the data and carried out some preliminary analysis. After reflection on the data, literature, further development of the theoretical framework, and more fieldwork, I developed the coding further.

Nodes					
Name	Sources	References	Created On	Created By	
Economy	41	66	12/09/2011 15:50	EW	
caterpillar fungus	7	11	19/09/2011 11:18	EW	
wealth	38	55	05/09/2011 14:14	EW	
Environment	71	437	12/09/2011 15:48	EW	
actions & events	44	77	12/09/2011 15:44	EW	
change	62	109	12/09/2011 15:46	EW	
conflict	7	8	05/09/2011 14:13	EW	
governance	62	158	12/09/2011 15:42	EW	
livelihoods	22	28	13/09/2011 13:40	EW	
norms	24	32	05/09/2011 14:13	EW	
scientific discourse	22	25	05/09/2011 14:12	EW	
Religion	70	716	27/09/2011 11:11	EW	
authority	59	146	30/08/2011 14:54	EW	
karmic	37	67	30/08/2011 14:50	EW	
local gods	64	359	30/08/2011 14:46	EW	
morality	36	45	30/08/2011 14:52	EW	
religious observance	48	99	12/09/2011 15:35	EW	
State	70	233	12/09/2011 16:27	EW	
authority	45	81	12/09/2011 16:28	EW	
policy implementation	14	37	05/09/2011 14:14	EW	
religion govt relationshi	36	59	05/09/2011 14:12	EW	
SLCP	51	56	05/09/2011 14:13	EW	

Figure 2.5 NVivo coding scheme for qualitative analysis

I improved validity of the analysis by using analytic induction methods – the constant comparative method of testing emerging ideas on more and more data, and inspecting deviant or negative cases to ensure a comprehensive treatment of the data (Silverman, 2006). With qualitative research there is a problem with generalising from particular cases. I found themes and concepts that cut across all cases, and also by incorporating demographic data and household/respondent details into NVivo looked for patterns, focusing in on particular cases (Huberman & Miles, 1994). Points in the text are illustrated with representative, typical or particularly significant quotes and occurrences from the data.

A note on field conditions and ethical considerations

I began fieldwork in Tibet just after a period of heightened security and restrictions on freedom as a consequence of the protest during Spring 2008. At a logistical level, this meant negotiating a rather more circuitous system through various levels of government to obtain permission to

work. It also made the fieldwork at times, difficult to carry out above and beyond my limitations as a researcher. Access to information was restricted, my movements were monitored, and people (the laity, monastery and local government) were understandably fearful of reprisals from speaking openly to a foreign researcher. I overcame these difficulties as best I could by staying in one community for a long period of time, and taking the time to build up trust. I employed and paid local people from Samdo to help with the ecological surveys and for transport, and stayed with a trusted member of the community in the centre of Samdo so I became a familiar presence. The political situation in Tibet also meant that the safety and potential risks for research participants and my field assistants were very serious considerations. I ensured research participants remained anonymous, and have referred to only their age, gender and livelihood in the text. Through collaboration with Beijing Forestry University I was fortunate in obtaining permission to work in Samdo and to have good relationships with Daocheng Forestry Bureau. This gave me official authorisation whilst also allowing me freedom to carry out the research relatively undisturbed. I made it clear that I was an independent researcher, and explained the nature of my work to local people in order to allay concerns about alliances with government or other groups.

3. Local gods, karma & morality

Religious understandings of the environment

3.1 Introduction

There is a prevailing presentation of Tibetans living in harmony with their natural environment before modern development struck (Yeshe, 1991; Norberg-Hodge, 2000), which is grounded in a more general Western interpretation of Buddhism as being “rich in resources for ecological thinking” (Parkes, 1997). These analyses have tended to draw upon enchanting fantasies of Tibet and religious philosophy rather than actual observations of local practice. Practice, however, does not always follow directly from Buddhist precept (Ramble, 1990) and evidence from observable behaviour and discourse is required to understand human relationships with the environment. This chapter aims to provide a contemporary and empirical perspective on Tibetan Buddhist environmental relationships using concrete ethnographic data. I explore the religious dimensions of environmental norms and representations in the case study community of Samdo, examining both religion as a local cosmology and as a system of moral guidance, and the relationship between these aspects. I focus upon three elements of Tibetan Buddhism, and how they may shape people’s notions about the environment: 1) local gods and spirits in the landscape 2) karma 3) Buddhist moral doctrine.

The Tibetan cultural landscape is filled with a variety of gods and spirits. Vigoda (1989) proposed that belief in these supernatural beings limits extractive resource use thus contributing to a state of “non-development” in Tibet. This idea aligns with the more widespread concept of sacred land heralded as a tool for conservation around the world (Dudley et al., 2009). Following Emile Durkheim's (2002) definition, the sacred is conceptualised as that which is “set aside and forbidden” and in direct opposition to the profane and every day. I explore the concept of the sacred by examining people’s expressed representations about local gods, and their relationships with generally held norms and religious practices such as ritual and pilgrimage. Based on the

assumption that they fulfil similar functions, sacred sites and protected areas are now often conflated under the term ‘sacred natural site’ (Wild & McLeod, 2008; Verschuuren et al., 2010). I explore whether protective norms and religious reverence extend to something recognisable as a local institution for natural resource conservation and management.

In Buddhist doctrine moral actions have karmic consequences, providing an incentive for Buddhists to perform ‘good’ actions to ensure a desirable rebirth and success in this life. As Western Buddhist Martine Batchelor (1992) puts it, karma “encourages us to take responsibility for our present situation and for how our lives will unfold in the future”. Of particular relevance to environmental issues is the precept of non-harm to living creatures. In the second part of the chapter, I explore how this is understood at a local level, how it is applied across species including plants, and the relationship between karma and retribution from local gods.

Buddhism, as all religions, prescribes the best way for a person to lead their life, and Buddhist ideas regarding non-violence, moderation and interdependence are thought to provide an ethic to deal with our current environmental crisis (Schumacher, 1966; Gross, 1997). My third line of enquiry relates to this moral guidance: how are Buddhist moral precepts playing a part in environmental discourse and norms within the case study village? Fear of retribution either from local gods or through the natural law of karma provides a potential basis for restraints on environmental activity based on individual or community self-interest, but Buddhist philosophy has also been presented as eco-centric rather than human centred. In particular, the philosophy of Deep Ecology draws upon the Buddhist principle of interdependence to provide an ethic in which intrinsic value is placed on the environment in general, including non-living elements, rather than only humans, animals and plants (Macy, 1991). I ask whether Buddhist ethics in the case study valley move moral consideration beyond the human world; to what extent is there an environment ethic of an eco-centric nature? Buddhist moral doctrine is drawn upon more directly by the monastic community than the laity in discussions about the environment, and lastly I briefly examine the different discourses between these two groups to highlight their confluences and distinctions.

3.2 Methods

The material in this chapter was drawn from participant observation, informal and key informant interviews, and semi-structured household interviews which will be described here. Based on my own preliminary research and that of others in Tibetan communities (e.g. Mills, 2003), the household is the unit of economic activity and natural resource use, as well as ritual practice. Whilst recognising individual agency and the potential for heterogeneity within households it was therefore appropriate to sample at this level for the structured interviews. A household in Samdo is based on a family unit of head male, wife, children, grandparents and sometimes extended family of cousins, and aunts and uncles. Descriptions of Tibetan society discuss the household in terms of estates separated into two houses – one ‘small’ (*khang-chung*) where elderly grandparents live, and the other ‘big’ (*khang-chen*) where married couples and their children live (Crook, 1994). One household interviewed had this type of structure in which case I treated the ‘estate’ as one economic household, but it was not common in Samdo and households were usually aligned with houses. It is most typical for a new bride to join her husband’s household, and grandparents to live in one house together. Younger couples with children may build a house near the parents’ home but they were largely economically independent. The reality was that economic households took a variety of forms beyond this, for example, a recently divorced man living with his new wife, a lone single man, and an elderly couple with one adopted daughter. The average age of the household head was 48 years (ranging from 30 to 66 of 50 households sampled). However, the household head was not always clearly defined role in many households, and there appeared to be a more fluid transition from generation to generation.

I took a photograph of Samdo, numbered all the houses, and randomly selected houses to visit by selecting a random number and visiting the corresponding house. I aimed to interview the household heads or decision makers, and if possible both husband and wife together. If no one was at home, I went to the next geographically nearest house or arranged to come back another time if they were busy or only the children were at home. A variety of types of interview took place – individuals (male and female), group interviews with almost the whole family, elderly grandparents, and couples. Questions on religion were incorporated into a more wide-ranging semi-structured questionnaire including natural resource use used as a basis for Chapter 5 (Appendix ii). 50 interviews of this type were conducted between January and April 2010, representing 23% of the households in the valley. During this work, I met several respondents who became key informants during the research, and I carried out further interviews and

discussions with these people. Other informants emerged during the course of the research through chance encounters, and recommendations from other community members.

Interview questions were translated into Tibetan with the help of a native speaker in the UK, and upon arriving in Tibet, with my field assistant to ensure the Kham dialect and a more understandable spoken form was being used. I carried out pilot interviews with six households in the neighbouring valley - Souchong, to ensure that I was asking culturally appropriate and understandable questions. Based on the pilot I adjusted the language to the Dabpa dialect, made questions clearer, and overall shortened the length of the questionnaire. In accordance with local etiquette, I presented each household we visited with a gift of tea and a ceremonial scarf (*katag*). All of the participants agreed to the interview being recorded, and at the end of each field day I listened to the recordings and translated them into English with my field assistant, producing a full transcript and noting particular Tibetan words and phrases of interest. Direct quotes in the text are attributed to a household denoted by a number which is used consistently through the thesis.

3.3 Local gods in the landscape

Characterising the local gods and spirits of Samdo

On arriving in a Tibetan village it is obvious that religion plays a part in everyday life: local people circle *mani* stones, spin prayer wheels whilst they chat, prayer flags flap in the wind and *chorten* dot the landscape. What is not immediately apparent is the world of gods and spirits that also forms part of this landscape. Tibetan Buddhism has inherited several models of the universe from Indian Buddhism, one of which depicts all forms of existence in the 'Wheel of Life' (*Sbri Pa'i Korlho*). The motif is commonly seen in monasteries, and shows all beings circling in the six realms of *samsara* (the unsatisfactory cycle of death and rebirth) – separated into three higher and three lower realms. The realms as described to me in Bengpo monastery are:

- Gods (*lha*): lead a life of pleasure but are more likely to be reborn into a lower level
 - Demi-gods (*lha ma yin*): less powerful than the *lha*, with whom they continuously fight.
 - Human realm (*mi*): they have the best opportunity to become Buddhas by protecting lives and natural things
-
- Animal kingdom: oppressed by other beings, they devour each other
 - Hungry ghosts with narrow necks and enormous stomachs (*yidak*)
 - The burning and freezing hells (*myalpa*): torture reserved for those who have committed large amounts of sin.

The wheel revolves on account of the three poisons – attachment, aversion and ignorance – at the centre of the wheel, and it is surrounded by the twelve links of ‘dependent origination’ (*dendrel*). Within this formalised structure there exists a local cosmology in Samdo as in almost all Tibetan communities, containing a variety of gods, spirits and ghosts. Local or regional gods are distinguished from supra-worldly gods (*jigtenlasdasp’ai-lha*), also called *lha* of the heavens who have moved up through their own efforts in acquiring merit, and the Tantric gods of Buddhist meditation (Samuel, 1993; Mills, 2003). Local *lha* remain ‘gods of this world’ (*jigtenpa’i-lha*), although the distinction can be inexact and dynamic.

In Samdo local *lha* in the landscape can be benevolent or malevolent, and frequently unpredictable. Material concerns regarding the weather, fertility and disease can all be dictated by these *lha* requiring attention to every-day actions and regular propitiation. The gods in the landscape are community based, but other gods protect the household or even individuals. Although representations of local gods are localised there is a widely recognised typology described by scholars of Tibet (Mumford, 1989; Samuel, 1993; Ortner, 1998; Mills, 2003). Below I briefly describe the types of local deity according to descriptions given in Samdo:

Yul-lha – the most broad and significant category of local god in Samdo. *Yul* means local area, and they are territorial deities most associated with mountain domains overlooking the villages. They are dominant in the religious landscape of Samdo and so form the main focus of discussions in this chapter and the thesis as a whole.

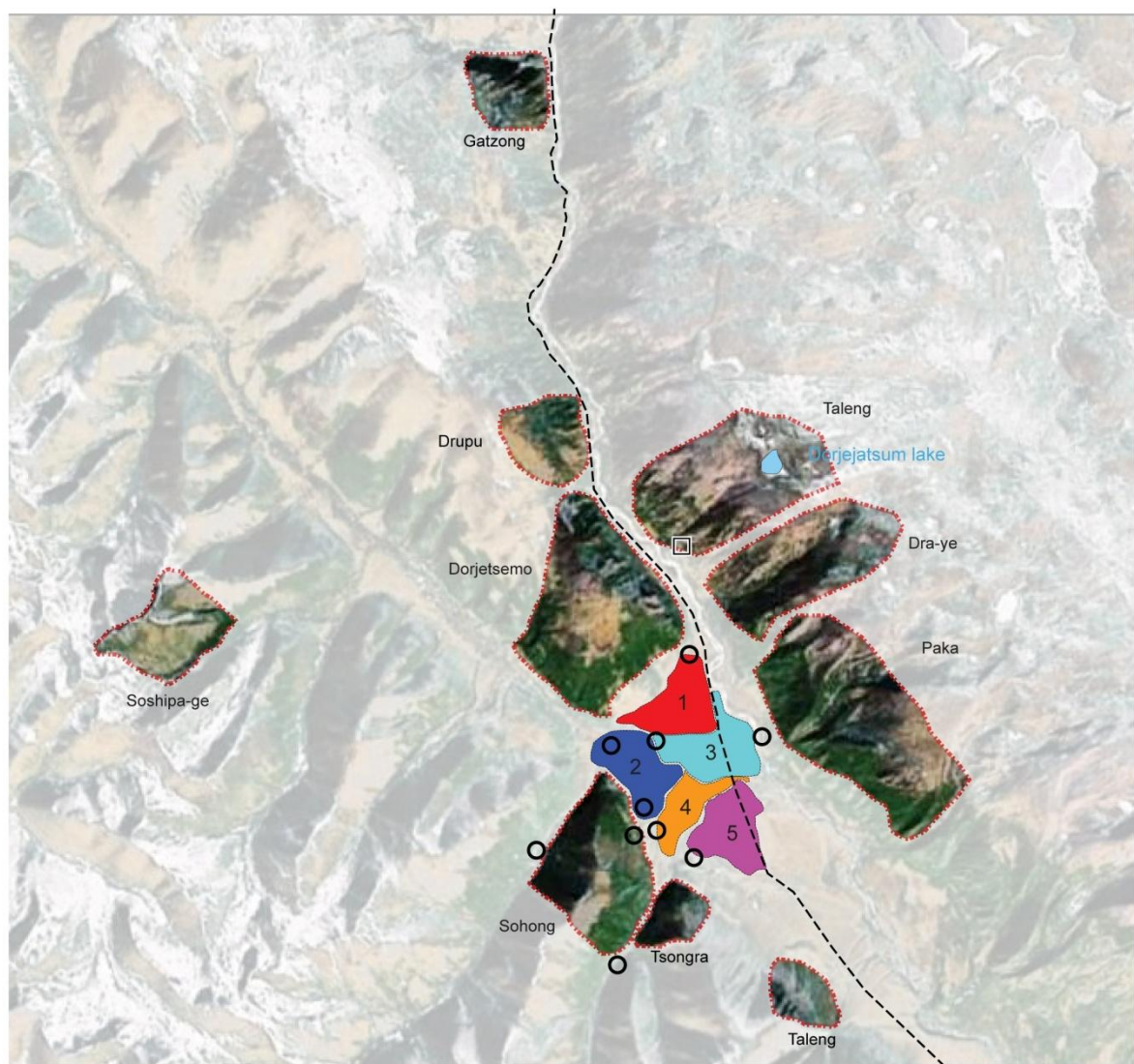
Lu – Water spirits whose physical appearance is half human and half snake; they belong to the underworld beneath the domain of humans and live in water, sleeping in their shrines in the winter and awaking in spring time. They are mainly associated with fertility and considered capricious.

Tsen – the spirits of heroes (*pabo*) who reside on cliffs and along passes, they may form warrior armies associated with other local deities. They were not commonly discussed in Samdo but generally feared and attention paid not to cross their path or disturb their land.

Sa-dag – earth spirits or owners (*dag* translates direct as ‘owner’). They are associated with more localised natural features such as rocks, stones and small areas of land, and often people were uncertain about their exact location. Local people also referred to *chu-dag* (water owner), *shing-dag* (wood owner) and more generally *zhi-dag* meaning ‘foundation owner’.

Residents of Samdo used the term *yul-lha* and *ne-ri* almost interchangeably. *Ne* are the foci of pilgrimage and can be applied to a variety of objects including religious structures, caves of Tantric practice and important yogins, or incarnate lamas. With the word mountain (*ri*) it denotes the mountain abode, most often of a regional god. Although *ne* is often simply translated as ‘place’, the word denotes a stronger sense of residence but also existence (Huber, 1999a). So *ne-ri* can be understood as the place and the *yul-lha* the god that resides, but more than this the god is embodied in (it actually *is*) the place.

A group mapping exercise (as described in Chapter 7) elicited a spatial construction of the religious landscape in Samdo and associations with physical geography. The map was used as a basis for further discussion during the household interviews and in the monastery. The resulting map showing the main features of this landscape (Figure 3.1) provides a supportive visual aid to accompany the discussion.



0 km 1 km 2 km

--- road

... ne-ri (sacred mountain)

○ lu (water spirit)

□ monastery

villages:

1 De'ra

2 Drongshen

3 Diden

4 Khongsar

5 Shagong

Figure 3.1 Map of Samdo valley showing the religious landscape
Satellite image taken from Google Earth (CNES/SPOT image 2012)

Samuel (1993) observes that Tibetan lay people are concerned mainly with the protection of local gods rather than holding detailed knowledge about them and their place in the Tibetan Buddhist pantheon. In Samdo, the laity focused, during discussions, upon the offerings (*sol*) they made to various gods, rather than their characteristics or history. The ritual actions performed towards the gods form an important way of defining relationships between humans and other beings in the landscape. The shrine (*lha-to*) to the local god is often near the base of the mountain on another small hill (Figure 3.2). Villagers (men and women) go to their nearest or the village *yul-lha* shrine to make 'smoke' (*sang*) by burning incense especially juniper, and hanging prayer flags (*longta* meaning 'wind horses'). This is generally a biannual tradition performed at Tibetan New Year (*Losar*) and before the harvest in the 9th month of the Tibetan calendar, but also in any month especially on 'auspicious dates' (*nyida tsanda*), and people generally carry out the ritual whenever they needed the deities' help. During the autumn ceremonies, this would traditionally have been associated with a horse race, a practice still carried out in other valleys in Daocheng.

As quite different beings, ritual attention to the water spirits, *lu*, was constructed in a different form. The *lu* are said to awake in spring after a winter sleeping in their shrines (*lu-khang*; Figure 3.3) and offerings were then made in June and July of the lunar calendar. Milk and wool were offered into the stream and sticks from different trees and crops were placed on the shrine and those from the previous year put on the edge of the farmland and on top of the houses to protect it. Water was taken from the *lu*'s stream and put in the house. One *lu* named Bemalen seemed to be the most important for the whole valley; others are more locally important and historically associated with particular lineages and groups of houses.



Figure 3.2 *Lha-to* at the base of Dorjestemo



Figure 3.3 *Lü-khang* and doman of the *lu* at base of Sohong

This ritual observance constituted part of the calendar of regular rites within the household and monastery. More general religious practice took place on a daily basis with regards to household gods and protective deities (*chokhyong*). Wealthier homes contained a shrine room (*cho-kehang*), and poorer families often devoted a corner of the main living space to religious offerings. This contained hanging scroll paintings (*tangka*) or images of important deities and photographs of incarnate lamas (*tulku*) – the human manifestations of supra-worldly gods. Water offerings in brass bowls (*yongchab*) were made, and butter lamps (*marme*) burnt each morning.

According to senior clerics at the monastery, their own responsibility is generally to pray, read scriptures and to remain in the monastery, but they are also involved in ritual practice towards the local deities. Using a supra-worldly god invoked through the use of tantric practice, they order the *yul-lha* to protect people and not to punish them. This is a re-enactment of the subduing of the worldly gods, a common theme in Tibetan Buddhism, recalling the initial control exerted over the landscape when Guru Rinpoche first brought Buddhism to Tibet. This uneasy relationship between Buddhism and the chthonic forces of the landscape is still played out today through the ritual, whereby the threatening forces of nature are organised and subjugated by the incoming religion (Ramble, 1999). Also, every day, a monk chanted scriptures in the ‘protector temple’ (*gon-kehang*) of Bengpo monastery and devoted a few minutes to entreating the worldly gods to protect the earth from natural disasters.

By far the most important *yul-lha* in Samdo was Dorjetsemo (Figure 3.4) which is the territorial deity for the whole valley. Every Tibetan household interviewed talked of it as their *yul-lha*, and many people (of the 50 household surveys 28) said they had circumambulated (*kor*) and made offerings to it in the previous year (2009). During New Year (*Losar*) of 2010, men of the households climbed to the top of the mountain Dorjetsemo at dawn to place new prayer flags. *Tsemo* was thought to be a derivation of *tse-mang* meaning ‘many peaks’ referring to the stones on the top of the mountain, but the mountain has an alternative name of *Dorjetsenmang* meaning ‘many *tsen*’ and it was also thought to be the home to an army of warrior deities. Dorjetsemo is considered the ‘principal’ or leader of all the lesser deities in the valley. This mountain forms part of a popular and important pilgrimage for people of Samdo and villages beyond.



Figure 3.4 The *yul-lha* Dorjetsemo

The mountain behind the monastery, also *ne-ri*, is named Dechonay, its peak Taleng, and the deity Dra’gar. People commonly circumambulate Dujetsemo, Gatzong and Dechonay/Taleng together, and visit the lake. This pilgrimage also takes in Sharta (south of Gatzong) where there is a natural image of a deer said to have emerged after the Karmapa subdued the deities there. The lake named Dorjejatsum is an important pilgrimage site for the Tibetans of Samdo, and the water spirit which lives there is said to have been subdued (*dul*) by the third Karmapa, and is given a milk offering by the people of Samdo.

These sites were thought to hold particular power due to their history, for instance Dorjetsemo has ‘power’ due to a precedent of important lamas meditating there. Likewise, Dechonay has a number of meditating caves and bears the handprints and footprints of various Karmapas in history. People went on pilgrimage to these sites to gain merit and blessing (*chinlab*), through ritual acts. Buffetrille (1998) describes two types of sacred mountain in Tibet: that of the

locally relevant *yul-lha*; and those worthy of circumambulation (*ne-ko*) which have been converted into Buddhist supra-worldly divinities significant to the wider Tibetan community. This distinction is not completely clear in Samdo however, and some respondents recalled circumambulating another *yul-lha* – Sohong. This suggests, like other reports, that the significance of a local god is dynamic, and pilgrimage to a particular place may wax and wane accordingly (Wenbin, 1998).

Like Dorjetsemo, many indigenous deities found their way into the Buddhist pantheon through the use of the word *dorje* meaning ‘diamond’, and given auxiliary functions by acting as emanations of the god or guardians of the ‘doors’ to these gods (Tucci, 1988). Indeed, Dorjetsemo is allied with another much more famous and important pilgrimage site in Daocheng county – the three peaks of Rigsum Gampo (described in Chapter 7) - the three protector bodhisattvas (*changchub semspa*): Jampalyang - of wisdom, Chenresig - of compassion, and Chyagna Dorje – of power. Dorjetsemo was described to me as both the ‘door’ to Rigsum Gampo and for some the three bodhisattvas pervade the mountain in Samdo.

Households carried out ritual activities more often to certain gods, especially those closest to their village. Informants discussed the relationship between particular villages and *yul-lha*, and this was reflected in ritual attention given: The second village (Drongshen) was associated with Sohong, and the fifth (Shagong) with Tsongra and Taleng. Dorjetsemo and Gatzong had ritual significance to all villages, and beyond to the valley of Souchong where people came from to circumambulate the mountains. The *yul-lha* Soshipa-ge especially was not always mentioned (only by 15 of 50 households surveyed) as it lies far from the centre of the valley. Local deities can form the primary symbolic marker separating villages (Pirie, 2006). It was not so much the geographical location of households which was important in this respect but the lineage and history, and this I found especially with regards to the water spirits. *Lu* were associated with particular families and groups of households, highlighted by the fact that several households reported that they continued to pray for their *lu* despite having moved to the other end of the valley to where it resided. People did not always know the location of the next village’s water spirit or the one that a neighbour made offerings to; it may not be important for that household. In this way sacredness is spatially differentiated, and ritually defined in relation with particular people.

Avoiding the wrath of the gods: norms of environmental significance and indigenous representations

Having distinguished elements of the religious landscape in Samdo I turn to the norms evoked with regards to these sites, and their environmental significance. Local knowledge about the elements of the sacred landscape and its relationship to the lived experience of people informs both norms which give instructions about what to do in specific contexts, and people's actions. The villagers I spoke to unanimously agreed that people should not cut trees, dig earth (turf is traditionally used as the base for tents and for walls) and stones or kill animals on the *yul-lha*, some adding other misdemeanours such as making fires, shouting, urinating and defecating, and fighting. Similarly there are strict norms about cutting trees and digging earth near *lu*. The norms and locations of *tse* were less certain but their domain should be generally avoided and not disturbed. For *sadag* and other more geographically confined spirits, norms were less often evoked and due to the uncertainty concerning their location and the ubiquity of these deities, were more likely to be overridden by practical concerns.

People illustrated how stringent the rules on the *yul-lha* were by emphasising that “you cannot collect *anything*, even something as big as your finger.” This includes plants, caterpillar fungus and other mushrooms, (although these norms have shifted - see Chapter 4). During interviews norms were explicitly considered the same for all the *yul-lha*. However, inconsistent and contested norms emerged in relation with indigenous representations about the inhabitants of the landscape, their character's history and activities, and more worldly concerns.

Breaking the norms associated with gods and spirits in the landscape was directly associated with misfortune. The most commonly cited misfortune was sickness. The symptoms rather than names of diseases were important: skin lesions and boils, pain in the joints and limbs, and the loss of hair and eyebrows. These could all be related to leprosy (*dze*) which was sometimes referred to explicitly, and is often connected with ritual pollution and retribution from deities in Tibet (e.g. Mumford, 1989). It is especially associated with water spirits, and there is even a term in Tibetan and used in Samdo for “*lu* illness” (*lu-na*). Vargas (2010) found that it is only in recent times that leprosy has been referred to in Tibet rather than *lu* themselves. Illness as a culturally defined experience is distinguishable from disease – the measurable and pathological condition of the body (Kleinman, 1981) - and the two categories do not align exactly. Although it has a low prevalence in the PRC today, leprosy, as historically in Europe, is an illness with social stigma attached and rates were relatively high in Tibet up until recently. Tibetans in Samdo focused mainly on the visible signs of illness, and how quickly the god would show to other people what offence towards it you had committed. Several people talked about a deeper level of

causation in which the retribution affected *paygen* – the phlegm humour in the body. According to Tibetan medicine, all illnesses result from a disturbance to the equilibrium of one of the three humours (*nyepa sum*) (Tucci, 1988).

In Tibetan culture, illness and its cures are related to astrology and when someone is struck down with illness a ritual practitioner (*mo pa/ma*) is called to perform a divination, confirm the reason for the illness episode, and prescribe potential ritual forms of cure. The consequences of the action toward the god can be serious and it may be too severe or late for prescriptions of ritual apology. Actions to cleanse such misdeeds are the same as those that increase good karma, for example chanting sacred texts. It is not just illness that results from breaking norms, and a whole host of other misfortunes were discussed. These were related to weather (floods, storms and rock fall), agricultural production (bad harvests, wolves attacking livestock), and more generally bad luck and sorrow (*dugdal*). Conversely, positive norms were to protect the god and not harm it, which will bring luck, health, a good harvest, and generally make life easier and more successful.

Misfortune of this kind was seen to be commonly exerted at an individual level towards the norm breaker (although this was sometimes extended to family members and hereditary diseases). However, when more generally presented with the scenario of the forest being cleared on the local god and the culprit not specified, people said that retribution would then fall on all the villagers making life expectancy shorter, decreasing fertility for crops and livestock, and general misfortune. There is a connection perceived between the local gods and the wellbeing and fertility of the valley as a whole.

Further probing revealed the sequence of events in representations about misfortune caused by the local gods and spirits. If trees are cut, or ‘blood shed’ on the body of the *yul-lha*, he or she is described as becoming jealous and will punish the perpetrator either individually or collectively. The mountain is considered the body of the god, and the trees and animals related to or part of its physical being:

“The local deities are like people – they have flesh, bones and a heart so when you cut down trees it is like taking part of their body.”

The Drupe (meditation leader), Bengpo monastery 2009

Local Tibetans told how wild animals are connected to the local god, who can command that they attack livestock of those who have offended it. This emphasises that the god is embodied within the landscape, and illustrates the tendency within Tibetan culture to anthropomorphise the landscape (Gyatso, 1995). The contours of the land are conceived as body parts of animals or

human-like beings. Dorjetesmo was thought to be the form of a white deity riding a white horse which could at times become an untamed tiger. Huber (1999a) also notes how killing animals at the mouth of the goddess embodied in a mountain was practiced as it was said to please her.

Actions towards the god can be dependent on norms linked by a representation about its particular characteristics. I saw this most starkly in the village of Shengmu in Daocheng county where a particularly forgiving local god allowed a limited amount of firewood collection on the mountain body without negative consequences (Chapter 7). This type of distinction was also discussed in Samdo:

“It’s the same [kind of consequence from all the deities], but it depends on their generosity. Some are easy to anger, and you may feel the bad things very quickly, but some are more forgiving.” [43 year old layman; trader; no.1]

Local people consistently described the different temperaments of each deity which can broadly be separated into wild and unpredictable, or benign and helpful. Gatzong is particularly ferocious and threatening, and his punishment will happen quickly and forcefully, whereas Dorjetsemo as the leader of the lesser deities is more benevolent and described as being like a fully-ordained monk (*gelong*) who has taken vows of Buddhism (*dompa*). He has been tamed. All the *yul-lha* described, however, can punish if certain norms are broken. Two particular incidents were consistently recalled in relation to Gatzong: one in which a Tibetan man tried to cut down trees on the god and instead cut off his own feet due to bad luck; the other a Chinese man who killed animals and subsequently became very ill and eventually died. These events appear to have generated fear within the community regarding the abilities of Gatzong, and caused several respondents to claim that the god is more important even than Dorjetsemo. The significance attributed to certain *yul-lha* seems to shift according to recent incidents which include a more modern type of misfortune – car crashes, sadly a common occurrence on the winding mountain passes of Tibet (during my field work I saw three collisions). It was said that in 1990 removal of stones from the *yul-lha* Sohong for building work resulted in the car transporting the rocks to crash, despite warnings by the monks and local community. The way in which these incidents become related to supernatural retribution relies to some extent on the authority of ritual practitioners and the monastery (Chapter 4).

In many discussions about the Cultural Revolution (1966-1976), people told of how they could not protect the local gods during this time and sometimes that the gods had escaped with Tibetan refugees across the Himalayas to India only returning when religion was once again politically acceptable. Norms related to the land changed as a result so that cutting down trees on

the *yul-lha* became allowed. This suggests that although the gods are embodied in the mountain they are also ‘resident’ as the term *ne* suggests and can change their position under certain conditions. Although a rather extreme example it illustrates that the religious landscape is not fixed but flexible and is responsive to political and social changes. This has been shown in other studies in Africa where conversion to colonial religions and new political systems have displaced traditional religious practices towards sacred land (Fargey, 1992; Sheridan, 2008). These explanations were often followed and associated with more pragmatic explanations for deforestation during the Cultural Revolution - extreme poverty, and in particular the need to earn money from making charcoal from local trees.

Boundaries of sacred land were uncertain, flexible and negotiated. *Ne-ri* do not necessarily equate to a whole mountain, and the face of the mountain not visible from the village was not considered part of the god. Only the forested section of the mountain forms the *yul-lha* Tsongra suggesting that forest is somehow significant in the recognition or development of *ne-ri*. In Samdo, the higher reaches are considered most important or indicative of the gods’ power: people said of Gatzong that its high rocky peak “showed that it is a hero”. Towards the lower parts of several mountains -Tsongra, Sohong, Soshipa-ge - I observed firewood cutting and earth that had recently been cut to make walls. Residents said this activity is acceptable towards the base of the mountain, and when asked about boundaries, most people were unsure about them for specific *ne-ri* but considered them generally to be natural features such as valleys and rivers. These patterns also reflect the up-down tri-partite distinction in the spatial ordering of the Tibetan landscape cosmology: the higher *lha* (including the *yul-lha*) occupy the mountains; humans are below them alongside the *sa-dag* and *tsen*; and below this is the abode of the water spirits (Mills, 2003).

The locations of the *sa-dag* and *chu-dag* were uncertain amongst the community. Punishment for lack of consideration for these beings is potentially deadly but unpredictable, requiring care in every place especially when digging the earth. This care can also include ritual protection, for example before building houses. The *yul-lha* are, on the other hand, well-known and associated with the valley where they reside, as a senior cleric put it - “like each shop has a keeper, each *yul-lha* belongs to a place....he is responsible for the lives near to him”. However, there was contestation within the community in Samdo about the presence of *yul-lha* at some sites, most significantly the ‘*Paka*’ (the ‘other side’ mountain) on the east side of the river, which some people recognised as a god and others not.

Norms were also affected by practical concerns. In describing instances when these norms were broken the laity suggested some flexibility in norms under certain situations. When

asked about timber and firewood collection I had observed on Dra-ye and other *yul-lha* one layman stated “Tibetans use trees to build houses and make fires so they need trees.” Sacredness can be situational rather than an innate quality, for example for the Azande of Africa a shrine was the focus of ritual offerings but sometimes also a place to rest spears (Evans-Pritchard, 1937). Huber (2003) describes a temporal quality to sacredness in Tibet from the 15th century to the 1950s in the form of ‘sealing the hills’ which prohibited people from entering a particular area or hunting during certain religious festivals, but I found restrictions on sites to be only spatial. In Samdo, the flexibility of norms appeared more reminiscent of Mumford’s (1989) ‘lay dilemma’ in which people accept a certain amount of sin or punishment for their everyday actions.

Protecting our valley: the political nature of local land governance

Conservationists have suggested that sacred sites represent a form of informal institution for natural resource management which may incorporate not only non-extractive norms but active protection by local communities in the form of monitoring, social sanctions and management (Wild & McLeod, 2008). The community of Samdo considered themselves the owners of the local *ne-ri*, rather than the state (who officially own the majority of land in the township) or other institutions, and clarification of the concept of ownership was given by some respondents. They were indicating that the *yul-lha* - the god - belongs to the valley; it is their deity as it protects their community and locality. In the reciprocal relationship the villagers have with their local god, they ‘protect’ (*gon*) it but do this by praying and making offerings rather than physically protecting the land. The younger generation were considered to be able to better protect the *yul-lha* because of their ability to climb the mountains and hang prayer flags. Some people also emphasised that the *yul-lha* itself was the owner, using the word *dagpo* and following the interpretation of the word as having power or jurisdiction over particular areas (Mills, 2003).

Local Tibetans reported that no-one from the community would actively protect the sacred land in Samdo. This responsibility was only stressed against outsiders and it was politically rather than religiously framed:

“There are no owners [of the *ne-rz*] - all the people in the valley are the owners and protectors. If someone from another area like Dapba town or Chatreng comes, then all the people will stop them from killing animals and cutting trees in this area – on the *yul-lha* and the other mountains. We don’t stop people from here, only people from other places. All Tibetan people only pray for the *yul-lha*, they don’t stop people from doing things on it. People don’t cut trees and kill in other areas because they are afraid of a fight – it is dangerous. It is our responsibility to protect our own area...the government has not dealt with the boundary problems.” [38 year old layman, pastoralist, no.2]

This type of opinion was expressed especially with reference to land rights issues related to caterpillar fungus which resulted in violence between a neighbouring valley community - Demba - and Samdo in 2007 when eight people died and more were injured (Chapter 4). I found conflict over natural resources to be purely about boundaries and access, and the religious landscape at most defined the contours of the valley and its sub-communities. No examples of actions taken towards members of their own community who had broken norms on sacred land were given, and people said they would respond less actively towards them. People reported that they had not seen anyone breaching the rules on the sacred mountains, and presented with a theoretical scenario of someone cutting trees on a *yul-lha*, the majority said they would try to persuade the person themselves to refrain and take no further action, or do nothing at all. At most they would inform the government or village leader. Often it appeared to be neither a civil nor monastic issue, but cosmological; on other ‘non-sacred’ land the government punishment would suffice:

“I would try to persuade the person. If they don’t listen, I wouldn’t do anything. It would result in them getting sick. On other land, I wouldn’t say anything because the Forestry Bureau is in charge.” [50 year old laywoman; agro-pastoralist; no.3]

Referring to the individual cosmological comeuppance the culprit would receive, there appeared no need for any institutional involvement or government punishment. In one particular village however, several respondents indicated they would actively punish someone who was cutting trees on the *yul-lha* by beating them. The comments were confined to one village, suggesting it reflected the ideas of their village leader.

Although sacred space was not invoked directly in discussions regarding natural resource claims and conflict, sacred space did define political boundaries between communities. Sagant, (1990) saw local gods to be related to community political power and they were entreated in

battles and feuds in Eastern Tibet. In Samdo local gods were said to fight with other *yul-lha* in the surrounding area, echoing human conflict between different valleys. It was said that the gods within Samdo do not often fight with each other because they are led and controlled by a leader - Dorjetsemo. Conflict, of course, does occur within Tibetan communities (see Pirie, 2005) but with regards to natural resource use in Samdo, it was centred upon those coming from outside the valley community. Since it is the physical fortunes (health, fertility and the environment) that are directly affected by the cosmological world, the environment is more of a religious issue than a social problem. Conflict over natural resource access falls within the latter category and therefore was not religiously framed.

3.4 The karmic model in environmental actions

Non-violence & good fortune

During conversations, members of the clergy presented the idea that “Tibetans don’t kill because they believe in the karmic results of their actions (*lay ju dray*)”. The movement between births as different beings in the ‘Wheel of Existence’ is not random but governed by the natural law of karma related to actions, the effects of which can also be felt in this life. The local community commonly referred to the concepts of fortune and sin with regards to karma and morality. Two terms related to good fortune were used: firstly *sonam* which refers to meritorious good fortune, and secondly *pu* (*sum sho’pa*) which is more general and means complete, perfect, or ‘all good’. The laity mainly used these words in reference to this life, rather than a fortuitous rebirth. With regards to the environment, merit was associated with the first precept in the ten Buddhist prohibitions (*mi-ge-ba-chu*) – not taking life. In addition, the release of animals was, in particular, associated with an instrumental ethical perspective with a focus on direct consequences of actions. In Samdo, animals were released from captivity to escape their death, especially fish, chickens and cattle which were saved from their imminent slaughter and marked with colourful *katag* to show them as liberated and protected. The idea of multiple lives was most powerfully evoked in these representations in which people imagined their future life as an animal and their hope that the animal they were saving would return the favour. The reciprocal relationship between beings in *samsara* spans these multiple future lives:

“If you release some animals, everything you do will easily be successful and you will be happy. It will make your life longer. If you release animals in this life, it’s like money in the bank, and if you are an animal in the next life the animal will release you.” [65 year old layman; agro-pastoralist; no.4]

Conversely sin (*digpa*) is the opposite of merit and leads to suffering (*dugsngal*). It was strongly associated with killing, and in particular hunting wild animals (and more generally causing suffering to others).

Unlike actions related to harming local gods where even an accidental transgression can lead to punishment, motive was considered of some importance with regards to karmic sin and good fortune. Intention is a key element in the calculation of karmic retribution and the need for a ‘pure heart’ when carrying out a meritorious action was a common phrase I heard in Samdo. An unintentional sinful act will also create less bad fortune, and can be more easily remedied through ritual action. The type of accidental or necessary killing of life was justified by the practical realities of life, especially the need for rearing and slaughtering cattle, and digging the earth for agriculture:

“In the fields there are so many insects, so people kill them too. When they eat *tsampa* [barley meal] from their hand, blood will drop from their fist. If you dig the ground you will get a lot of sin, but if you don’t dig it, you won’t have any food to eat or clothes to wear.” [52 year old layman; agro-pastoralist; no.5]

The imagery used by this man shows that the killing of insects falls under the moral sphere of karma, but what about plants? Despite the ambiguity around the moral significance of plants in Buddhist doctrine, many Tibetans in Samdo considered plants to “have a life” and therefore a sin to kill them. This was expressed especially regarding trees rather than smaller plants. There are some references to bad karmic consequences of cutting trees, and the benefits of planting groves in Buddhist texts. The Buddha is also commonly associated with the natural environment since important points in his life took place under trees and in parks (Keown, 2005). The moral worth of plants is also connected to recent developments in discourse amongst the Tibetan religious elites (see Chapter 4).

Protection of forest in the last decade - attributed to both government policy and religious resurgence - was thought to have brought luck (*sonam*) to the valley, particularly in the form of good harvests. This shows that merit accumulation is not always individualistic as often conceived, but moral actions may be constituted by the combined intention and deeds of

different actors in relationships (Mills, 2011), for example village leaders and villagers who will collectively reap karmic rewards. Sin was likewise often talked about as a communal burden which could be transferred rather than having a finite quality, and it was related to the fortunes of the entire valley. The term was even used collectively as in “there will be more sin” rather than “he will get sin”. This has potential implications for environmental responsibility. Although it was not related to direct social sanctions on the perpetrators, the wider repercussions of individual actions applies a certain amount of social pressure to conform. Even wider geographical implications of cumulative sins were invoked in discussions about the earthquake of 2008 in Sichuan, the blame being placed on the recent history of state-led deforestation and infrastructure development in Eastern Tibet.

Interactions between karmic and local deity models of fortune

As karma is a natural law, doctrinally it is not considered to be related to the retribution dispensed by the gods and spirits but rather all beings in existence are subject to it, including worldly gods and animals:

“If you cut trees, you will get leprosy afterwards, or immediately ache and die at the same moment. If you kill animals on the *yul-lha*, you will get the same result. If you did these things where there is no *yul-lha*, you will get sins but no punishment from the gods.” [60 year old layman; agro-pastoralist; no. 6]

In this quote the distinction between the two models is made clear, but often this was not the case. For some people there is little difference between the results of killing animals or cutting trees anywhere; it is only the degree of misfortune received rather than the type that is distinguished:

“For Tibetans if you clear any forest, it's equivalent to accumulating sins. Especially if you cut down trees on the *yul-lha*, you will die.” [40 year old layman; agro-pastoralist; no.7]

Protection of a *yul-lha* was thought to increase good fortune; and offending it weakened this luck (as well as the direct results discussed above). The function of local gods in Tibet can include “increasing the possibilities of good karma” although enlightenment is beyond the reaches of their powers (Tucci, 1988). In fact, the direct results of sin (killing animals and trees) and harming a god are indistinguishable: sickness, reduced longevity, bad harvests and so on. This

further narrows the distinction between the *yul-lha* and other mountains and areas of land in terms of religiously-based environmental protection.

Lichter & Epstein (1983) draw a distinction between *sonam* (associated with karma) and another type of fortune - *jen* - connected to supernatural retribution. I did not find this latter word to be used in Samdo, and instead *sonam* was used in reference to both realms of fortune. But if the consequences resulting from deviances in both models are the same, how do the processes differ? 'Pollution' (*dip*) - a metaphysical substance related to kinds of defilement - can also offend local gods (Mills, 2003). In Samdo I found that only direct harm (*no*) to a god or spirit was referred to, and *dip* was reserved for more obviously polluting actions in Tibetan culture such as childbirth and contamination of food. The harming of gods was also not discussed in obviously ethical terms; the word sin was not used in reference to it and only consequences were focused upon. Yet it is not just virtue that can stave off bad karmic consequences but actions related to supernatural beings. Huber & Pedersen (1997) interpret relations between local gods and the environment, in particular the weather, as the creation of moral space. Although I found that people stressed the consequences of their actions with relation to local gods, this could also be seen as a means of extending moral order from the social into the natural world, especially given the similarities between norms regarding behaviour towards local gods and Buddhist ethical rules. There are also parallels between the way sin was discussed and the qualities of pollution, all suggesting a more nebulous conception of these ideas, a focus upon consequences rather than process, and an overlap in what are often thought to be quite different religious complexes.

3.5 Buddhist precepts: an environmental ethic?

“There are different paths to enlightenment. It is just like building a house: you carry each stone and build a pillar...each part needs to be complete. You need to have compassion towards all living beings and have a kind heart. In that way, even a layman can be superior to a monk.”

Monk in Bengpo monastery, 2009

Western interpretations of Buddhism have long proposed a more intimate relationship between religious precept and environmental concern and action than one based on egotistical fear of consequence. A Buddhist ecological ethic is thought to provide a somehow deeper and firmer foundation for environmental action. Certainly morality is a central pillar of Buddhist teaching on the path to enlightenment as illustrated in the quote above. Is this of relevance to the laity in Samdo, or are they relating their moral actions with regards to the environment mainly in terms of their proximate consequences, and therefore in a more self-interested orientation?

Though there is no exact term equivalent to ‘ethics’ in Tibetan, the concept *tsul trim* means moral discipline and is an intrinsic element of the path to nirvana (Keown, 1992). In Tibetan Buddhism moral guidance comes mainly in the form of the ‘ten non-virtues’ or prohibitions, the first of which is taking life, as referred to above in relation to karma. There are also the 16 human pure laws (*mi-chos-tsangma-chu-drug*) given by decree during the reign of Songtsen Gampo, founder of the Tibetan Empire, the fifteenth of which has been interpreted as “having moderate food and wealth” (Dung dkar blo bzang ’phrin las, 2002: p.1600) or “knowing how to use food and wealth” by the 5th Dalai Lama (Nag dban blo bzang rgya mtsho, 2008: p.16). In Western interpretations of Buddhism, of course, there are more direct references to moderation and renunciation in relation to environmentalism.

During discussions about sin, I found that local Tibetans did not seem to always be connecting moral action with immediate karmic consequences or even to the next life. People were incredulous at my stupidity for asking about the morality of killing wildlife – “of course it is not good to kill animals!” Further probing would lead to confirmation that this was a moral absolute, and not necessarily related to material consequences but rather simply that it is “bad in Dharma (chö)”. Forest and an increase in the number of trees were likewise deemed “good (*yagbo*) in Dharma”. Although people are obviously concerned with the karmic consequences especially in this life as discussed above, this suggests that non-violence does not only hold instrumental significance for the laity. In fact the two ideas are not mutually exclusive and form part of the same moral order; Dharma - the Buddha’s teachings - is manifest in the law of karma

which governs the way moral deeds affect individuals. In this way *sonam* can be understood as an experiential indicator of moral virtue, instead of a rather crass system of rewards and punishments for good and bad behaviour (Keown, 1992).

I have noted above that the motivation for karmic actions is of importance and people's emphasis on this showed an understanding of the moral nature of certain actions. The way in which good luck was manifest at a community rather than individual level also hints at a deeper significance. The word 'happiness' (*shippo*) in connection to karmic good luck, used often by the laity in Samdo, is not purely egotistical but was mainly evoked in a communal sense. Through karma, the idea of happiness incorporates material good fortune *and* virtue; a happy life is not only obtained through virtue, it is constituted by virtuous actions. There is no real dispute between following a strong moral precept and holding the karmic effects of some consequence. This supports the idea that karma is an aspect of ethics and although the eyes of the community may often be focused on proximate goals of karmic good fortune, its linkages with morality was within their line of vision.

Happiness was considered directly related to the state of the environment – the number of animals and size and health of the forest – which was generally thought to have improved in recent years. There was a historical and political grounding to this idea as well as a potentially religious one, and especially the hunting of animals appeared frequently in historical narratives associated with the past, with poverty, and with the political unrest and violence of the Cultural Revolution, a time when religion could not be practiced. The resurgence in religious practice was directly associated with the ability to protect forest and wildlife:

“When I was in my 20s I killed many animals, I had a gun then. The government had said that there are no gods or ghosts and no such thing as sin, so I killed everything except people! If people have religion, then they don't kill. When I was in my 30s I regretted what I had done, and didn't kill any more. The Chinese came here 60 years ago, so my whole life has belonged to the government – I am 57 - so I don't know what the laws were before that. Before the environmental protection laws, people's lives were very poor – people killed animals for food. At that time people were starving and they ate from one big pot...they were dying of starvation so they had to kill animals.” [57 year old layman; agro-pastoralist; no. 8]

There was defensiveness in response to questions regarding hunting within the community - “No-one hunts now” became a stock response, unsurprising given these connotations and the potential government penalties (Chapter 4). Others, all older men who had hunted and perhaps

saw its benefits, gave more pragmatic responses stating that they would hunt animals if the government had not confiscated their guns.

Living according to Dharma leads to happiness and salvation, whereas neglecting it results in endless suffering in the cycle of rebirth (*samsara*). The Buddhist concept of ‘dependent arising’ postulates that all phenomena arise, remain and cease in relation to everything, forming the basis for the continuation of all beings in *samsara*. This idea has been translated in the West into an explicitly ecological idea that “human beings are essentially dependent upon and interconnected with their environments has given rise to an instinctive respect for nature” (Batchelor, 1992). Although this translated version was not borne out in the Samdo community it does hold some relevance. Certainly, people openly stated their empathy towards wildlife in Samdo:

“We are very happy about the protection of the forest, especially protection of the animals. Protecting the animals’ young is like protecting our children. If some people kill the animals, the parents of the animals will be very sad. We think animals and people are the same, because they want to feed their young and nurture them to become adults.” [60 year old laywoman; no. 9]

The expressed affinity between humans and animals indicates that animals merit moral consideration. Without overstating the religious significance of such statements since compassion towards non-human living things need not have a religious basis at all, it appeared at least to be partly based in an understanding that animals are part of the same system (“they suffer just like humans”), and in particular that they are reincarnate. They once may have been human and you yourself may become an animal in subsequent lives. As Pirie (2006) found, Buddhist principles were generally not invoked with regards to human relationships but rather what was best for the community. In relations with non-human animals, however, religious sin was significant in discussion in Samdo. People nonetheless, made a definite demarcation between humans and animals. Humans were considered much more fortunate with increased sensory skills - “animals can’t speak but they still have a life”. In the Wheel of Life animals have the misfortune of falling on the same rung as ghosts and hell.

The same feelings of compassion or anthropomorphism were not expressed about plants, reflective of traditional doctrine that plants are not in *samsara* – you cannot be reborn as a plant. At the lower end of the moral world of value the boundaries are fuzzier. Ekvall (1964) reported that pre-1950 Tibetans killed fewer larger animals based on Buddhist precepts, and taboos existed on hunting certain animals such as foxes in Western Tibet based on morphology

(Huber, 2005). In Samdo less value was placed on small animals and insects, and domestic animals including dogs (which were permanently tied up in front of houses as a security alarm system) were viewed in almost purely instrumental terms. But beyond this all wildlife was considered broadly equal in discussions. It is important to note that concern was expressed over the suffering and death of individual animals rather than about species, populations or other categories of animals, although recognition of the decline in numbers of some species was present. This raises doubts about whether Buddhist ethics could support modern conservation, since the protection of threatened species as abstract entities does not entirely align with Buddhist respect for individuals (James, 2006).

Discussion so far has focused upon the moral principle of non-violence as a basis for an environmentally focused action. The idea of renunciation or moderation in wealth also has potential implications for resource accumulation and use for Buddhists. In Schumacher's (1966) classic rendition of the Buddhist environmental ethic as the 'right path of development' in the modern world, he argues that Buddhists would not become attached to wealth which stands in the way of liberation, seeing it only as a means to an end, but rather satisfy their needs by means of modest use of resources. In Samdo access to cash has increased dramatically over the last ten years, and people are mainly investing in housing. There was recognised conspicuous consumption and competition in house building with emphasis on house size (to the point where several households I visited had unwisely invested so much money in building a big house that they had run out of money to decorate the inside). This behaviour certainly doesn't suggest modest aspirations for wealth or conservative use of resources. Lichter & Epstein (1983) saw in a Tibetan community that local people recognised that suffering arises from aspects of happiness itself, resulting in modest development requirements rather than an unbounded ambition for wealth and happiness. Despite contrary actions, local Tibetans in Samdo were beginning to reflect on the morality of the material wealth, increase in work and competition in resource accumulation occurring in their valley. Changes in wealth and its relationship with religion and the environment will be explored further in Chapter 4.

3.6 Differences between laity & monastic discourse

Spiro (1970) suggests two distinct models in Buddhism, pursued by two groups: the laity and the monastery, which echoes treatments of Tibetan Buddhism which present a lesser ‘folk religion’ containing local gods and spirits as violating a pure philosophical tradition. This effectively ignores the ritual role played by clerics, which in the Tibetan Buddhist context is the basis of religious authority and is embedded within local cosmologies (Mills, 2003). The religious worlds of laity and monastery are integrated but in Samdo each group spoke about religion in different ways. With regards to local gods, senior monks made a clear distinction between the ‘real gods’ of Buddhism and the local worldly gods whose capabilities they dismissed. The *Drupen* - the meditation retreat leader - in Bengpo monastery explained that they are not real deities and can only help you momentarily:

“People pray for Buddha, the Sangha, and Dharma – for the next life and to have good fortune. This is different to the *yul-lha* – it lives near to people, it is just like a friend and can help you for a moment but it cannot take you to heaven.”

These kinds of statements may seek to present Buddhism in a certain light matching modernist conceptions of the religion, and do not reflect clerical ritual relations with local supernatural forces (Mills, 2003). This distinction is not something emphasised by the Tibetan laity in Samdo who spoke about religion in a more practical orientation, connecting it to their current lives and more proximate objectives.

Enlightenment – the ultimate goal of the Buddhist path – was not referred to explicitly by the laity, only by religious clerics, suggesting differences in the way these groups framed the moral elements of Buddhism. When talking about norm breaking on the *yul-lha* for instance, the monks' response was quite different to the laity who focused on the material consequences. The monks connected the acts with morality (non-violence and compassion for others) and the authority of lamas. The laity discussed the more immediate consequences of their actions, but a sin was still regarded a sin and a moral absolute. Although the laity may concern themselves more with mundane livelihood activities, perform sins by necessity and use quite different religious language, I did not find, however, that they were pursuing fundamentally antithetical goals.

3.7 Conclusions

The Tibetans of Samdo were found to orient their environmental discourse and actions by means of a local cosmology, ideas of karma and Buddhist morality, all of which were interlinked elements. The domains of local gods and spirits, and in particular the *yul-lha* embodied in mountains, conceptually align with the idea of the sacred in that there were strong non-extractive norms and ritual attention paid towards them, but do not stand in direct opposition to the profane. In fact, gods and spirits exist within the lived experience of local Tibetans, so that nature is not something external but a part of the social world. Distinctions between the sacred and non-sacred also become blurred in several other respects. Boundaries were uncertain and there was differential ritual adherence to particular gods, so that the sacred is constituted by relationships between specific groups of people and supernatural beings. These relationships were dynamic, dependent on social context and linked to social memory of misfortunate events. The result was that protective norms could also be contextual and at times stood in opposition to the practical realities presented in everyday life. Protection of local gods was stated in ritual terms rather than in Western notions of conservation, and environmental governance was politically rather than religiously orientated and this was perhaps heightened by recent conflicts over land use in the area.

Religious norms of the laity regarding the local gods were primarily based on worldly concerns regarding the health and fertility of themselves and their community. The concepts of sin and karmic retribution are also intertwined in this model with regards to understandings of misfortune. Given that the outcomes of environmental actions, especially killing animals, from both deity and karmic retribution are indistinguishable in the material world, the two models of misfortune were not articulated in a fully separated and consistent ways. This further obscures the concept of the sacred as a category related to distinct sets of behaviours.

Both models can be considered means of retaining moral order in the social world. The distinct connection between sin and karmic retribution, however, suggests that karma is more clearly part of a broader Buddhist ethical framework. The focus on proximate consequences of actions and worldly goals by the laity does not preclude a moral understanding of relations with the natural world. In particular non-violence towards animals did not only hold instrumental significance but was expressed as a moral absolute. Interrelatedness however, was not conceived of as a lack of demarcation between humans and the natural environment as in Western Buddhism. There was instead an anthropomorphic expression of affinity with living organisms within a graduated scheme of value rather than either an eco-centric or human centred ethic.

This was based on an understanding that animals too are suffering in *samsara*. The higher salvational goal of enlightenment was not discussed by the laity, highlighting the different discursive domains present in the community. Religious doctrine is not simply transferred to people's understandings of the world, and we cannot decode social practice and discourse directly in relation to Buddhist concepts. Rather, this ethnographic analysis shows that the laity pieced elements of precept together with local cosmology, and related them to salient aspects of their daily lives.

4. Religion, state & market

Forms of authority in environmental discourse & governance

4.1 Introduction

The notions that people hold and the actions they take towards the environment cannot be removed from their social context or the authority that drives and lends them weight. The environment may fundamentally be shaped by large scale political and economic forces such as national policies, markets and power changes, but these processes are also mediated through communities and individuals who make decisions affecting their local environments (Zimmerer, 2004). These social influences can be quite distant from the locality that they shape, and to ignore remote effects may be to focus on and address only proximate rather than the ultimate causes of environmental change. Cultures themselves are continually changing through cross-cultural and long distance encounters with other people (Tsing, 2005). Having examined local religious understandings and actions towards the environment in Chapter 3, I now turn to the underlying relationships of authority between different institutions which act upon the study site.

Authority here is taken to mean power to influence with some kind of claim to legitimacy. This authority is most powerfully exerted with regards to the actions that people take, but may also be expressed by the development of accepted truths. Different types of knowledge can compete and shift within multi-layered and multi-sited relationships of power, with not only discursive but material effects (Escobar, 1996). Dominant discourses, that is the knowledge and associated practices that are generally accepted as true, can come to define local realities (Escobar, 1995). Weber (1965) identified three basic forms of 'legitimation of domination' which can be used to discuss forms of authority. Firstly, the traditional authority of the 'eternal yesteryear', secondly charismatic authority in which there is personal devotion, and lastly rational domination by virtue of legality. Elements of these forms are found in the relationships between institutions, people and the environment. Using concepts of authority and power, this chapter

will examine three institutions at the case study site in turn – religion, the state and the market. For each I ask: which form of authority is being used? And how does the institution shape relationships with the environment?

Religion: The ethical content of Buddhism is held in voluminous religious texts, but its authority is brought to life largely through the clerical and ritual side of Tibetan Buddhism, centred around the monastic *Sangha* (the community of ‘noble ones’) including monks and incarnate lamas, as well as other religious practitioners. Social and political contexts are crucial in understanding the nature of power relationships between the monastery and laity. The image of ‘Green Tibetans’ as indigenous environmentalists has been created largely by the Tibetan Diaspora in recently decades, and is inextricably linked with nationalist politics (Huber, 1997). I examine the relationships between laity, and the monastic community within the study site, and religious elites outside of the site, and discuss three forms of authority which is influencing environmental relationships in Samdo: 1) ritual authority regarding local gods 2) teachings and edicts given by religious elites and vows taken by the laity 3) modern religious environmentalist discourse.

State: Any discussion of the role of religion in Tibetan society today cannot ignore the place of the Chinese state. Maoist China took an adversarial stance towards the environment reaching a particularly low point during the ‘Great Leap Forward’ of 1958-60 when many of China’s forests fuelled furnaces in a failed government attempt to catch up with Britain’s steel production (Shapiro, 2001). More recently, perspectives on forest exploitation have changed. In the wake of the 1998 floods in the Yangtze River Basin, a shift in forestry policy was made from timber production to environmental protection including the National Forest Protection Plan (NFPP) and the Sloping Land Conversion Programme (SLCP), otherwise known as ‘Grain for Green’ (Wang et al., 2004). These programmes form part of China’s ‘Open up the West’ campaign which focuses mainly on infrastructure development such as transport, hydropower, the promotion of education, and exploitation of mineral resources but also the environmental protection and restoration (McNally, 2004). Stricter wildlife laws have also been implemented in China from the late 1980s. In this chapter, I examine the implementation of state environmental policies at a local level, the discourse and claims about the environment which underlies the policies, and in particular the way that payments for tree planting under ‘Grain for Green’ commodify the environment.

Market economy: A different type of natural resource commodification is occurring through the trade in Chinese caterpillar fungus (*Ophiocordyceps sinensis*), a parasitic medicinal fungus. Whilst the ‘opening up’ of China has led to environmental reforms, economic

liberalisation in the late 1970s has given access to global markets, and the creation of the middle class consumer. The effects reach the rural economy of the Tibetan plateau, and the increase in demand for caterpillar fungus by Chinese consumers has pumped cash into Tibet where the fungus grows. I explore how the flow of capital and the commodification of this strange and coveted fungus have realigned local relationships with the environment. Why and how have Tibetans embraced this trade and how are they shaping it? I examine the relationships of power that exist through the caterpillar fungus trade, and its effect on land governance and conflict.

Interactions: In the final section of the chapter, I examine interactions between state policies, the market and religion suggesting both relationships of support and resistance. After more than a decade of religious persecution and attacks on local culture, economic liberalisation in 1978 also brought reform to religious policies. Since then there have been periods of ‘cracking down’ and ‘easing up’ with regards to religious freedom in Tibet (Goldstein, 1998). In the context of this history, I examine the relationships between state environmental policies and discourse and those connected to Tibetan Buddhism. New government policies have come more in line with the language of sustainability and protection found in global environmentalism. How is this affecting understandings in Samdo? At an institutional level, how is the government working with the monastery and local people in environmental management? Lastly I look at the dissonance between religious ideas and local market opportunities for increased extraction of caterpillar fungus and wealth creation.

4.2 Religious authority

Ritual forms of authority regarding local gods

The *Drupen* (meditation leader) of Bengpo monastery explained that during the time when the second and third Karmapas (13th Century) came to the monastery to teach, “people’s faith was very stable, they listened to the Karmapa and he taught them many things. So people did not cut down trees here, because that is like killing lives”. This simple narrative presupposes a sure relationship between Buddhist precept and practice mediated by teaching, and more broadly rests upon the idea that authority lies in the transfer of ideas and beliefs from one person to another or a group of people. But authority is not quite so simple in its effect; it cannot be held, rather it only exists when it is put into action, and entails a set of actions performed upon another person’s actions or reactions (Dreyfus & Rabinow, 1983). Social truths are established through power, and in the case of religion, ‘faith’ in religious ideas is dependent on the authoritative relationships between religious practitioners and laity, and the social contexts in which they exist. Religious ideas need to be linked to meaningful experience, for example participation in ritual and social communication (Keyes, 1983) in which the wording of statements and the identity of the people involved are all important (Mills, 2003).

Scholars have noted that authority in Tibet is grounded in the ability to control local spirits and gods (Mumford, 1989), in particular the re-enactment of the subjugation of these beings. The lama as an expert ritual tantric practitioner takes a key role in this process. But it is not only through the ritual taming of supernatural forces where religious authority is shown. In Samdo ritual specialists adjudicated on issues of misfortune linked to norm-breaking with regards to local gods – the *yul-lha* (Chapter 3). On the outbreak of an illness episode, the sufferer will often (especially if the illness appears suddenly) be taken to see a diviner (*mo-pa/ma*) who will identify the ultimate reason. Other ritual specialists will, if possible, prescribe ritual forms of cure and Tibetan medicine (*sowa rigpa*) (related to astrology), but often if illness has struck due to retribution, there is nothing that can be done, as one lay woman described:

“Three years ago, one Tibetan man cut trees on Sohong and Tsongra. He got ill in his joints, so his family asked the *mopa* to predict what he should do. He said there was nothing he could do because the man had cut trees on the *yul-lha*. After a couple of years, he died.” [50 year old lay woman; agro-pastoralist; no. 3]

Although Western forms of medicine are entering Tibetan areas through state run clinics and hospitals, Tibetans in Samdo tended to visit both the monastery and hospital on becoming ill. Through the practice of ritual specialists in the monastery determining wrong-doing and the proper course of action, there was a ritual construction of truth and this shaped the relationship that people have with the local gods and spirits in the local landscape. Symbolic activity in the form of ritual supports certain ideas about reality. Pronouncements that the cause of misfortune were caused by angering local gods gave legitimacy to episodes captured in social memory and related it to particular local gods. The increased religious attention given to the *yul-lha* Sohong in recent years is due to the incident described previously which led to the widespread view that the *yul-lha* is wild and unpredictable. Episodes that could not find the support of the monastic community were relegated to hearsay and shared amongst fewer people.

Teachings, edicts & vows

Within the religious community, the greatest distinction is between that of a monk (*trapa*) and *lama* – a title given to a minority of the celibate monastic community and some lay people who have reached a high level of spiritual attainment (Samuel, 2003). The role denotes skill in tantra, but is most clearly defined as a teacher – broadly similar to that of the guru in India. There is also a distinction to be made between the authority of monks and lamas, and that of the incarnate lama (*tulku*). *Tulku* are especially revered and as physical manifestations of Buddhahood are seen as the source of wisdom and divine power. An edict given by an incarnate lama can have dramatic responses. Most significantly with regard to the environment, in 2006 the Dalai Lama called on the Tibetan people to stop the hunting and trade of endangered animals, resulting in crowds of people in Tibet publicly burning their animal skins as a sign of support (Saunders, 2006).

The monastic community extend their learning towards the laity and this mainly comes in the form of recitation of Buddhist texts during formal gatherings, but also more informal interaction with the local monastery. The Communist Party restricts large religious ceremonies in the villages, and ceremonies containing teachings were mainly held in the monastery. In particular the monastery holds a fast – the ‘eight pairs of white fasting’ rite (*bsnyung gnas dkar po cha brgyad*) each year between the 8th and 15th of the first month in the Tibetan calendar, during which time they teach, give blessings (*wang*) and make offerings to the deities (*gsol ‘debs*) whilst the laity fast. Not only are the monastic community reciting and memorising sacred texts, this is an important activity for the laity too.

In Tibetan Buddhist communities the relationship between doctrine and practice is especially difficult as Buddhist texts are often largely incomprehensible to the laity. If discussions in Samdo touched upon what was considered formal Buddhist doctrine, I was often told to ask at the monastery. If respondents had attended ceremonies by lamas they often said they had not understood what was being said beyond some dictates and rules. I attended one such ceremony led by the *Kembel* (abbot) of the monastery and held in a communal area in the 3rd village. Few people I spoke with afterwards appeared certain or were willing to discuss the nature of the content. There are perhaps two dimensions to this expressed incomprehension which shed light on the apparent lack of concern shown by the laity for recalling specific doctrinal teachings. The first is that the content of a sacred text does not constitute its significance so much as the context of the communication and the identity of the teacher (Mills, 2003). What appeared to be important was simply their presence and participation in the event. Religious understanding is experiential rather than intellectual for the laity. Instead the texts and teachers are the foci of respect – and the act of attending religious ceremonies provides blessings (*chinlabs*) to a household. The second reason is that generally the laity does not hold ownership over the knowledge I was asking about. It is likely that people, and I found especially women, did not feel that they had the authority to explain Buddhism to an outsider since this authority is largely confined to the monastic community.

Several key teachings related to the environment were nonetheless recognised by the laity in Samdo as instructed by religious elites, reflecting a history of instruction, edicts and formal legal codes provided by monastic establishments, especially regarding hunting (Huber, 2004). I examined people's recollection of ethical teachings they had received, visits by lamas, and their invocation of these principles during discussions about the environment and in daily life. Teachings were given by both visiting and resident lamas through formal ritual teaching (as above) and more informal interactions. The visits of incarnate lamas tended to focus upon the blessing that this gave the person rather than particular teachings. Although no incarnate lamas had visited in the previous year to my research (2009), most people recalled lamas visiting in the last five or so years – from Ngawa (Chinese: Aba), Serta (Chinese: Seta) as well as India. Given the relationship, however, between incarnate lamas and political dissidence, local people were often reluctant to talk about teachings and careful about how they presented the influence of a lama's visit. There did not appear to be a significant visit by a particular lama, and instead people most often referred to environmental teachings given by the *Drupen* in Bengpo monastery.

Unlike Pirie (2006) who found in Ladakh that the monastery provided little moral direction (in relation to human social relations) many people in Samdo recalled receiving ethical

teachings drawing upon Buddhist precepts, and evoked them in conversation about the environment. Most commonly people had been taught not to kill animals. This included hunting wild animals and cattle, and also selling cattle to be slaughtered. In Tibetan Buddhist society, non-Buddhist communities – Hui or Han Chinese – provide the service of butchering. In Samdo, there was a man of Tibetan and Han parentage who did not practice Buddhism and acted as the local butcher. Other teachings were related to other Buddhist precepts regarding drinking alcohol, fighting and creating conflict, cheating and stealing. Also several respondents recalled being taught not to build big houses which will be discussed below in relation to wealth. Two references to teachings regarding not making local gods angry showed that although the monastery was at times dismissive of these deities they were taken seriously. As suggested in Chapter 3, they form part of the same Buddhist moral realm and are perhaps used to show moral failings. Certainly, the laity did not discuss two separate realms of religious life.

It was also quite common for the laity to take vows (what they called *khas len* or promises) to lamas on particular Buddhist precepts. Often this was to chant a certain number of scriptures, to stop smoking or drinking, but also to refrain from killing animals (both wild and domestic) and digging up earth and stones. No residents I spoke to reported to have taken a vow regarding cutting trees. The taking of vows was common and considered to be, in itself, a virtuous action, although few people appeared to keep their vows for a long time and admitted breaking them. In contrast, religious texts take the view that it is more sinful to have taken a vow and broken it, than not to have taken the vow at all.

'Green Tibetan' discourse

Since the 1980s, an explicitly environmentalist discourse suffused through both religious and scientific frameworks has emerged from Tibetan communities into the international political arena. It comes in the form of representations about Tibetan Buddhist history and culture and pertains to Tibetan identity. Huber (1997) explores the development of the 'Green Tibetan' representation to find it emerged in the mid 1980s, the first explicit mention of the environment in the Dalai Lama's public writings and statements being in 1986 (Tenzin Gyatso, 1986). Since then the Dalai and other lamas, and Tibetan Diaspora NGOs have made speeches and written on environmental issues to Tibetan and global audiences. These often draw upon Buddhist as well as scientific ideas (and often aligning the two) as a potential solution to the problems.

The birth of this discourse results from the interactions between a variety of people and institutions, and social phenomena, related to global environmentalism, the religious environmentalism of the counter-culture movement, and motivated on the part of Tibetan elites

by evidence coming out of Tibet of severe environmental damage under Chinese rule. The idea is therefore political in nature and has been used effectively as a discursive weapon in nationalist struggles. But whether its genesis was rooted in a ‘real’ commitment to environmental issues (or indeed a history and philosophy of environmental conservation), as Huber (1997) questions, is almost irrelevant 25 years later. The way in which environmental issues have become entangled with striving for political autonomy and identity through the authority of religious elites, gives the environment a new significance to Tibetans. Although the discourse emerged within the religious and intellectual elite in exile it has gained significant currency, and I found elements of it within the monastery and laity in Samdo.

Ideas presented about deforestation and concern for trees is a local manifestation of this discourse in Samdo. As outlined in Chapter 3 some sense of moral consideration was given to plants in Samdo, though there is ambiguity in formal Buddhist doctrine regarding ethics of killing non-sentient living things. It is significant therefore that a fifth of people formally interviewed specifically recalled lamas teaching that killing plants, specifically cutting down trees, is a sin. The idea has been promoted strongly in more recent years by the Tibetan government in Exile (Tenzin Gyatso, 1993) and people in Samdo explicitly referred to these kinds of teachings:

“The Dalai Lama said not to cut down trees, that even animals and trees also have lives – they are all living beings. If people cut trees, it is the same as killing lives...” [40 year old layman; agro-pastoralist; no.15]

In Samdo, reference to teachings regarding hunting and deforestation connected to the Dalai Lama and the Karmapa in particular were common amongst the laity. This appears to be a recent discourse development, as older people recalled that there were not religious restrictions on cutting trees on land which was not governed by the monastery or the land of a *yul-lha*.

The monastery, even more so, presented the language of modern environmentalism. Terms such as ‘environment’ (*khor yug*) were used repeatedly especially in terms of protection. *Khor yug* is not part of the traditional Tibetan lexicon, and on the whole not often understood by the laity. The word is, not unrelatedly, the name taken by a network of Buddhist monasteries in the Himalayas (mainly in India and Nepal) “working together on environmental protection...with the aim of practically applying the values of compassion and interdependence towards the Earth and all living beings that dwell here” (Khoryug, 2009), created by the 17th Karmapa in 2009. The Karmapa who is revered by people in Samdo as the head of their monastery, is at the forefront of Tibetan Buddhist environmental activities and global debate, even publishing an essay in the journal *Conservation Biology* (Ogyen Trinley Dorje, 2011) in

which he comfortably uses environmental terms alongside Buddhist concepts, calling for the creation of “a movement for compassion” to combat environmental degradation. A book was also launched by the Karmapa in 2008 in Tibetan, Chinese and English giving practical guidelines for Karma Kagyu monasteries and communities on wildlife and water protection, waste management and tackling climate change (Ogyen Trinley Dorje, 2008).

Even in reference to local gods, the word for environment was used in Samdo, for example the Drupen said “The *yul-lha* is always protecting his environment (*khoryug*) but people do not always protect it”. In the higher echelons of Tibetan religious life, there is mixed public messages regarding the place of local gods. The Dalai Lama himself has publicly renounced spirit worship as superstition, rather promoting more morally based Buddhist ideas (Pirie, 2006), and it is often a source of embarrassment to some modernist Buddhists. But local gods are an integral element of monastic life, and practices towards them embed religious authority, despite often being silenced (Mills, 2006b). Huber (1997) suggests that the Tibetan Government in Exile is reclaiming elements in public discourse of what is sometimes dismissed as Tibetan ‘folk religion’ and presenting it as a particularly ‘ancient’ kind of indigenous environmentalism. The significance of local gods especially to the laity is suggested by their evocation within popular speeches, for example the Karmapa suggested that “cutting trees without replanting is the one thing that would anger the local deities and water spirits, if anything would” as another reason for refraining from deforesting (Ogyen Trinley Dorje, 2007). In Samdo, one lay man gave the edicts related to local gods and karma as a reason for not having extracted firewood:

“The Dalai Lama [and the monastery] also says don’t make the local gods angry and destroy the land. Don’t cut down trees and grass because they have lives too. Because the Dalai Lama said this, I haven’t cut firewood for three years. He says not to cut too much, otherwise you will get sins.” [58 year old layman; agro-pastoralist; no.10]

In Samdo the ‘Green Tibetan’ image also emerged in historical narratives presented by the monastery in which violence committed towards the landscape and people during the Cultural Revolution was set in sharp contrast to pre-1950 Tibet in which Tibetans lived in harmony with nature. This echoes official statements from the Tibetan Government in Exile Environment and Development Desk that “prior to the Chinese occupation, Tibet was ecologically stable and environmental conservation was an essential component of daily life” (Central Tibetan Administration, 2011). Nature is used as an assertion of difference from China and therefore of Tibetan identity. Certainly, both the laity and monastery recognised and articulated negative feelings about environmental destruction (deforestation and hunting) carried out subsequent to

the invasion by Chinese forces in 1951. Although the laity did not use Western environmentalist language, some people in Samdo, expressed that Tibetan culture was intertwined with both religion and the environment. For instance on asking what would happen if trees were cut down on a *yul-lha*, one lay man simply replied “That would be destroying Tibetan *la ja*” – a word that denotes honour in and loyalty to a culture. The use of the environment in the articulation of indigeneity is common amongst groups struggling against oppression, and environmental injustices (e.g. Li, 2000). In the Tibetan context it is in partly founded on religious identity.

4.3 State authority

In the last 20 years the national government has implemented a series of environmental policies, and I next explore how they have influenced people’s relationship with the environment, given the previous discussions regarding religious orientations.

Local implementation of environmental policies

The forestry policies related to the Western Development programme and wildlife laws are centrally developed but administered at the provincial, prefectural, county and township levels resulting in local variation. These policies are the Natural Forest Protection Programme (NFPP), the Sloping Land Conversion Programme (SLCP), known as ‘Grain for Green’, and the Wildlife Laws. A contract was drawn up between county and township governments; and then Samdo township and villagers through their representatives. The contract included a complete ban on hunting and logging; and targets on fire to affect less than 0.5% of land; and a detection rate of greater than 90%. There are also some restrictions placed on the collection of caterpillar fungus which are developed at the local (prefectural and county) level.

1) The Natural Forest Protection Programme (NFPP)

The policy, implemented by the provincial government of Sichuan prohibits logging on state owned ‘natural’ forest, and has banned commercial logging (Zuo, 2001). It was implemented in Daocheng in 1999. Each township is given its own targets, and the local forestry bureau in each township is responsible for monitoring and policing forest use. The local government also pays a small salary to local forest guards who monitor and check for illegal activity in each village. Certain areas of forest in Daocheng are designated as timber forest, and targets existed for timber cutting for the period 2006-2011 (10000m³), and firewood (17000m³). At the time of

research, the average yearly timber cut was 6000m³, surpassing targets. According to Daocheng Forestry Bureau, seven commercial timber sites were closed in the county in 1999 in accordance with the logging ban.

In Daocheng the majority (93.1%) of forest land is state owned, and the rest is collective land which should be managed by villages who have usufructory and ownership rights, but with logging still subject to quotas (Yeh, 1998). According to village leaders the area of Paka, Dorjetsemo, and the western mountain sides on the road to Litang (Figure 3.1) are officially collective forest (for villages 1, 3 and 4), but this designation is not upheld in practical terms. As Winkler (2003) also found in Litang, although local communities were *de jure* owners of collective forest, this still did not entitle them to manage the forest. Instead the rules are the same on all the land according to village leaders. Forestry rights reforms were implemented in Daocheng in 2008/2009 which give user, benefit and trade rights to non-state, collective forest but again this did not seem to have resulted in changes in Samdo at the time of research.

Instead, when a family wants to build a house, they apply for a permit to the county forestry bureau which states the amount, locale and collection time (normally August or September) from outside the township (within Daocheng in Julong township, or the next county to the West - Chatreng county (Chinese: Xiangcheng). The government also gives subsidies to poorer families to build houses. On state land allocated for firewood there are restrictions on the amount that can be collected, and collection is restricted to the month of October. Monitoring occurs during this month and a checkpoint is set up. The township government decides where firewood should be collected, and this may vary from year to year for each village.

According to Daocheng Forestry Bureau, on finding someone illegally cutting timber, they will be told to replant the trees cut, and fined an amount exceeding the value of the timber cut, often approximately 1000RMB. If they are a repeat offender, they will be punished according to the National Forest Law which could include imprisonment. Fines are administered by the forestry arm of the Public Security Bureau (PSB). Despite these punishments, there was evidence of informal and illegal purchasing arrangements facilitated by the main road from Litang running through Samdo. It was difficult to find concrete evidence of the exercise of state authority in the implementation of these threatened sanctions. This most likely reflects that few punishments being carried out by state locally, and the rather ineffective nature of state apparatus at this level. Given that local people seemed very aware of the potential consequences of rule breaking, local perceptions of the efficacy of the top down regulation, may in fact have practical effect in reducing illegal activity (Makley, 2007).

2) 'Grain for Green'

The *huanlin* "retire cropland, restore forest" part of the Sloping Land Conversion Programme (SLCP) or 'Grain for Green', administrated by the State Forestry Administration and provincial counterparts has been implemented in Daocheng County. The scheme is conducted via a top down approach whereby quotas are given from provincial government who allocate quotas to county offices, and then villages (Zuo, 2001). The tree survival rate for compliance is 75%, and cash subsidies are set at 300RMB (£30) / hectare for a total of 8 years (from 2009 onwards, in the second stage, compensation was 240RMB/mu/year in Samdo). Potential problems with the scheme include the lack of conditionality, adaptation to local conditions, and mechanisms to ensure trees survive and are not harvested, which may threaten the overall success (Bennett, 2008). Scientists have also raised doubts over the environmental benefits of the scheme (Cao et al., 2009a). The state (at the national level and Daocheng Forest Bureau) views the activity as restoring land which was previously converted to agriculture during the 'Great Leap Forward'. The Chinese state has a firm definition of what constitutes forest, used to judge the success of afforestation, as any grassland or woodland with 30% cover and so is not necessarily reflective of biomass or biodiversity (Harkness, 1998). Government documents on the 'Open up the West' programme generally refer to 'environmental stability' or ecological construction' (Harris, 2008), so concepts of exploiting nature and its protection sit side by side in the policy.

Poplar (*Populus schneider*) and Pine (*Picea balfouriana*) have been planted in roughly equal proportions in Samdo under the Grain for Green scheme. Other trees planted in Daocheng are Dahurian Larch (*Larix gmelinii*) and sea buckthorn (*Hippophae rhamnoides*), as well as walnut and fruit trees in the south of the county. Poplar is the most commonly planted because it is fast growing and demands lower maintenance. The land that is chosen for planting is that with a slope greater than 25 degrees, where there is evidence of flooding or landslides, or that considered 'wasteland'. Problems with the programme noted by the County Forest Bureau were the conflict with pasture land and cattle necessitating fencing and greater costs; and the relatively low survival rate of saplings and greater level of care needed as compared to other parts of the country due to the harsh climate in Daocheng. Annual checks of townships are carried out by the county Forest Bureau.

23/50 people interviewed in Samdo had planted trees on their own land, and in total according to local government figure, 1500 mu (100 hectares) has been planted in the township. 35,000 mu (1600 hectares) has been planted in the county overall, out of 40,000 mu of suitable land. Many people had participated in planting on mountain sides in April 2009, for which they received 70 RMB (£7)/day. There were visible areas where the tree planting was not successful

in Samdo. These trees will be replanted in future years but there are no plans to plant extra trees. Some areas of reforestation on agricultural land are very small, and fencing is built to protect the trees from cattle (Figure 4.1). Both the NFPP and SLCP programmes were presented as great successes by local officials in the Forest Bureau, and were said to have greatly reduced logging (NFPP), and restored the land (SLCP).



Figure 4.1 Small area of trees planted under 'Grain for Green' in Samdo protected by turf fencing

3) *Wildlife laws*

The hunting of wildlife has been effectively prohibited in Daocheng since 1989. In 2002/3 the PSB confiscated firearms from farmers and pastoralists across Daocheng in line with the 1996 firearms law. Despite this, there are anecdotal accounts of continued hunting in Tibet, and doubts that the infrastructure to monitor and enforce the rules, or sufficient incentives are in place to stop hunting (Harris, 2008). The loss of the means to hunt seems to have been the key element in reduction in hunting in Samdo, an honest admission by some, especially older men who saw the benefits of hunting in the past. Traps were found by the forestry police near the monastery in the next valley of Souchong (in Samdo township) during the time of research, and many local people in Samdo reported shooting of wildlife by people from outside the valley, and by police, to which the state authorities often turned a blind eye.

4) Restrictions on collection of caterpillar fungus

Caterpillar fungus (CF) is a second class protected species, a category designed at the provincial level, meaning a licence to export it is required and the government can set quotas. There is little enforced legislation of this kind in Samdo. There are, however, spatial restrictions on collection. There is township based access to the grasslands during the season in Daocheng, so that residents of Samdo, Souchong and Jiyi valleys can collect in the land designated in Samdo township only. Beyond these geographical limits, permits must be purchased from the county government. In contrast to other highly productive areas of CF production on the Tibetan plateau, management by the state appears to be limited. Although local people reported some immigration by Han Chinese and other outsiders during the CF season, it was not significant compared to, for example Golok in Qinghai Province, an area known to be particularly productive with high quality specimens. There, a complete ban on non-resident collectors has resulted in a thriving industry in informal homestays and a dramatic increase in the population during the CF season (Sulek, 2011).

Local responses to the 'Grain for Green' policy

Tree planting under the 'Grain for Green' scheme evoked a particular and consistent response in members of the community in Samdo. People did not frame this activity religiously or as the state does – as a real need to prevent environmental degradation – but primarily in economic terms. 36 out of the 50 households surveyed saw the positive benefits to be the cash subsidies that it provides and nothing more. Others, who had not received money saw no benefits, and only two households reported the environmental benefits of the scheme in scientific terms as protection against soil erosion and flooding. The people of Samdo see the planted trees as an economic transaction - a means of making money - but the action was not meaningful in any other way for most people.

The attitude reflects disillusionment with the scheme at a practical level, and like many scientific studies, local people questioned the environmental benefits and how it was being implemented. Many residents reported that trees had died, either since they had received the funds or before, in which case they did not receive compensation. For land on which trees survived, there was now not felt to be enough land for them to plant crops or enough money from the scheme to buy food. This reflects concerns about the lack of conditionality and permanence of the scheme. In one study in northern China a third of farmers interviewed reported that they planned to return the land cultivation after the subsidies end in 2018 (Cao et

al., 2009b). It would be surprising if farmers in Samdo did not also make this decision when the monetary gains stop.

There was, however, a noticeable distinction between responses about tree planting carried out on mountain slopes and that on farmland, long ago cleared of trees. The few people who spoke of the benefits of scheme including aesthetic value referred specifically to the planting on the mountain slopes, but largely the benefits were monetary. The tree planting on farm land was often considered in purely negative terms because it competes with livelihoods, and subsistence production:

“If the government plants on the mountains it is helpful, but on the farmland and pastures it is bad as we need to plant crops and keep livestock. If they fence the grazing areas, the livestock cannot move and find more pasture...if people plant on the farm, it cannot help the country. The farm becomes useless, and the trees die in the end. If you plant on the mountain, you can get money to buy salt and tea.”

[70 year old lay woman; agro-pastoralist; no. 11]

Poorer households with less land (reflecting their small household sizes) appeared to be more concerned about the impact on their livelihoods:

“It [Grain for Green] is good if you get money. But for this family, if we plant on the farm, the children won’t have enough to eat and we would not have enough money to buy food from the market.” *[64 year old lay man; agro-pastoralist; no.12].*

This reflects studies showing the possible mis-targeting of productive plots for conversion (Xu et al., 2010), and threats from the programme to local food security (Feng et al., 2005). Although incomes for participating households has increased, there are major barriers to moving to off farm work which threaten the sustainability of the programme (Grosjean & Kontoleon, 2009; Li et al., 2011). Beyond these concerns some people expressed suspicions about the ultimate aim of the programme being the extraction of the timber for the state’s benefit. There was a sense of the absurdity about the planting scheme given the low survival rate on some sites:

“There are no results – it’s not good or bad. After the government people go, the trees die, and when they come back we plant more trees.” *[40 year old laywoman; farmer; no. 13].*

This, and cynicism about the future of the policy was grounded in historical trends in environmental policies. As one man summed up,

“The situation is very different now, the government came and people cut down the trees, and now they give us money to plant them!” [57 year old layman; agro-pastoralist; no.8].

Mass mobilisation of this kind in China is also associated with the failed political and economic campaigns of the Maoist era connected with unpaid labour and benefits to the state (Plummer & Taylor, 2004).

Given the realities of the scheme people are confronted with, the discourse coming from the Chinese state does not ring true for people, and generally did not align with local environmental understandings and religious meanings. The trees generally did not evoke aesthetic appreciation, as natural forest did, and tree planting under the scheme was not seen as a religiously meaningful action – it did not generate merit or support relationships with *yul-lha* for instance. Conservationists and anthropologists have criticised the kind of ‘commodification of nature’ (e.g. McCauley, 2006; West, 2006) that the scheme engenders, and we should question the possible disengaging effect of such a programme in a culture where nature is religiously orientated and has social meaning. Commodification in this sense means the production of objects which have previously not been for sale into an exchangeable form (Polanyi, 1957). The particular way in which this has been done in this instance, through the mobilisation of labour to plant largely monocultures on agricultural land, abstracts the trees (and the meaning they may otherwise hold) from their social and ecological contexts (Brockington, 2011).

The tree planting policy reflects a constructionist type attitude to the environment that exists in Chinese state policy and language today (Yeh, 2009). There are precise targets for forest cover, and definitions of what counts as forest which do not match with local ideas of forest. Although local Tibetans recognise that there are fewer trees in their local area, and see the natural regeneration of trees (for example on the *yul-lha*) as a positive sign of both environmental and community recovery, the idea of actively restoring forest did not appear in discussions in the same way. The invention of landscapes is a common theme of conservation interventions historically – the most crude example being the Anglo-American wilderness aesthetics imposed on African landscapes (Cronon, 1996). It did not seem possible from the local perspective to construct forest, and some people distinguished between the natural and planted trees when discussing the landscape. The low survival rates under the SLCP confirmed that notion to

people. The statements put forward about tree planting by local government, whilst holding some relevance to local people, in reality fall flat in implementation especially on their farm land.

4.4 The fungal economy

Entering the cash economy: the commodification of caterpillar fungus

A quite different form of commodification driven by market forces is occurring in the caterpillar fungus (CF) trade, raising a range of issues related to the environment: livelihood changes, governance, and changes in the nature and exercise of power by local communities. The collection of CF itself in this region is not a new phenomenon, and there are reports in travelogues from the 19th Century of Tibetans collecting the fungus in Litang (Rockhill, 2004) and trade with China since at least the 17th Century (Van Spengen, 1995). It is only in recent decades however that CF has attracted a significant price. The changes implemented during the reform era in China have allowed this commodification, as well as transformations in the value and meaning of the natural resource. In China it is marketed as an exotic medicinal product associated with the rugged and pristine landscape of the Tibetan plateau, reflecting the reimagining of the Tibetan 'Other' in China, from 'backward' and remote to romantic and hip (Shakya, 2001).

Local people in Samdo recall some trade in the fungus as long as 25 years ago, from the mid 1980s. The price then was low at less than 1RMB (£0.10)/piece now up to 25-30 RMB/piece (although there has been a price drop since 2008). Before this, during the commune period, a small amount was extracted by villagers and sold collectively. The greatest rise in price occurred in the early to mid 2000s. These figures match the general price changes estimated by Daniel Winkler (2008) of an eight fold increase between 1998 and 2008, reaching between 30 and 60 RMB /piece. Gruschke (2008) also estimates a 30 fold increase in prices in Yushu county between 1988 and 2007. In Daocheng there appear to be great wealth disparities between villages on account of the trade, and there is little growing in the warmer southern areas of the county. Samdo is favourably situated in the north along the main road and relatively close to the county town allowing a profitable trade in the fungus.

The trade is fuelling a dramatic transition to a cash economy, and increases in material wealth. 34/50 households surveyed in Samdo reported that their wealth had increased in the last 10 years (44/50 said that wealth had increased in the valley as a whole); and 21 of those stated one of the main reasons to be the increase in price of CF. The trade was discussed in only

positive terms, and contrasts made between the wealth created by it, and a time when there were fewer material goods, and people were less happy. The central role of CF in the rural livelihood portfolio has shifted ideas of wealth towards financial capital accumulation, and this has mainly been invested in housing. The houses are often large and ornately decorated inside with Tibetan traditional cabinets, akin to the “matsutake mansions” in Yunnan described by Arora (2008). According to village leaders 40 new houses were built or extended in 2009 across the four villages. Investments from central government have improved the urban economies in Tibetan prefectures but rural people have largely been excluded from this development due to disparities in education and skills (Fischer, 2005). In addition, there is a shortage of productive grassland in Tibet for a variety of reasons – the contracting of land, natural conditions, and population increases (Clarke, 1998; Harris, 2008), and a decline in the prices of pastoralist products, for example the price of wool has dropped dramatically as it cannot compete on the global market (Shakya, 1999). In response, rural Tibetans have integrated the CF trade into their livelihood strategies, in preference to unskilled labour jobs, and are able to enter and thrive in the monetary economy where cash income is needed.

The cash wealth generated by the trade is evident in the products bought by local people: housing, electrical goods like televisions and mobile phones, and transport (motorbikes and jeeps) as well as smaller consumer items like cosmetics, jewellery, clothes and food and drink including bottled rather than homemade barley beer, instant noodles, and rather surprisingly ice-cream – very popular in the local shop during the summer of 2010. Most of the financial capital is used for consumption rather than investment, and there has been little in the way of entrepreneurial activity in Samdo town except a few general shops, a small hotel and several taxi businesses. Investment in improved transport does, however, increase access and efficiency in the collection of CF, but moving outside of the CF trade would require migration to other towns or cities which does not appear to be desirable or possible for most families in Samdo given their competitive disadvantages.

The reform period in China allowed the commodification of CF, but there is a lack of attention to the changes generated and reproduced by Tibetans themselves. The local economy is now based on a different kind of ‘asset’, altering environmental relations. Assets are resources that have been accessed, which not only bring material wealth but meaning to people’s lives (Bebbington, 1999). They are vehicles not only for making a living (the focus of Chapter 5), but confer the capabilities to make life meaningful, engage with the world, and challenge current structures and power relations (Giddens, 1979). Tibetans spoke directly of the power the trade had given them to take control over their lives, and in the commodity chain, local Tibetans take a

key role as brokers. In the Kham region of Tibet where Daocheng lies, traders tend to be Tibetan (rather than Hui as in the Tibetan Autonomous Region) and they have a reputation as greater risk takers in the trade (Winkler, 2008a). In Samdo there were Tibetan and Han Chinese traders (Figure 4.2), and observation of the trade in Daocheng town suggests that a significant proportion higher up the chain were also rural Tibetans.



Credit: Lucy Garrett

Figure 4.2 Tibetan caterpillar fungus traders in Daocheng County

Fighting for access to caterpillar fungus

For pastoralists connection with the grassland is significant in identity formation, and the CF trade integrates well into this relationship, conferring cultural capital as well as financial. In the process it revives relationships to the landscape, though also redefining them. Due to the huge amount of competition within the county for access to grasslands and high quality specimens of CF, and the lack of boundary regulations, claims to grassland are expanding and overlapping, inevitably resulting in conflict. There are few alternative livelihoods, increased needs and desires for cash, and low barriers to entering the trade so that almost every household sends their fit and healthy members, including children, to the grassland every Spring to search for the fungus. This and the new economic and social value placed on the fungus have focused local Tibetans in Samdo on increasing access and defending rights. The result has been threats and violence used as a means of access. On 13th July 2007, a fight broke out between people from Samdo and those of the neighbouring valley to the north – Demba. Eight people were shot and killed, and according to a village leader 77 other people were injured in Samdo. It is a subject of gravity, not often mentioned alongside the fights and family feuds at the centre of regular community gossip.

This feud is variably presented as either people from Samdo entering Demba's land or vice versa, reflecting different claims of historically based territory. The conflict is over the physical location of inter-village boundaries – a line which may not have been distinctly drawn before the CF trade. Despite several attempts by local people in urging the government to set the boundary between the two valleys in response to earlier fighting, it was not defined. Flexible tenure is a common characteristic of pastoral resource systems where there is a highly variable and vast landscape, and small populations. The claims of territory are complicated by the complex history of access to grasslands including land reform, collectivisation and de-collectivisation processes, and the differential implementation across Tibetan areas (Yeh, 1998). In this climate of uncertainty and high value payoffs, there is a large incentive to push boundaries into new areas. There is a long history of feuding in pastoral Tibetan communities (Pirie, 2005a), and the wild, warrior image is often the ideal amongst Khampa Tibetans, especially for nomadic pastoralists (Ekvall, 1983). One man walks proudly around Samdo in the summer months, his shirt open to reveal a large gun wound to his chest. The CF trade, appears to be exacerbating and changing the nature of conflicts – they are still about pride and resources, but the economic incentives brings a new urgency and violence that has been widely reported across Tibet and the Himalayas (Gruschke, 2008; Jolly, 2011). In Samdo the effect is heightened by the fact that the township lies on the diffuse boundary with other counties in the north of Daocheng, allowing easy straying across the border.

4.5 Interactions between forms of authority and institutions

Institutions and discourse do not act in isolation. Having discussed the main forces and their effect on environmental relations, I draw out the notable interactions – between the state and religion; and market forces related to the caterpillar fungus trade and religion.

An awkward alliance: interactions between state and religious authority

“Many years ago, lamas taught what you could and couldn’t do – there was a ‘natural law’. People would pay attention to it by themselves – and the punishment was natural. Then policemen told people that there are no deities, and to kill the animals and cut trees, and told people what they can and cannot do. Now they are told to protect trees and animals. But this is only ordering people.”

With this statement a monk in Bengpo monastery is making a clear distinction between the religious precepts of Buddhism regarding the environment and government environmental policies. Given, in fact, the similarity in many respects between the local religious and government ‘rules’ on hunting and deforestation, it raises an interesting point about the efficacy of each system in terms of conservation outcomes. Some scholars have argued that conservation interventions based around the local culture will produce better results in the long term than those seen to be externally imposed (Infield, 2001), and in particular have voiced concerns that legal sanctions may have a ‘disenfranchising effect’ in Tibetan communities with regards to wildlife conservation (Harris, 1991). There are certainly sensitive political issues here regarding the place of the Chinese state within Tibetan communities, and how Tibetans choose to represent in their verbal statements the relative role of religion and state in their daily lives.

On arriving in Samdo and visiting of local officials, I was told by one Tibetan government official on mentioning ‘sacred land’ that local people “do not believe” such things any more. This representation by a government worker likely reflects the political difficulties of talking about religion openly, its association with ‘separatist’ activities and perhaps that elements of Tibetan Buddhism like local gods are considered superstitions (*mixin*) rather than state sanctioned and institutionalised religion (*zongjiao*). Given the somewhat difficult relationship between religion and the state that this statement implies, what kind of relationships between the

two realms are invoked in people's discussions about the environment, and how are the two institutions working together on governing land?

Monastic authority in Tibet has historically extended to the land where local gods reside and the land surrounding the monastery. The monastery traditionally governed the land surrounding it so it became known as a sanctuary for wildlife (Huber, 2004). The ritual ordering of nature under religion is symbolised through the literal taming of animals (Ramble, 1999). This is reflected today in Samdo where the monks feed white eared-pheasants daily in the monastery grounds. As in India the groves of trees surrounding monasteries may not only be places considered 'sacred' but protect goods and services sustaining the institutions (Chandrakanth & Romm, 1991). Conjuring a less romantic image, Huber (1999) reports how ethical precepts regarding actions towards a sacred mountain (clearing for agriculture, hunting animals etc) in Tibet were used as a means of control by a sometimes "brutal" Lhasa administration before 1950. Clearly, maintenance of religiously significant land is related to power. When asked who now protects or is responsible for the *jul-lha* in Samdo, the majority of household respondents (29/50) thought it would be the monastery, and only four people mentioned government responsibility. This understanding reflects not only the historical role of the monastery in governing land, but the partial legal authority now given to the monastery over some areas of forest in Samdo.

Bengpo monastery takes an official role in forest administration under the Chinese state through the employment of a monk as a forest manager – a position that exists in each township. For this he is paid 1000RMB (£100) per year to take responsibility for the forest on the mountains surrounding the monastery. He has held the position for the last 13 years. No other township in Daocheng County employs a monk in this role. The job description involves checking for illegal logging and hunting activity and reporting it to the county Forestry Bureau. When discussing his job the monk explained the procedure when someone was caught illegally logging. He said that he would take the trees to the monastery and discuss the problem with the four senior monks in the monastery who would then decide on a course of action depending on the severity of the act. For example a fine could be issued. Only under extreme circumstances would the Forestry Bureau be contacted. The manager discussed how, in reality, for a smaller and more common illegal act – for example the wrongful collection of firewood - he did not take any action because it would generate bad feeling. His priority was to ensure good social relations within the community. This stands in contrast to the description of the process of the implementation of sanctions according to the local government (section 4.3) but again indicates that punishment is a rare occurrence.

The manager described how the government laws now “give the monastery power” to protect the forest. The arrangement implicitly acknowledges the traditional authority of religion in Tibet, and gives it legal legitimacy. It also reflects a history of the PRC dealing with religion using strategic alliances. Although there is no recognition or official policy regarding sacred land, the land designated to the monastery encompasses three of the most important sacred mountains in Samdo – including Dorjetsemo, Dra-ye, Gatzong – running along the road heading north. Local people take this to mean that the monastery is governing sacred land – and for the land where no *yul-lha* reside “it is not the business of the monastery or the village leader”. Local people and the monastery have together taken an active role in forest governance on the *yul-lha* seemingly bypassing the Forestry Bureau:

“The monastery is responsible for the *yul-lha*. A couple of people from Jiyi village [outside the valley] went to Gatzong to cut trees, and people from Samdo discovered them. Ten people went and confiscated the trees they had cut, and gave them to the monastery. On other land, the Forest Bureau administrates and limits people to only collect a certain amount of trees.” [45 year old layman; agro-pastoralist; no. 3]

Here the difference between governance on two types of land is clear. But often the distinction was not that simple. When asked specifically about government policies on wildlife and forestry, respondents invoked both government discourse in the form of Western scientific rationales and religious representations:

“The wildlife policy is good because if people don’t kill, there will be more animals and more good fortune because you are not doing sins. If there was no government law, people would cut more and more trees and sell them, so there would be no trees in this place. The earth would be dry, and there would be no good fortune.” [33 year old layman; farmer; no. 14]

The scientific rationales and religious outcomes of sin are not separated clearly in this explanation, and especially with regards to the hunting laws, people were processing government rules in a religious framework. People saw the main advantage to be the reduction in sin produced by the ban. The forest protection programme was also commonly considered a positive policy in scientific terms, perhaps reflecting explanations given by the local government. Daocheng Forestry Bureau has communicated the basis and details of the policies in village meetings where they have shown videos, and distributed booklets and posters. Lay village leaders

also explained environmental policies in religious terms at other meetings, specifically that cutting trees down will make the local gods angry (*phog tug*) as well as creating flooding and thunder, further entangling these domains. Of course, the distinction between state and laity may not be clear when it comes to the position of village leaders, some of whom may be Communist Party members with close ties to state power at the township and county level.

The two systems – state and religion – are also intertwined in the idea expressed that the combined force of government laws and religious edicts has increased the amount of wildlife; the rules are thought to reinforce each other. Both institutions were presented as playing a part in environmental improvements:

“It [the amount of wildlife] has increased because the Dalai Lama, the lamas, and the government have banned hunting. The lamas said there should be more trees and animals. They said that if you clear the forest and kill, there will be sickness and flooding”

[40 year old layman; agro-pastoralist; no.15]

Officials in the local Forestry Bureau also saw (unofficially) the benefits of Tibetan Buddhist ethics in the success of wildlife laws, and viewed them as having wider coverage because the state laws “protect certain animals but local people here protect all wildlife”. In both community and government discourse, the forest and wildlife protection precepts were linked to religion in a positive way, and Tibetans generally saw the laws as enabling their community to perform religious obligations towards the landscape. The monastery also appears to be actively promoting environmental protection not only in accordance with religious precepts but also government laws. One respondent recalled being taught to abide by the law to retain good social relations with the local government. Following the state may not only produce karmic good fortune as a by-product but enables social harmony. Since monastic activity is closely monitored and guided by the state, it may be that these kinds of public statements are coerced or at least encouraged.

Local people often referred, not to the direct effect of laws, but the recent liberalisation and greater religious freedom since the 1980s giving Tibetans the ability to take autonomy over their own lives, and the authority to protect their local forest:

“After Deng Xiao Ping came to power things got better, he opened the doors [to China], and people stopped hunting and cutting trees. The Tibetan people then had power (*wangcha*), and the lamas also say to stop hunting and to cut down trees.”

[58 year old layman; agro-pastoralist; no.10]

Despite this the government laws were considered effective and if they were not in place there would inevitably be a small minority of people who would cut trees for timber and hunt wildlife. At least in verbal statements, the positive benefits of these policies were not questioned; they reflect the religious precepts that already exist in Tibet, and this was stated explicitly by some:

“The laws are good for protecting trees and animals, because it follows the laws in the old times. If we do this the crops grow well and we can get a good harvest, and there will be no more disasters from the sky or in the rivers.” [62 year old layman; agro-pastoralist; no.16].

Any doubts were based on practical requirements of daily life - the need for trees to build houses and for fires. Although statements were generally supportive of the state rules, in actions there appeared to be more contestation. Several households reported ‘stealing’ firewood beyond the allocated annual allowance from nearby forest at night because the restrictions did not meet their needs. Further exploration of firewood extraction on different types of land is in Chapter 6.

Treasure of the gods, or treasure for the people? Caterpillar fungus, wealth creation and religion

As discussed in Chapter 3, trees and plants are considered the adornments of local gods so that removing them can harm the body of the *yul-lha*. As Norbu (1997) noted during travels amongst Tibetan nomads in the 1950s, caterpillar fungus was also considered to be the treasure of local gods and spirits. Older people in Samdo also remembered a time when it was taboo to collect the fungus on *yul-lha* or in fact any land, because digging the earth kills insects – a sin. Despite this, many people insisted that there were no restrictions on collecting CF, or justified the extensive collection:

“It [caterpillar fungus] is the only way to get a high income here. Life has become better and better because of caterpillar fungus. If you dig the ground you will get a lot of sin, but if you don’t dig it, you won’t have any food to eat or clothes to wear. The Chinese [government] do not stop Tibetans digging caterpillar fungus because it improves the economy of China.” [58 year old layman; agro-pastoralist; no.10]

This quote shows the perceived importance of caterpillar fungus and the income it provides locally and nationally, set against the moral costs it incurs, the former clearly taking precedence. Others suggested that CF does not grow on the *yul-lha*, thus erasing the potential moral dilemma over local gods. Most collection does occur several kilometres from the village but there were several reports of local people searching closer to the village on the surrounding *yul-lha*. The fact

that the fungus lives until it is extracted was not acknowledged or considered at all in discussions, only that digging the earth may disturb earth spirits and kill insects.

Not only was the act of collecting the fungus being renegotiated into a morally acceptable action, but the consequences of the trade in the form of dramatic transitions to a cash economy came into opposition with some interpretations of religious precepts. People were choosing to transform financial capital into improving their living conditions directly and quite dramatically, and the choice is connected to Tibetan identity construction founded on ideas of tradition, but this is based in social rather than religious identity:

“A person builds a big house, then the next person builds a bigger one and so on. For Tibetans to not have a good house is very bad. Houses are important for Tibetans.”
[*Village leader, male*]

Monastic discourse regarding moderation and renunciation reflects ‘Green Tibetan’ ideas regarding the morality of wealth accumulation, and there was some evidence of reflection on these teachings and ideas about their own consumptive behaviour, although house building continues unabated:

“The lamas always say that working hard to build houses is not good. If you have a house that is good enough, and it is better to have clothes and food, but people don’t listen...”
[*68 year old layman; agro-pastoralist; no.17*].

The house-building in fact appears to be escalating in both the sizes and rate of building according to local people, as competition for bigger and more beautiful houses increases. It is a form of conspicuous consumption – in that wealth is displayed to gain social status – a phenomenon normally associated with Western capitalist cultural forms. It is not necessarily true that access to financial wealth has driven or inspired Tibetans to be more concerned with displays of wealth as some writers (e.g. Misra, 2003) suggest, destroying a previously sustainable economic situation, although of course there is greater access to consumer goods. Although there may be a moral concern for individual asceticism in Tibet especially for monks, this does not necessarily preclude a concern for wealth and prosperity at the household level and within ceremonial life (Mills, 2006a). In fact, the protection of health and prosperity are a focus of many rites, and perceived as the product of karmic good fortune. The way in which wealth is attained and used was a concern, however, and this was illustrated by the consistent way in which housing was considered as the socially correct use of income, whereas vices such as drinking,

smoking and gambling were thought improper and a waste of money. The sudden access to cash has certainly allowed an unprecedented and ostentatious display of wealth, and fuelled greater competition, and some people especially the monastic community were reflecting upon this. But concerns were mainly focused upon social problems created by competition, and housing taking priority over more vital necessities such as food and clothing. Any idea that financial capital is replacing social capital, with corrosive effects on community does not necessarily hold up. House-building (Figure 4.3) itself is a highly collaborative activity and exists largely within the exchange economy of Samdo (households will repay house-building labour for other goods and services).



Figure 4.3 Members of Samdo community building a house in March 2010

There was no verbal reflection on the environmental implications of the resource use associated with building a house by either laity or monastic community. The environmental effects are largely remote and invisible to the township given that timber is collected elsewhere. The decline in numbers of CF was mostly not seen as overexploitation but due to the increased competition, which is likely to be true. Recognition of declines in resources due to human action was limited to wildlife and forest which had more obviously declined within living memory. On the other hand wealth creation supports religious resurgence, for example the construction of religious monuments, monastery sponsorship, and pilgrimage to important Buddhist sites. Several people

in Samdo said that if they could make enough money from CF, they would take the pilgrimage to Lhasa. In Samdo, one family had funded the building of a prayer wheel as both a commemoration to their son who was killed in fighting over access to CF, and as a virtuous act. Samuel (2003) points out this connection between religious virtue and wealth in that many obvious forms of action connected to merit making require significant financial resources.

Ideas put forward about future development of the local area centred around the CF trade, rather than tourism which is the focus of local government efforts, and the generation of money rather than improving subsistence activities:

“We don’t have a salary [from a job] so the only income is from caterpillar fungus. People grow barley and herd cattle, but they don’t get money from this. People worry about making butter and cheese but it is not a good income.” [68 year old lay man; pastoralist; no.18].

The more devout in the community suggested increasing religious practice as a means of improvement, but even this may be aimed at greater wealth in this life. The sponsoring of particular rites is a common way of securing prosperity in Tibet, and conversely declines in prosperity can be seen as resulting from karma. As one elderly woman suggested:

“We should chant more and go to the monastery more often, and gain more merit. Then the prices of the natural products will increase.” [70 year old laywoman; agro-pastoralist; no.19].

Offerings to the local gods were given to ensure good weather not only for crops of barley but a profitable crop of CF too. The manifestation of good fortune can be the availability of and monetary value of natural resources but yet the price lies outside the realm of local power. Indeed, one significant omission from people’s statements about the CF trade was any consideration that the trade could ever come to an end. Although local people showed great resourcefulness and knowledge with regards to the local market, the continuation in Tibet ultimately depends on demand, availability and market fluctuations at national and international levels. Non-timber forest product markets are notoriously thin and unpredictable (Belcher, et al., 2005) often leading to boom and bust cycles, resulting in disruption for rural economies in the long term (Homma, 1996).

4.6 Conclusions

By examining three institutions in relation to the environment in the case study community, the study has shown the interactions, shifts and variability in networks of power and authority. The voices of the Tibetan community presented here, show how with often surprising clarity, the different forms of authority are interwoven in their lives. The analysis draws attention to the way religious institutions rather than vague and dismembered notions of belief or traditional ethics are vital in understanding the relationships people have with their environment. The notions the community hold about local gods and spirits, and the consequences of actions towards them are grounded in the ritual authority of lamas and other religious practitioners although this is often downplayed in monastic discourse. Identity is a key element in the exercise of authority, and the lama in particular brings charismatic authority to edicts some of which are environmental in nature, due to his divine character. It has been suggested that religious edicts may cause less conflict than externally developed rules in conservation (Campbell et al., 2000), but ethical tensions between religious rules and daily life still emerged here, for instance in the breaking of vows.

As Chinese state environmental policies have come into force in Tibet, there has been submission to new forms of authority with regards to the environment, through the legal legitimacy and the authoritative, scientific presentation of the environment. It is tempting to characterise religious and state authority in terms of a marked separation between traditional and rational, legal forms of authority respectively, but there is intermingling of both discourses and the instruments of power used. In that sense, Weber's categories of charismatic, traditional and legal are also not discrete within different instances of authority. This shows some amount of creativity in institutional formations and laity interpretations, despite quite different conceptualisations of nature. It also reflects new and less restrictive relations between the state, market and civil society in environmental governance in China (Mol & Carter, 2006).

There was a noticeable distinction in tone in the accounts of these two realms of power. Discourse within the laity about religion tended to be rather ambiguous, in contrast to the specificity of the government rules in statements. This indicates the location of authority over knowledge which for religion lies firmly within the monastery, and perhaps the lack of experience the laity has in discussing Buddhist teachings, ethics, and ritual. The value lies in the doing rather than saying. The form of religious authority stands in contrast to the importance of communication through language in government policies but the difference is not necessarily an indication of the efficacy of each type. The meaning which the environmental policies held for

the laity, and therefore their legitimacy lies in the fact that they are reinforced and align with religious norms and traditional forms of authority. Supernatural retribution would ensue for many of the activities deemed illegal such as hunting, and the effect bolstered through the threat of state sanctions. The alienation towards land that may be the result of state ownership is alleviated by the transfer of authority, albeit partial, over some religiously significant sites.

Although the government and religious rules appear to be mutually supportive in some ways, the 'Grain for Green' programme highlights potential incompatibilities between some state projects and environmental knowledge and livelihood practices at a local level. The tree planting scheme was a point of contestation, and its legitimacy is threatened mainly by the mismatch between the rhetoric and realities on the ground. It also points to concerns over the creation of 'fictitious commodities' in environmental conservation, whereby nature which has dimensions of religious and social meaning to Tibetans becomes reduced to cash. The process, in this instance, is in fact burdening some families with significant costs for their livelihoods.

A quite different kind of commodification is occurring in the form of the caterpillar fungus trade, this time led and owned by local Tibetans who have embraced it, with noticeable effects on wealth and prosperity. The imaginings of Tibet through which the commodity has been produced and given meaning on the Chinese market stands in stark contrast to the realities of its collection which involves violence and competition. This, however, should not be framed entirely in terms of the eroding effects of modern capitalism. Culture cannot be removed from the encounter with capitalist forms, and is shaping the trade and its effects on the use of wealth, conflict, and adaptation of religious norms. The study also draws attention to the global connections present in this small valley community, via the regional and global economy and Tibetan exile communities. The emergent environmentalist discourse was beginning to have effects on the way in which people talk about the environment, and is particularly powerful due to its association with important lamas, and the way it draws upon and reshapes cultural pride and identity.

5. Fungal gold & firewood

Access to diverse provisioning ecosystem services

5.1 Introduction

Ecosystem services (ES) are ecological functions underpinning human well-being (Daily, 1997), and span regulatory, supporting and cultural services as well as the direct provision of food, timber, water, fibre and medicine (Millennium Ecosystem Assessment, 2005). Provisioning services including wild products, often termed ‘non-timber forest products’ (NTFPs), form an integral part of rural subsistence and cash economies around the world (Nepstad & Schwartzman, 1992), so that rural communities can be important players in the environment (De Sherbinin et al., 2008). Growing commercialisation of some wild resources has led to an increase in the volume collected, and fuelled fears about over-exploitation and declining populations (Peters, 1996). Extraction can also lead to habitat degradation and changes to genetic patterns of populations and ecosystem level processes (Ticktin, 2004). On the other hand, ensuring sustainable harvests is beneficial for both human well-being and biodiversity but requires an understanding of relationships between wild products, livelihoods and wealth within communities, and changing patterns of use (Davies & Brown, 2007).

Compared to people living in more developed parts of the People’s Republic of China (PRC), Tibetan communities are more reliant on natural resources. These communities also have the highest poverty rates in the country (UNDP, 2005). In the last two decades the rural cash economy of the Tibetan plateau has been bolstered by a ‘fungal gold rush’ in medicinal caterpillar fungus (*Ophiocordyceps sinensis*) and matsutake mushrooms (*Tricholoma matsutake*). Although this trade has been documented (Arora, 2008; Winkler, 2008a; Roach, 2011), and the livelihoods of rural Tibetans explored in the ethnographic literature (Goldstein et al., 2003; Fischer, 2008), there has been no quantitative analysis of the role of wild products as provisioning services for

Tibetan households within communities. Investigation at this finer level is needed to gain a more complete picture of human-environment relations.

People's livelihoods are not just dependent on whether an ES is available in the area, but are a function of their ability to derive benefits from it – what is termed access (Ribot & Peluso, 2003). Access can vary with a number of household level factors, as well as being related to social dynamics and politics, meaning that patterns of ES use vary within one community (Waylen, 2010). Conventional wisdom holds that poverty and forest resources are intimately related, so that the poorest sections of a community are often the most reliant on forest ES since they have fewer alternatives (Belcher et al., 2005). The poor have been found to gain from NTFPs in relative terms (Mamo et al., 2007), but other studies have shown that middle or wealthy households use and gain the most from wild products in absolute terms (de Merode et al. 2004; Mcelwee 2008), or that there is no relationship at all (Wickramasinghe et al., 1996). Wealth, and conversely poverty are, however, concepts of some complexity with multiple dimensions that go beyond income and material assets, and vary between communities and cultures. Theories of poverty based on the idea of livelihoods instead consider wealth to be constructed not only from financial assets, but four other types of capital: social, human, physical and natural (DFID, 1999). Despite the substantial body of knowledge on the relationship between poverty and ES in tropical forests, few studies have considered the provisioning role of ecosystem services in grassland systems, such as are found on the Tibetan plateau.

Generally NTFPs have been found to play an important part in livelihood strategies as a backup, for instance smoothing income fluctuations due to seasonality of production (Kant et al., 1996), or offsetting the costs of crises such as crop failure and illness (McSweeney 2004). Typically therefore, access to alternative livelihoods such as wage labour and livestock decrease reliance on wild products (e.g. Mcelwee, 2008). However, when a product becomes commercialised, these relationships can change dramatically. For example the commercialisation of Moroccan argan oil led to large gains in wealth and social benefits (Lybbert et al., 2011), but boom can be followed by bust due to rapid extraction and changing markets, leaving dependent and poor households vulnerable to further poverty (Belcher & Schreckenberg, 2007).

Using data from semi-structured interviews, I explore wild provisioning services of the grasslands and forest to households in the case study community of Samdo. As the most widely used provisioning services, I examine firewood, caterpillar fungus and matsutake mushrooms. By focusing on these products I am able to contrast a purely subsistence resource (firewood) with two commodified resources (matsutake and caterpillar fungus). Based on recall data I evaluate:

- *How wild products are collected and used*
- *How fungal products are contributing to wealth and livelihoods*
- *What determines household access to provisioning services (the amounts of the resource collected, and price received for caterpillar fungus)*
- *How local use of provisioning services has changed through time*

5.2 Provisioning ecosystem services at the study site

Firewood and timber

Forest ecosystems are primarily found in the south-eastern part of the Tibetan plateau, where there are milder climatic conditions. Their distribution is influenced mainly by precipitation and altitude (Winkler, 1998). Anthropogenic forest fragmentation has had a long history on the plateau and its valleys, which have been cleared for firewood, timber, livestock rearing, agriculture, and settlements (Ryavec & Winkler, 2006). At the study site the forest type is subalpine cold temperate with a canopy consisting mainly of conifers (fir and spruce) mixed with broadleaved deciduous and evergreen species – larch, birch and aspen. Evergreen sclerophyllous oaks (*Quercus aquifolioides*) appear on southern slopes and are the main source of firewood. They are managed in a coppice whereby young tree stems are continually cut down to ground level encouraging new shoot formation from the rootstock. It has been suggested that the “healthy survival” of *Quercus* species in Tibet is threatened by firewood production and livestock grazing (Tang, 2006), and cutting has been identified as a threat to endangered species in the region (Xiang et al., 2007).

Spruce is a common source of timber for housing in Eastern Tibet and was historically harvested selectively. Since the 1950s forest fragmentation became much higher in Ganzi and Ngawa, east of the Yangtse, than in the Tibetan Autonomous Region due to logging by government agencies. Since the implementation of the Natural Forest Protection Programme in 1998, communities within Daocheng are only legally entitled to extract firewood and timber for subsistence needs in allocated areas at certain prescribed times.

Caterpillar fungus (Ophiocordyceps sinensis)

Caterpillar fungus (CF) is a parasitic medicinal fungus found on the grasslands of the Himalayan region, between 3000 and 5000m altitude and in all but the driest areas of the Tibetan plateau (Winkler, 2009). Its unique morphology (Figure 5.1) is the result of the fungus parasitising the ghost moth larvae of the genus *Thitarodes*. The fungus grows inside its body filling it with mycelia, and emerging from the head of the mummified caterpillar above the ground in the spring. It is known as *yartsa gunbu* in Tibetan (meaning ‘summer grass, winter worm’), and often simply ‘*bu*’ (worm) in Eastern Tibet, reflecting this seasonal process. It is used as a tonic for a wide range of ailments, from fatigue to cancer, but most famously as an aphrodisiac. Although CF has a long history of human use dating from at least the 15th century (Winkler, 2008a) in both Tibetan and Chinese medicine, it is only in recent years that it has become commodified. Between 1956 and 1981, during the Commune system, any CF collected was governed by strict quotas and given to local authorities. During the Cultural Revolution the market collapsed, but after economic liberalisation in the early 1980s, prices have increased dramatically (Winkler, 2008b). It is now given as a fashionable luxury gift amongst wealthy circles in Chinese cities and the domestic and international markets are booming. People across the Himalayan region invest huge time and effort searching for and digging the fungus in the grasslands every year. The annual production on the Tibetan Plateau is estimated at between 85 and 200 tons (Winkler, 2009) and concern has been raised over falling production due to soaring collection rates (Stone, 2008), as well as the environmental effects on the grasslands due to destructive collection methods (Winkler, 2005).

Matsutake mushrooms (Tricholoma matsutake)

Matsutake (Figure 5.2) has been a prized edible mushroom in Japan for centuries. In Tibetan it is called *Beshing shamo* meaning oak mushroom, indicating its ectomycorrhizal association with species of oak (*Quercus*). It is also associated with Pine (*Pinus*), and less commonly larch (*Larix*), and is found in forested areas at elevations below 3200m (Zang, 1984). Like caterpillar fungus, there has been a dramatic rise in the price since the 1980s, when Japanese companies were able to access matsutake in the PRC primarily in Yunnan and Sichuan provinces. Prices are volatile, responding to shifts in supply and demand at regional and global levels (Yeh, 1998). NGOs have promoted ‘sustainable harvesting’ of the fungus though there is not yet firm evidence of changes in populations or impacts to ecosystems from current harvesting levels (Menzies & Li, 2010).



Figure 5.1 Dried caterpillar fungus (*Ophiocordyceps sinensis*)



Figure 5.2 Local men washing matsutake mushrooms

5.3 Methods

Data collection

50 household interviews were conducted between January and April 2010, representing 23% of the households in the valley. Questions regarding natural resource use were incorporated into a more wide-ranging semi-structured questionnaire described in Chapter 3 (Appendix ii). Interviews were carried out with household heads or those involved in household decision making, either individually or in a group. The interviews aimed to obtain measurable information on household demographics, natural resource use, and livelihoods to be used in statistical analyses, but consolidated and enhanced these data with qualitative information and context during informal discussions. Recall data were for the calendar year 2009. I sampled across the four administrative villages in the valley community and used village as an explanatory variable in statistical models to account for any differences between them.

To incorporate indigenous ideas of wealth, which may differ significantly from Western ideas and income-based indices (Chambers, 1987), key informants who drew up a list of locally relevant indicators of wealth which were used in the questionnaire. A two storey house was thought to quite often make the distinction between rich and poor households. Other key assets were: modes of transport – ownership of a motorcycle and tractor (*tolaji*), ornate cabinets (*jadam*), jewellery (normally passed through generations so indicating historical wealth), a shrine room (*chokhang*), and cattle. The receipt of certain government subsidies aimed at the poorest in society, and the condition of the house (furnishings, cleanliness) indicated poverty, and I also noted these during the questionnaire surveys. Since so few people had jobs outside of

agriculture, occupation was not thought to be a defining feature of wealth. The amount of land owned was also not a wealth indicator, because land was allocated by the Chinese government during the de-collectivisation of agriculture from 1979 according to household size. Based on these indicators, households were categorised into three wealth categories: poor (n=11); middle (n=26); wealthy (n=13) and categories checked with a key informant. Remittances from family members living outside the home were included in household income. Government subsidies were also included in family income.

Maps produced in the focus groups (see Chapter 7) aided in distinguishing the locations of natural resource collection during the interviews, and a Tibetan calendar for 2009 with both Tibetan dates (following a lunar calendar) and Gregorian dates enabled respondents to discuss more accurately when they collected products. Although interviews can provide reliable information on quantity, effort and the spatio-temporal patterns of harvesting of wild species like firewood (Jones, et al., 2008b), there can be difficulties especially regarding sensitive and illegal activities (Gavin et al., 2010). I used observational methods to triangulate data; both observing people collecting, and visiting sites of resource extraction.

Data analysis

Statistical analyses were carried out using R 1.14.1 (R Development Core Team, 2011). I used generalised linear models (GLMs) to explore which household variables explained differences in amounts of natural resource extraction and the price of caterpillar fungus (CF). Statistical models seek to represent reality in a simplified yet accurate way by formalising relationships between response and explanatory variables based on data (Table 5.1). The aim is to find the ‘minimal adequate’ model out of all plausible models, that is with the least amount of unexplained variation, and representing relationships between variables in the simplest way, according to the principle of parsimony (Crawley, 2007). GLMs relax the assumptions of standard linear regression models by allowing the response variable error to follow non-normal distributions and non-constant variances (Crawley 2007). The first step in using GLMs is to define the error structure of the model. The variable ‘firewood’ is count data and exhibited Poisson errors. The response variables ‘CF amount’ and ‘CF price’ were square root transformed to normalise the distribution before carrying out the analyses specifying a Gaussian error structure (Appendix iii). For the response variable ‘matsutake amount’ a mixed compound Poisson-gamma within the Tweedie family of distributions was specified which has a positive mass at zero and was otherwise continuous (there were 9 households not collecting matsutake at all, and the variable is otherwise positive). P , the index parameter determining the distribution, was specified as 1.52.

Akaike's Information Criterion (AIC) was used as a basis for model selection. This is a 'penalised log likelihood' that weighs up the trade off between the number of parameters and the fit of the model. It is now often preferred to the more traditional stepwise deletion of variables to ensure variables are not deleted prematurely, and it allows for the ranking of a selection of candidate models giving a better picture of the relative goodness of fit of different models (Burnham & Anderson, 2002). Explanatory variables used in the GLMs (Table 5.1) were chosen on the basis of a review of the literature on resource use and livelihoods, preliminary field work at the study site, and an exploration of the data. Some variables were excluded from models if they were considered *a priori* meaningless; for example education was not included in the GLM for firewood quantity. I explored interactions visually and included them when they were meaningful and seemed to have an effect. Certain variables often found relevant in other studies were not considered important in this context, for example gender ratios, as both men and women collect resources, and residency duration in the village as the vast majority of the community had spent their lives in Samdo. I checked co-dependency between variables (Table 5.2) and based on this wealth was excluded from models containing other variables, due to its strong relationship with many other variables. Household variables that were measured, but subsumed within other more fundamental variables, were also not included. For example number of cattle is both an indicator of wealth and herding.

Table 5.1 Responses and explanatory variables used in statistical analyses

Name of variable	Description	Type and Units
Response variables		
CF amount	Amount of caterpillar fungus collected in 2009	Continuous (pieces)
Matsutake amount	Amount of matsutake mushrooms collected in 2009	Continuous (kg)
Firewood	Amount of firewood collected in 2009	Count data (tractor loads)
CF price	Average price received for caterpillar fungus per piece in 2009	Continuous (RMB*/piece)
Explanatory variables		
Age	Age of household head	Continuous (years)
Alt work	Alternative occupation outside of farming or herding	2 level factor (yes, no)
Depend	Dependency ratio (100 x number of dependents/number of productive adults) [†]	3 level factor (low, medium, high)
Education	Education of any member of the household >16 years	2 level factor (yes, no)
Herding	Herds livestock as a source of livelihood	2 level factor (yes, no)
HH size	Household size	Continuous (1-9 persons)
Income	Annual income in 2009	Continuous (RMB)
Land	Amount of land owned by the household	Continuous (Mu [^])
Village	Village of residence	Categorical (1-4)
Wealth	Wealth according to local understanding	3 level factor (poor, middle, wealthy)

*Chinese Renminbi; 1RMB=£0.100442 British Pounds. [†] Dependents are defined as children under the age of 15, elderly and disabled family members not able to carry out productive work. This does not take into account gradations of productivity. [^]Mu is a Chinese unit of land measurement. 1 hectare = 15mu.

Table 5.2 Relationships between explanatory variables

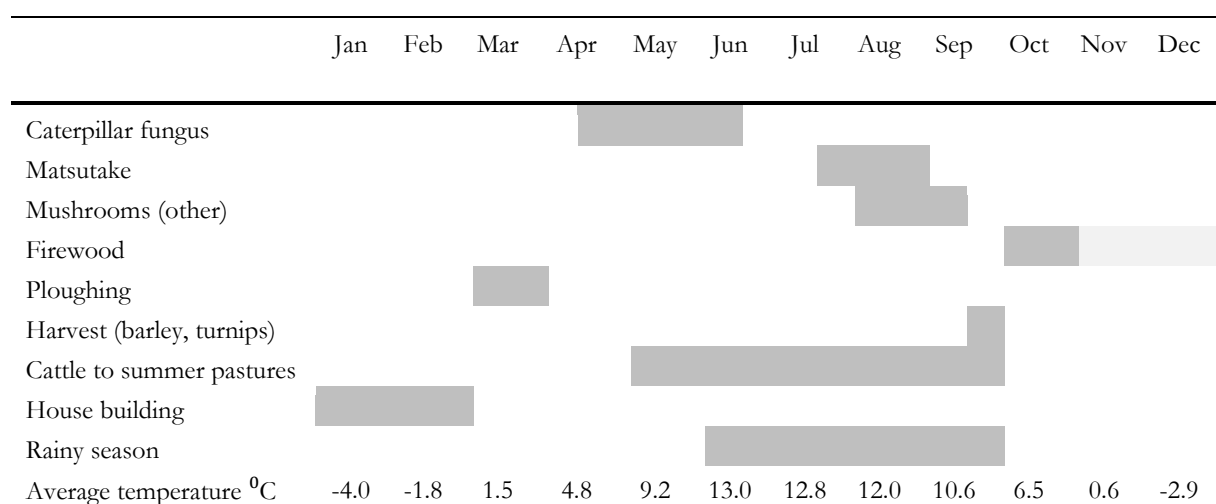
	Age	Alt work	Depend	Education	Herding	HH size	Income	Land	Village
Alt work									
Depend									
Education			*						
Herding									
HH size	0.11		**		***				
Income	0.04			**		0.42			
Land	0.17				**	0.52	0.38		
Village									
Wealth			**	*	***	***	***	*	

Numbers show Spearman's correlation coefficients; Stars show significance levels of Wilcoxon rank sums, Kruskal Wallis one way analysis of variance and Chi squared tests (used as appropriate) ***=<0.001 **=<0.01, *=<0.05. Light grey cells show where no significant association was found.

5.4 Results

Details of resource extraction

Information from household interviews and key informants was used to draw up a calendar of livelihood activities throughout the year (Figure 5.3).

**Figure 5.3** Calendar of resource collection and livelihood activities in Samdo 2009

Dark grey area shows when the majority of activity took place. Temperatures are taken from www.worldclimate.com for Daocheng.

Evergreen oak (*Quercus aquifolioides*) was the most commonly used species for firewood (Figure 5.4) in Samdo and was coppiced. Rhododendron species (Figure 5.5) were also sometimes used. Other species which are found primarily along river beds were also used, especially by families staying in their nomadic homes. These include willow species (also coppiced), and sea buckthorn (*Hippophae rhamnoides*). Oak trees are coppiced and I observed either that the whole stool was cut or a part was cut away. Government regulations restricted collection to the month of October and to two tractor loads per household per year (the volume of one trailer is 0.72m³ but wood was stacked to double the height). 13 of the 50 respondents reported collecting firewood outside of October. Firewood was traditionally collected after the harvest when it is dry and in preparation for the cold months ahead.



Figure 5.4 Coppiced oak (*Quercus aquifolioides*)



Figure 5.5 *Rhododendron adenogynum*

The mean amount collected was 2.9 loads per year in 2009 (n=50); the modal number was also 3 loads, with 19 households collecting this amount. Each tractor load cost 10RMB (£1), and those who collected more than two either paid the local government extra money or extracted the wood illegally. Dried wood was also collected by women on foot the following year in locations where the household had cut trees for firewood the previous year. Due to the more *ad hoc* nature of dry wood collection, this was not quantified in the data collection. The location of firewood collection varied across households and between villages (further analysis in Chapter 6).

Three local conifer species were mainly used for house building, including larch for window and door frames. 20 of the 50 households had built their house in the last 5 years. 16 households interviewed had sourced timber from their house locally (within approx 10 km of the

villages; none in the last five years); 5 in other places within Daocheng county; 10 outside the county (in Litang and Chatreng); 3 used old timbers from their previous and others' homes. A relatively large number of household respondents (14) were unsure where the timber had come from, mainly because they had not been told when they purchased it.

Households collected caterpillar fungus (CF) for a maximum of two months in 2009, from 20th April to 18th June. Households varied as to how many days they collected, depending on other responsibilities like herding and the number of people available to collect. Since the price started to rise in the 1980s, not only have more people started collecting but the community expanded the areas where they collect and time spent searching. In extreme cases this has led to clashes with neighbouring communities (Chapter 4). As one village leader explained:

“Many years ago, not many people collected [caterpillar fungus] but now they take it more seriously. Before people only went to the top of the mountain and didn’t look anywhere else. Now people find it in the valley, and in the forest... everywhere. There were many, but people didn’t look very hard. Now the price is so high, so people will try to find it everywhere.”

Local collectors were aware of spatial and temporal differences in quality, which affected their patterns of collection. For instance people generally moved to higher slopes later in the season where the mushrooms fruit later. Specimens collected at higher altitude were also considered better quality, whereas those found in forest were less valuable. Overall, people spoke of the season in three stages, with early CF (*nga-bu*) the best quality, and the latest (*tsar-bu*) the worst.

Households from Samdo collected the fungus on the high grasslands to the north and north west of the valley where their pastures lands lie, and up to 20 km from their homes. During the height of the season people spent up to ten hours each day scouring the grasslands. Camps were set up, with only some people coming back intermittently for supplies and to sell the fungus in the town. Yaks grazed at their summer pastures nearby, and people were most likely to collect near to their household's allocated pasture area. When the ‘head’ (*mgo*) of the mushroom was seen, the collector used a small axe to remove the top soil which was then replaced. The pieces were cleaned carefully with a toothbrush, a job largely carried out by women, and dried in the sun or in front of the fire. Almost equal numbers of the collectors were male (53%, n=100) and female (47%). 18% of the collectors were under 16. On average 404 pieces were collected per household, median=375, with a large range from 20 to 1100 pieces.

Both men, women and children collected in 2009. Almost equal numbers of the collectors were male (53%, n=100) and female (47%). 18% of the collectors were under the age of 16 years.

Matsutake was collected for approximately one month during July and August in 2009, and has been collected for trade since the mid to late 1980s. Local people collected it from forest and forest edges where the fruiting bodies occur in patches. Men, women, and a small proportion of children collected the fungus. 41 of the 50 households collected at least some matsutake in 2009, and the average amount of matsutake collected per household was 32 kg, median=20kg, ranging from 0 to 150kg.

Other mushrooms and plants

Quantitative measures of other plant and mushroom species were not taken as the amounts were small. A list of other species, with further information is shown in Table 5.3.

Table 5.3 Less commonly collected plants and fungi in Samdo, 2009

Common & scientific name	Tibetan name (Chinese name)	Use	Season & other information
Morels, <i>Morchella spp</i>	<i>Shamo</i>	Food	Summer; often collected by children
<i>Fritillaria cirrhosa</i>	<i>Pema</i> (Beimu)	Medicine (bulb)	Bulb harvested in winter; flowers October
Gentian, <i>Gentiana crassicaulis</i>	<i>Pang-jen</i> (Qinjiao)	Medicine	Plant & root from June-Nov
Snow Lotus, <i>Saussurea medusa</i>	<i>Ganglba metok</i> (Xue lian)	Medicine (bulbs)	
Golden Root, <i>Rhodiola crenulata</i>	<i>Solo marpo</i> (Hongjingtian)	Medicine (roots)	
Silverweed, <i>Argentina anserine</i>	<i>Droma</i> (Juema)	Food (roots)	Dug out in autumn

Relationships between resource collection, wealth and livelihoods

Wealth was strongly connected with other household variables (Table 5.4) including income, but did not differ between villages. The mean average household annual income was 6639RMB (£664), median=5500 (£552), ranging from 850 to 20,000RMB (£85 to £2009; n=50). Wealthier households tended to have greater household sizes, a pastoral livelihood strategy (all wealthy households were herders), and were more likely to be educated, though the difference between poor and medium households is slight. Average dependency ratios are highest for medium wealthy households; low ratios of dependents to active adults in poor households are reflective of small household sizes. The very poorest households were characterized by recent mortality and ill health.

Table 5.4 Characteristics of households in different wealth categories

Wealth category	number of households	Mean income/ £ (range)	Mean HH size	% herding	Mean no. of cattle	% educated	Mean dependency ratio (%)
wealthy	13	1221 (904-2009)	6.4	100	33.7	85	54
middle	26	525 (221-1055)	6.0	81	27.2	42	92
poor	11	348 (85-713)	3.3	27	5.6	55	64

Locally defined wealth categories were significantly related to income (Kruskal Wallis $K=27.24$, $df=2$, $p<0.001$), suggesting that wealth is largely in line with income, although there is some overlap between wealth categories, especially between poor and middle wealth (Figure 5.6).

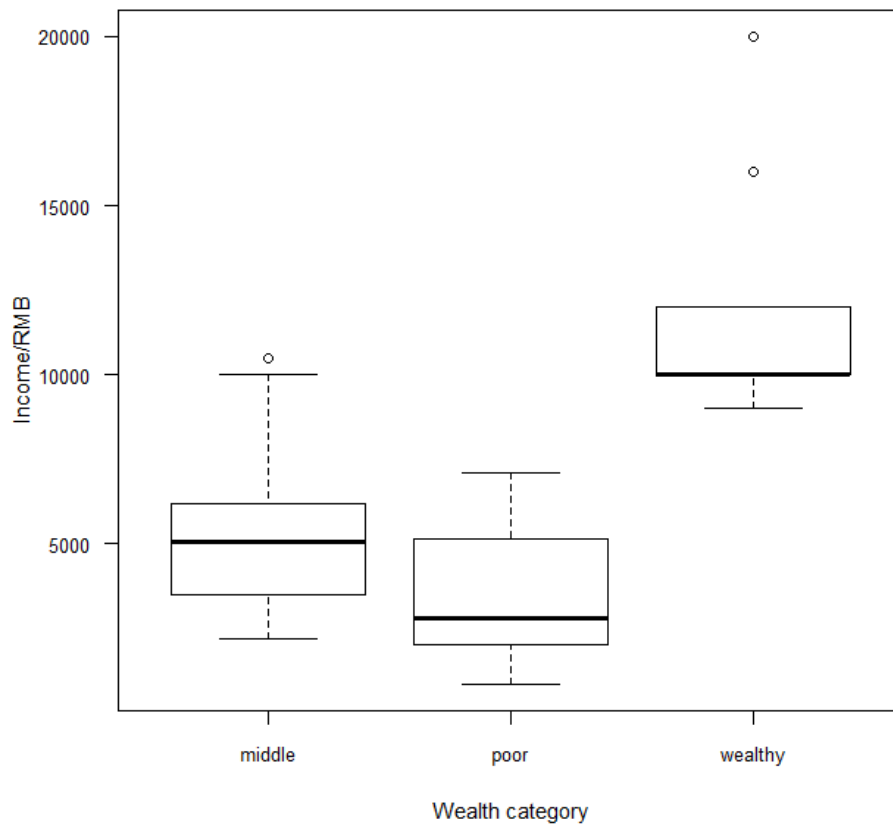


Figure 5.6 Annual household income according to locally defined wealth categories

Of the 50 households surveyed, 22 had no member over 15 years of age with any formal education. In another 22 households primary education was the highest level reached, and only six households had a member who had reached secondary education. Education was not significantly associated with household size or whether the family was pastoral, but income differed significantly between households with education, and those with none (Wilcoxon $W=448$, $df=2$, $p<0.05$; Figure 5.7).

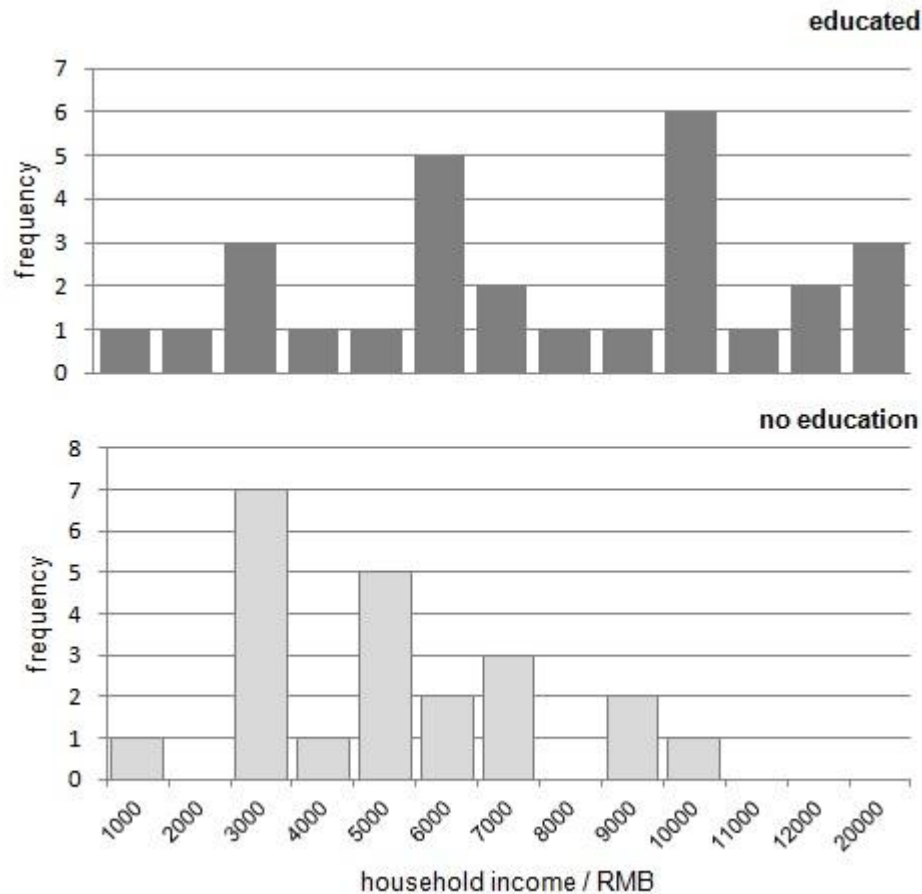


Figure 5.7 Distribution of household income in education groups

Asked to give their household occupations (defined as any work that contributes to the overall livelihood of the household), all 50 households reported collecting and selling caterpillar fungus (Figure 5.8). Only one household in which the head male was a vet had a livelihood based on what would be considered ‘professional’ from a Western perspective but the household still had an agro-pastoral subsistence base. 13 of the households had a member doing work outside of agriculture (farming and herding). Although 41 of the households collected matsutake mushrooms, only five reported this as contributing to their livelihoods, reflecting its relative unimportance. 10 of the 50 households had a member of their household in a monastery

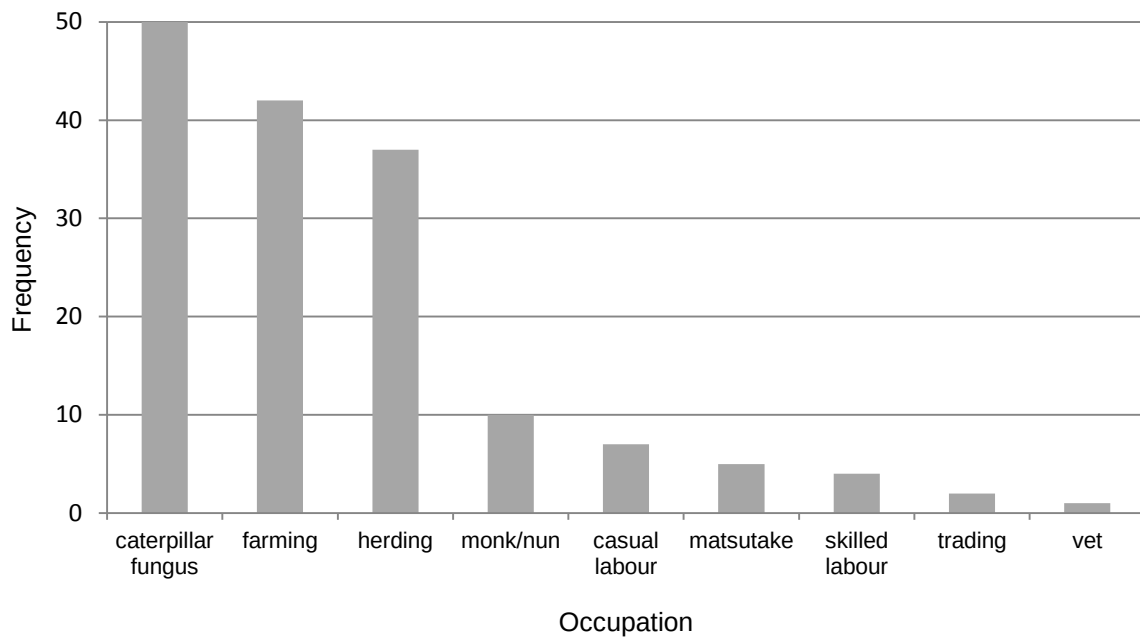


Figure 5.8 Frequency of occupations from household survey

Casual labour refers to construction work; skilled labour includes carpenter (2), butcher (1), mechanic (1).

Firewood was collected by all households ($n=50$) for their own use regardless of wealth and livelihoods, and was not sold. The mean proportion of household cash income earned from CF in 2009 was 72% (median=80%, $n=50$). There is a significant difference between wealth levels in the proportion of income received from CF (Kruskal Wallis $K=11.90$, $df=2$, $p<0.05$; Figure 5.9). Poor households received significantly less of their smaller income from CF, but instead received a greater proportion from government subsidies and casual labour. Four of the seven households who earned money from construction work were categorised as poor. The mean proportion of income gained from CF for wealthy and medium households is very similar (0.76, 0.78), but poor households gained on average just over half their annual income from CF (0.52). Three of the 13 wealthy households earned less than 70% of their income from CF, earning the rest from herding and other professions. The mean proportion of household income from matsutake is 6.0% (median=4.8%, $n=50$), and is very similar between wealth classes (poor=0.076; medium=0.055; wealthy=0.056).

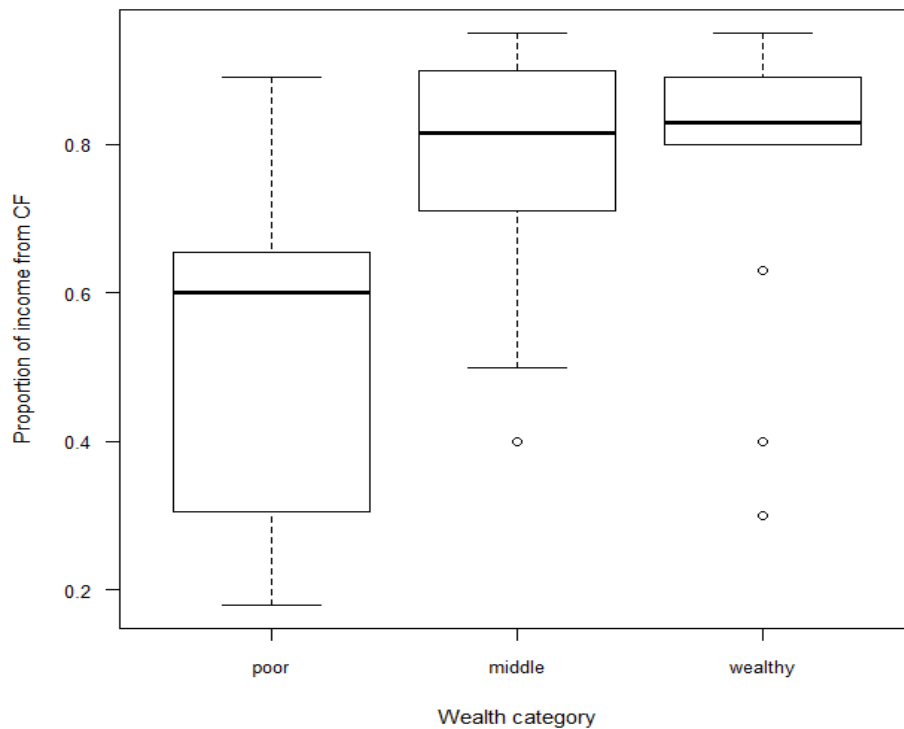


Figure 5.9 Proportion of household income gained from caterpillar fungus in 2009 by wealth category

Determinants of access to provisioning services

The variables herding, household size, income and village were included in the GLM to explain variation in firewood extracted between households (Table 5.5). A household collecting 10 tractor loads of firewood was omitted from the analysis, as the majority of the wood was used for a death ritual, and so anomalous. The difference in AIC values between the models was not significant so I carried out model averaging on the models with delta values <5 to find which variables appeared to be most important. Household size is the most important variable (0.58), followed by income (0.40), herding (0.23) and lastly village (0.14). Ownership of a tractor which is used to collect the wood did not affect the amount of firewood collected. Nine households which did not own a tractor relied on cash to hire someone, social relations to borrow a tractor, and other economic transactions such as exchange of farm or construction work.

Table 5.5 Model selection table for GLM for amount of firewood collected in 2009

Herding	HH size	Income	Village	% deviance explained	AICc*	delta†	weight
	+			15.6	163.9	0	0.238
		+		11.3	165.0	1.082	0.138
	+	+		19.1	165.3	1.364	0.120
				0.0	165.7	1.772	0.098
+	+			16.9	165.9	1.949	0.090
	+		+	32.4	166.8	2.867	0.057
+		+		11.3	167.3	3.351	0.044
+	+	+		20.5	167.3	3.391	0.044
			+	20.3	167.4	3.445	0.042
+				0.8	167.7	3.738	0.037
		+	+	27.6	168.0	4.076	0.031

+ shows where variables are included in the model. * AICc is AIC (indicating the relative goodness of fits of a model) with a correction that makes a greater penalty for extra parameters. It is recommended by Burnham & Anderson (2002) when n is relatively small. † delta measures the model relative to the best model.

Given that the cash economy in this community was heavily dependent on CF, household income was not included in the model for CF collected to avoid circularity. The variables included were: herding, age, education, land, alternative work, dependency ratio, household size, village and the interaction between household size and herding (Table 5.6).

Table 5.6 Model selection table for GLM on amount of caterpillar fungus collected in 2009

Age	Depend	Edu	Herding	HH size	Land	Alt work	Herding: HH size	% deviance explained	AICc	delta	weight
-0.1944	+		+	3.26			+	40.1	326.1	0	0.180
-0.1887	+		+	3.26		+	+	40.6	328.7	2.557	0.050
-0.189	+		+	3.405	0.1725		+	40.6	328.8	2.623	0.048
-0.1929	+	+	+	3.265			+	40.2	329.1	2.937	0.041
	+		+	3.096			+	32.4	329.3	3.18	0.037
-0.1855	+			1.662				28.7	329.3	3.209	0.036
-0.1745	+			1.806		+		31.7	329.8	3.711	0.028

There is strong support for the first model (the delta AIC for the next model is >2) and it was taken as the minimum adequate model, with parameter estimates given in Table 5.7. The model suggests that households with a younger household head, lower dependency ratios, more members and with a herding livelihood strategy tend to collect more CF. The interaction between herding and household size also explains some variation: For non-herding households, CF extraction increased with household size, but within herding households the relationship was negative.

Table 5.7 Summary of minimum adequate model explaining amount of caterpillar fungus collected in 2009. High dependency was taken as the baseline condition.

	Estimate	SE	t value	P value	significance
(Intercept)	6.196	5.543	1.118	0.270	
Age	-0.194	0.083	-2.347	0.024	*
Dependency low	8.458	2.762	3.062	0.004	**
Dependency medium	6.949	2.642	2.630	0.012	*
Herding yes	15.277	5.442	2.807	0.007	**
HH size	3.260	0.875	3.726	0.001	***
Herding yes:HH size	-2.927	1.042	-2.809	0.007	**

Values for overall model: n=50, F=4.8, df=6, p<0.001, R-squared=0.401, adjusted R-squared=0.318

There is not a complete correlation between the amount of CF collected and cash benefits received. Those who were able to send a household member to sell the fungus in Samdo or

Daocheng town received a higher price, whereas CF sold on the mountain was generally cheaper. Quality differs between specimens and changes through the season. Attributes indicating quality were hardness, a yellow colour, and large size of the larval host. Specimens collected at higher altitudes were considered higher quality so those collectors able to travel further were at an advantage. The average reported price received per piece in 2009 was 11RMB (median=10RMB, range 6-18RMB). A GLM was run to explore which household factors explain differences in the average price received for CF between households in 2009 (Table 5.8). The explanatory variables herding, village, education, household size and dependency were included in the maximal model.

Table 5.8 Model selection table for GLM on price received for caterpillar fungus in 2009

Depend	Education	Herding	HH size	Village	% deviance explained	AICc	delta	weight
	+		+		23.5	56.02	0	0.272
	+	+	+		26.1	56.77	0.743	0.187
		+	+	+	30.8	58.77	2.743	0.069
			+		15.1	58.89	2.864	0.065
		+	+		18.8	59.02	2.993	0.061

The first two models have similar AIC values so both models have considerable support. However, the model summary for the second model shows that herding is not explaining a significant amount of variation ($p=0.2$), and so the first model is the more parsimonious minimal model (Table 5.9). Larger households and those with adults who have received education were able to gain a better price for CF.

Table 5.9 Summary of minimal model explaining price received for caterpillar fungus in 2009

	Estimate	SE	T value	Significance (p)
Intercept	2.86121	0.17674	16.189	2.00E-16 ***
HH size	0.10074	0.03023	3.333	0.00168 **
Education none	-0.26193	0.11505	-2.277	0.0274 *
Overall model values: n=50, F=7.225, df=2, p<0.05, R squared=0.2352, adj R squared=0.2026				

Wealth was initially not included in the maximal model for the amount of matsutake collected due to correlations with other variables. According to AIC values, the null model was the best model, but when wealth was included into the model on its own, there was strong support for this model (delta AIC=3.71), with wealthy households collecting significantly more matsutake than other households (Table 5.10; Figure 5.10).

Table 5.10 Summary of minimal model explaining amount of matsutake collected in 2009

	Estimate	SE	t value	p
(Intercept)	3.8696	0.22721	17.031	<2e-16 ***
Wealth poor	-0.02333	0.41836	-0.056	0.9558
Wealth wealthy	0.85438	0.34669	2.464	0.0174 *
n=50, F=2.014e+04, , df=2, p<0.001, % deviance explained=11%				

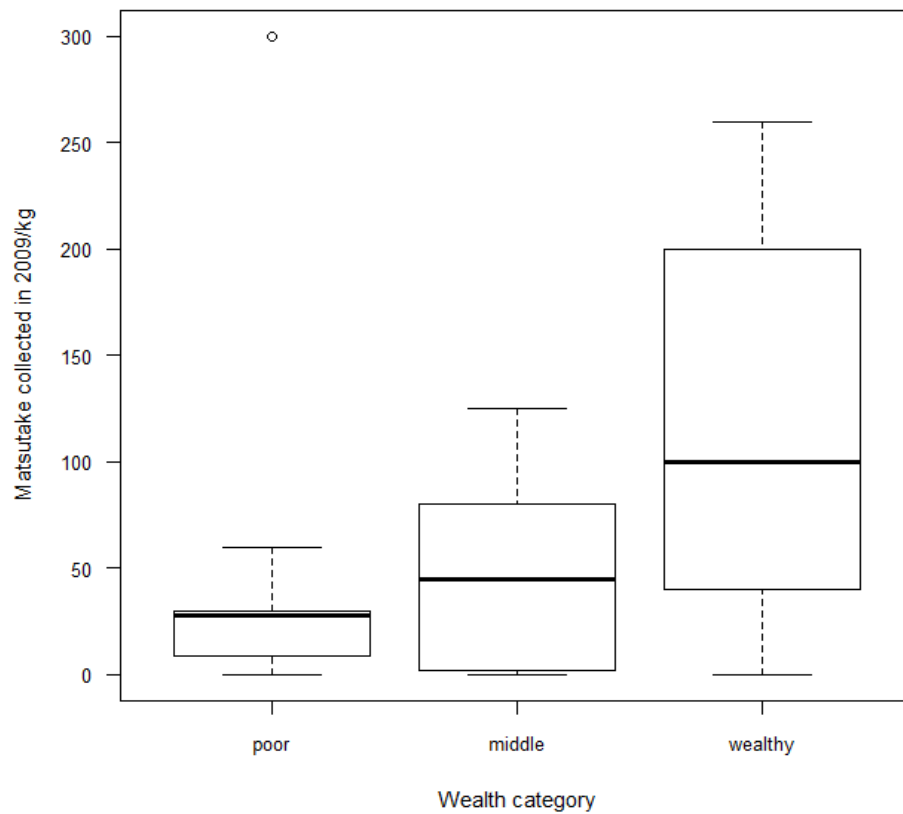


Figure 5.10 Amount of matsutake collected per household in 2009 against wealth categories

There is a positive correlation between amount of matsutake collected in a household, and the amount of CF collected ($r_s=0.38$, $df=2$, $p<0.05$; Figure 5.11), showing that those households who have access to, and are choosing to collect more of, one species also collect the other.

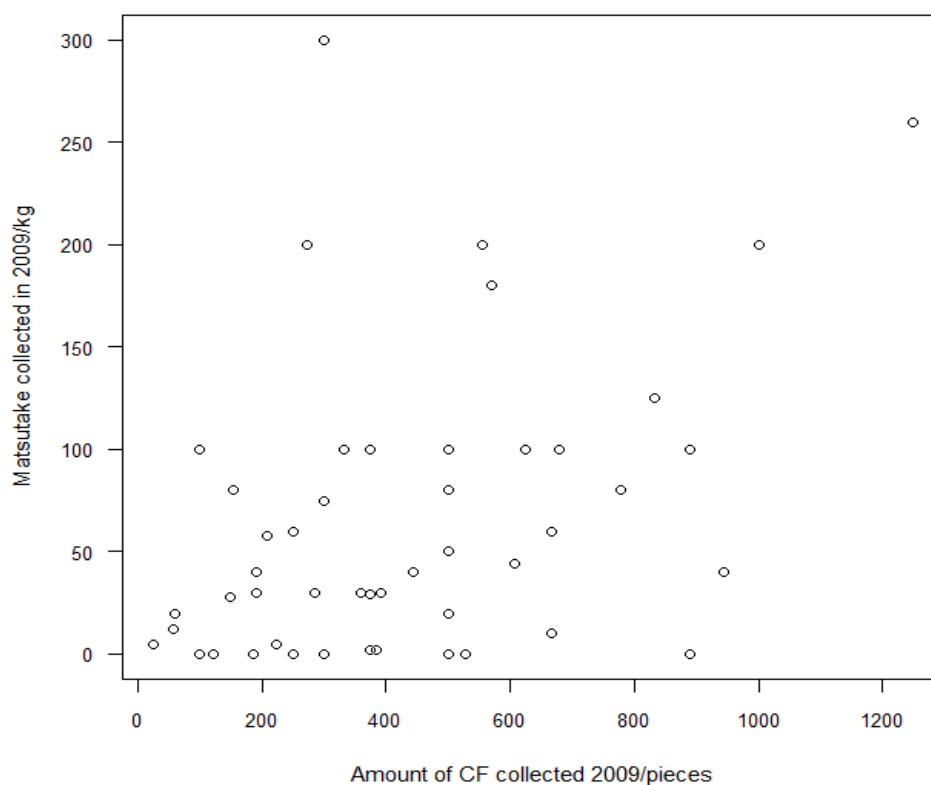


Figure 5.11 Household collection of matsutake against household collection of caterpillar fungus in 2009

Changes in resource collection through time

20 of the 50 households interviewed said that they collected less firewood than five years ago and the most common reason given was that there are fewer trees available as many have been cut (12 respondents). Five respondents said they collected less due to government restrictions, and another that the household had less need for firewood. 14 households said that they collected the same amount as before, and only two reported more collection due to greater need. Over a longer time period, local people suggested that they collected a greater amount of firewood since the use of motorised vehicles.

Asked whether the amount of CF collected had changed in the last five years, the most common response (28 respondents) was that there is less to collect now (Figure 5.12). Firstly, this was reported to be due to the weather; respondents reported that in the last few years there had not been enough rain for a good harvest. The second most common reason given was that more people are collecting it so there is greater competition for the product and fewer pieces found per household. Only two people thought that they could collect more CF now, and nine

said that the amount fluctuates from year to year so they could not judge overall. This again reflects the response of the crop to weather conditions.

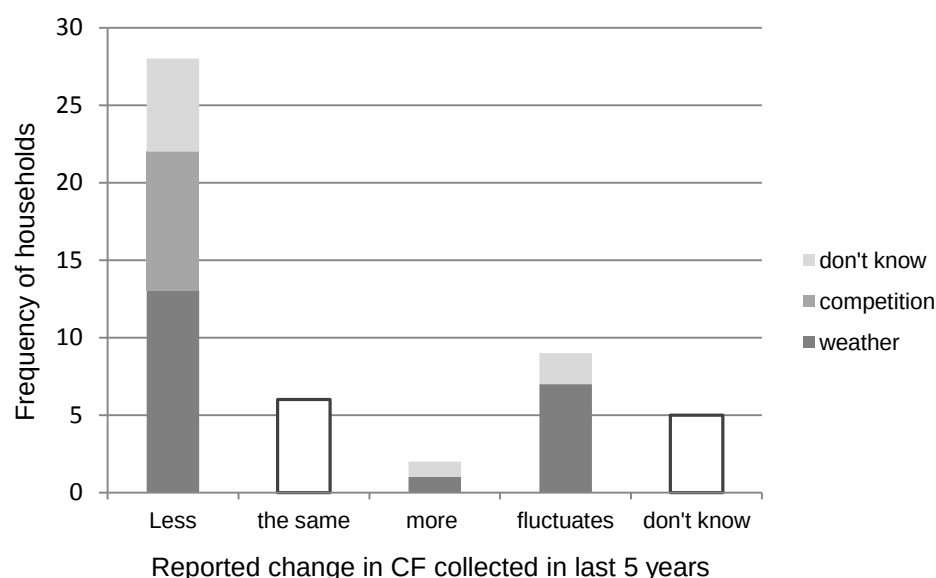


Figure 5.12 Reported changes in amounts of caterpillar fungus collected and reasons given

The majority (29/50) of respondents reported that they collected fewer matsutake mushrooms than five years ago. The most common reason given was that the price had declined, so less time was spent on collecting, and this was also the main explanation given by those households who chose to not collect any matsutake in 2009. As with CF, the crop fluctuates according to the weather, in particular with levels of rain and snow.

5.5 Discussion

The ecosystem provisioning services in Samdo are common property, owned by the government but with use rights for the whole community, yet there is differential access between households which affects local level patterns of provisioning service use. Although there were no variables which strongly affected levels of firewood collection, household size was the most important variable explaining differences in firewood collected, probably because bigger households need more heating and cooking fuel. Some studies have suggested a negative correlation between income and firewood collection (e.g. Sharma et al., 2009). Here there was simply no alternative to firewood so that all households were reliant to a greater or lesser extent, and in fact income was

needed to pay the local government for the wood. Nonetheless, social relationships were an important means of access for some poorer households with no means to transport firewood.

In contrast, access to caterpillar fungus was related to a more complex set of factors. Firstly, households with a younger household head are not only likely to have fitter and healthier family members with a greater ability to collect the fungus which relies on labour capacity, but have more incentive to accumulate wealth in order to build up their household asset base (McSweeney, 2004). Demographic variables are not static and the data show a snapshot of the community in one particular stage of their lifecycle, but households grow, shift livelihoods, suffer mortality and are therefore in a dynamic relationship with the surrounding environment (Perz & Walker, 2002). Livelihood type was also a significant factor; those households who herded cattle (pastoralists) tended to collect more CF. Pastoralists are likely to have better access to and knowledge of the grasslands where the fungus grows. Tibetans use subsistence occupations based on provisioning services as a strong livelihood base for coping with uncertainty and in preference to menial labour jobs (Fischer, 2008). This strategy not only highlights the capabilities of the rural poor in meeting their livelihood needs through diversification (Ellis, 2000) but that the caterpillar fungus trade is being adeptly integrated into pastoralism, a livelihood connected to historically rooted Tibetan identities (Yeh & Gaerrang, 2011).

Access is not only about being able to physically collect a natural resource, but to use and sell it to gain benefits. Those with bigger households were more likely to be able to send someone into the town to sell the fungus for a better price, and those with a member who was numerate and literate had an advantage in negotiating a higher price. The ability to speak Mandarin is also necessary for business with Chinese traders, a skill obtained largely through formal schooling. Herders and those with large family sizes can respond to the high levels of competition for CF by travelling further afield and at higher altitudes to reach high quality specimens.

Although commodified, matsutake mushrooms, in comparison to CF, were contributing very little to household incomes in 2009 and there was not such a clear explanation for differences in access. Broadly, the wealthy were collecting significantly more, but there was little difference between households in the contributions to household income made by the matsutake trade. Nine out of the 50 households were not collecting the fungus at all, mainly because they did not view it as profitable enough, and there had been a shift in allocation of resources away from the product. The matsutake market is volatile, and it appears that as the market conditions changed, people were in the midst of improvising livelihoods, investing a little in collection, but resulting in no notable pattern of access with particular household variables.

The relationship a household has with the environment is mediated by different kinds of capital (De Sherbinin et al., 2008). Overall, I found that access to provisioning ES was related to particular facets of wealth which in turn align with different types of capital: social, human, physical, and financial. Although wealth was signified by observable indicators, it was also strongly correlated with other demographic factors including education, household size, and dependency ratio. For the provisioning ES present in the local environment, human capital in the form of labour availability, education and knowledge was the most important factor in household access. Social relationships and cultural factors related to the pastoralist lifestyle were also significant.

Sale of caterpillar fungus was contributing on average 70% of household income in 2009, corroborating previous studies suggesting that the majority of cash income in the region comes from CF (Winkler, 2008a). This contradicts the common notion of NTFPs providing 'natural insurance' in the form of back-up during times of need (Pattanayak & Sills, 2001); instead CF now constitutes the core of almost all household income in the community. There is a difference between wealth classes, however, with the poor gaining much less of their income from the fungus. Poverty, which is related to lack of access to ES, appears to be pushing certain households into labour jobs which are socially undesirable. Although there is some circularity involved in these relationships, so that access to CF was a means and end to wealth, elements of poverty were also barriers to access. In this way wealth, income and access to ES are in a mutual yet dynamic relationship.

The initial enthusiasm for enhancing access to non-timber forest products as a conservation and development tool has been tempered by concerns of 'elite capture' by the wealthiest sections of society (Dove, 1994) or conversely by evidence that it leads to the perpetuation of poverty (Neumann & Hirsch, 2000). These ideas do not hold true for this case study. Although there was differential access, the poor were still gaining significantly since absolute barriers to ES use were not present, and capital rich households could not completely monopolise the market. In addition, firewood was accessed by all households out of necessity. Given the heavy dependence on the fungus for income, a decline in CF harvest rates or price would be potentially catastrophic for the whole community. Likewise, conservation regulations (such as restrictions on access to the montane grasslands) would affect the income of all households. Only a very small minority appeared to be able to access other skilled labour markets through education, which is similar to the situation in other Tibetan areas where education indicators are worse than anywhere else in China (Fischer, 2005).

The ecological effects of provisioning ES extraction depend on a variety of factors including frequency and intensity of collection, timing, size of specimens and the technique used, as well as the specific context (Ticktin, 2004; Belcher et al., 2005). Generally the greater the intensity of collection, the greater the ecological effects will be. Firewood collection appears to have increased over a long time period due to improved transport; but the general trend during the last five years is unclear from the data in this study. Some respondents reported that resource scarcity and increased government restrictions had decreased collection, but illegal removal of firewood appears common. There is no doubt that intensity of CF collection has increased dramatically in the last 20 years along with spatial expansion, and there is little or no regulation at this site. But there is no clear evidence, or even expectation, of negative ecological effects on the target species, given that the fungus is itself a parasite causing mortality of the original host. Hence the effects of harvesting, mediated through a highly weather-dependent parasite-host relationship, are likely to be complex. Of more concern may be the indirect ecosystem effects of large numbers of people spending substantial amounts of time digging and living in fragile ecosystems. Winkler (2009) draws attention to the unreliable data used in studies which show a dramatic fall in overall CF production over time, but this does not preclude a cautious approach to maintaining the sustainability of harvesting, especially given the currently very high livelihood dependence on this ES. Limiting collection seasons so that adequate fungal sporulation is maintained may be one conservation measure (Winkler, 2009). However, given the ecological and social complexities involved further research is warranted before embarking on conservation actions.

The chapter highlights the diverse provisioning value of the grassland and forest ecosystems on the Tibetan plateau. In particular, the results contrast a purely subsistence necessity resource - firewood - with a highly commodified and profitable medicinal grassland fungus which has more complex issues of access reflecting high levels of competition, power and human capital as well as its widespread grassland habitat. The focus on access draws attention to the heterogeneity of communities, and the dynamic relationships between households, their natural environments, and the provisioning ecosystem services that these environments provide. The value of these services is influenced by household lifecycles, and the broader socio-economic context in which communities are embedded. Conservation and development initiatives must address these complexities, and be aware of the high dependence of livelihoods on provisioning services in this under-researched part of the world.

6. Forest use in the sacred landscape

The effect of local gods, legality & history on resource extraction

6.1 Introduction

The potential that sacred places hold for modern conservation has long been recognised, most notably in the idea of sacred forests or groves (Gadgil & Vartak, 1975) which have been particularly well studied in India and parts of Africa. The most commonly presented image of sacred groves in the ecological literature is that of a remnant forest preserved amidst a landscape modified by humans – “a tract of virgin forest harbouring rich biodiversity”. (Khumbongmayum et al., 2005). A direct link is made between the sacred and conservation practice (e.g. Ramakrishnan, 1996; Sponsel et al., 1998; Colding & Folke, 2001), the sites forming “unofficial protected areas” (Metcalf et al., 2010). Some studies have vindicated these claims to a degree, but there remains conflicting evidence over the ecological importance of sacred sites and the means by which they may affect environmental behaviour.

The concept of the sacred spans a whole range of places, things, plants, animals and people across different types of spaces and cultures. With regard to landscapes, the term in common parlance denotes a space that is somehow special or extraordinary, “being of this world, yet somehow apart from it” (Huber, 1999a). These sites appear on every continent excluding Antarctica, and are associated with a variety of religions and traditions. They can mark important historical and mythical sites, the abode of deities or spirits (e.g. Mandondo, 1997), burial grounds (Mgumia & Oba, 2003) or whole landscapes based around geomantic systems. For example under the system of fengshui, the orientation of landscape elements are thought to impact on the health and wealth of communities (Hu et al., 2011). In the Tibetan landscape the sacred can be aligned with gods embodied in the landscape, as well the presence of a variety of earth and water spirits (Chapter 3).

There are different mechanisms through which sacred sites may be related to practices with environmental impacts. Most commonly, they are thought to preserve habitat and biodiversity relative to areas outside the site through cultural norms. Forest clearing has been significantly less in areas considered sacred sites in Zimbabwe (Byers et al., 2001). Likewise, in the Kharwa Karpo region of Tibet, sacred forests were found to have enhanced tree size and cover in comparison with surrounding areas (Salick et al., 2007). In the same region, sacred sites were found to have higher species richness, and hold significantly more endemic species and those used for food and medicine than non-sacred sites (Anderson, *et al.*, 2005). A greater fungal morphotype richness was found in sacred sites in India as compared to other sites due to the better quality habitat (Brown et al., 2006). There are estimated to be hundreds of thousands of sacred groves across India (Malhotra, 1998) and in highly populated areas they may represent the only vegetation which has not been radically altered (Ramakrishnan, 1996). Particular places may also hold religious significance because of their topographical and ecological characteristics. In Tibet, the highest and most dramatic mountain peaks have become centres for pilgrimage. In South Central Tibet where there is a long history of deforestation, the largest stands of Juniper – a tree holding ritual importance - have become pilgrimage sites (Miche et al., 2003). People may also actively enhance the ecological properties of a site deemed to be sacred. Tree species associated with particular deities are planted in specific patterns that secure cosmic order (Chandrakanth & Romm, 1991).

Sacredness may not always confer protection but be associated with resource extraction, for example hunting in sacred forest is part of the subsistence economy for the Iban of Indonesia where hunting effort is the same inside as outside the area (Wadley & Colfer, 2004). Although a place has religious significance as a “place of worship” ambivalence may be shown towards the vegetation itself, allowing ecologically destructive practices. For example in Kerala, pathways and walls were built to “meet the god’s needs” (Freeman, 1999). Concrete enclosures for local deities have replaced groves in urban areas in coastal Ghana resulting in no loss of religious significance (Chouin, 2008). Campbell (2005) challenges the idea of sacred groves being ‘remnant forests’ based on studies in Ghana where there has been significant expansion of introduced species in both sacred and non-sacred land, despite fewer tree losses in sacred areas. Far from being untouched relics of ancient forest frozen in time, sites may develop or change in significance, meaning or form, for example, groves which have grown over former settlements in Sierra Leone have become religiously important (Lebbie & Guries, 2008).

Particularities with regard to the sacred at the case study site in the ritual attention given, characteristics of gods, and relationships with other religious ideas were discussed in Chapter 3.

Sacred sites can be broadly delineated as local gods – *yul-lha* - embodied in mountains surrounding the valley and associated with non-extractive norms. What is not certain is whether the sacred aligns in this area with identifiable places which are materially set aside, untouched, or actively conserved. Are areas of divine presence kept sacred in the sense suggested by conservation organisations; that “access restrictions” result in “near natural ecosystems” (UNESCO, 2003)? As with many sites around the world, the question must be posed in relation to changing state restrictions on forest use. The effectiveness of state policies towards the environment may depend on the degree of complementarity or overlap between classes of forest the state creates and local and religious designations of the same areas (Chandrakanth & Romm, 1991). In Tibet, practices towards sacred sites are also set within the historical context of religious suppression during the last century and subsequent reconstitution of Tibetan Buddhism within the modern Chinese state. How may this revival of religion be reflected in changing land use practices and local vegetation patterns?

This chapter will focus on the practice of extraction of firewood in Samdo valley. Firewood is a purely subsistence ecosystem service required by every household for cooking and heating. Each household was found to be using on average three tractor loads every year, and all the firewood used comes from the valley area (Chapter 5). According to stated norms, collection of firewood is forbidden across all the *yul-lha* in Samdo (Chapter 3), but as expressed notions (norms and representations) and actions are two separate domains of social life, it cannot be assumed that they always align completely, and there may be other factors at play. Since 1998, firewood extraction has been geographically restricted to one location in the valley by the local government and limited to one month in the year, enforced through monitoring and sanctions (Chapter 4). There is not a complete overlap between sites that are religiously and legally permitted for harvesting. Accordingly, I hypothesised firewood extraction to be significantly reduced in areas where a local god is thought to reside, and for this effect to be bolstered by state designation of a sacred area as protected. Other factors which may have an effect on decision making regarding the location of firewood extraction are distance from village, elevation and the quality of the resource. It is expected that there would be less extraction at greater elevations due to lower accessibility and because higher slopes of *yul-lha* hold greater religious significance than the base of mountains. There are, however, reports of villagers collecting at higher reaches as the quality of wood on the lower slopes declines due to overuse.

The aim of this chapter therefore is to understand the factors that explain intensity of firewood extraction in the case study valley:

- *What have been the historical changes in local forest and natural resource use on the sacred sites, and how may these affect current firewood extraction?*
- *How are people's religious norms and ritual adherence towards local gods related to firewood extraction?*
- *How do state restrictions on resource use influence and interact with religion with regards to firewood extraction?*
- *What is the relative importance of the three factors – legality, sacredness and history - on firewood extraction?*

6.2 Methods

Data collection

A direct use survey was carried out across six sites in or near the valley where the most commonly used firewood species – the oak *Quercus aquifolioides* - was available, in November 2010 (Figure 6.1). The sites were selected based on areas of firewood extraction identified during household interviews (see Chapter 3), and preliminary field surveys.



Figure 6.1 Map of Samdo valley showing sites 1-6 surveyed. Satellite image taken from Google Earth 2012. Colours distinguish different types of sacredness

The selection stratified the sampling according to sacredness, legal status and distance from village – the variables hypothesised as explaining differences in firewood cut (Table 6.1). Local forest policy restricts collection to the area north-west of Samdo valley (sites 1, 2 and 3), and to two tractor loads per year in the month of October. During this month a check point is set up to

monitor extraction. During the rest of the year monitoring and enforcement are carried out by forest managers and guards (Chapter 4). Sites 4 and 5 are not permitted for firewood extraction. Restrictions on collection at site 6 only came into force in 2008 and this site is therefore categorised as ‘newly illegal’. The survey on site 3 was restricted to the south-west side of the mountain not in sight of the village due to concerns about disturbing a sacred site. This was agreed with the village leaders prior to the survey. As distance is not an absolute proxy for accessibility, a qualitative assessment of other factors impacting the accessibility of each site was made.

Table 6.1 Description of sampled sites. Site numbers are shown on Figure 6.1.

Site	Legality	Sacred?	Distance from village/km	Accessibility	Vegetation and other details
1	Legal	No	7.0	By tractor on poor quality road	Variable sized oak up to 3m height; traditional area of collection; furthest site; near nomadic homes and pastures.
2	Legal	No	5.0	By tractor on poor quality road	Variable sized oak; traditional area of collection.
3	Legal	Yes	3.5	Within easy walking distance	Mainly large full grown oak with some <i>Pinus</i> on north side; quadrats on south-west side of Dorjetsemo – the most important territorial god (<i>yul-lha</i>) in the valley.
4	Illegal	No	3.0	Track but no road	Variable sizes and some coppiced; some oak low & shrubby (poor quality) on steep slopes; Pasture land on top of mountain.
5	Illegal	Yes	2.0	Off main road; quick by tractor or motorbike. Small stream to cross.	Variable density and quality: shrubby low oak & dense big coppiced trees; South-west side of Sihong (<i>yul-lha</i>).
6	Newly illegal	Contested	1.5	Bridge collapsed in 2008. Can access by foot or at certain times & places by tractor.	Mainly oak but some <i>Pinus</i> . Trees on higher slopes not recently coppiced; taller oak on lower slopes; historical area of collection for some households; 16/50 households considered the site as <i>yul-lha</i> . 13/50 reported collecting firewood there in 2009

The forested areas only (dominated by densely crowded oak) were marked out in GoogleEarth, and a grid of 10m x 10m placed over the map within the forested areas. A 100m² quadrat size is appropriate for tall shrub communities to ensure a significant number of individuals are included but are practical to count and measure (Sutherland, 2006). The sites were split into two by elevation, and five quadrants selected randomly within each elevation stratum totalling 10 quadrants within each site. In total 60 quadrants were sampled. In the field, the selected sites were located using the coordinates and 10x10 metre quadrats were measured out with string. Within each quadrant, the following measurements were taken:

- Basal diameter of all trees greater than 1 metre tall; if the tree was coppiced the diameter of the coppice stools were measured (this also indicates the age of the coppice)
- Number of trees cut (in full or part cut away)
- Number of branches cut (for coppiced trees or where only branches were cut)
- Total number of basal branches
- Age of cut stumps and/or branches. Three categories could be distinguished – less than 1 year; between 1 and 2 years; greater than 2 years. These were calibrated by a local field assistant. The proportion of trees cut 2 years ago or less was calculated.
- The species of tree
- Distance of quadrant within site – measured as the distance from the entry point to the quadrant
- Qualitative information about the site – vegetation density, quality, accessibility.

It was not possible to use biomass as an indicator of wood density/quality at each site due its reliance on scaling coefficients for the particular species which vary with climate, stand age, and a measurement of diameter at breast height (DBH). The trees are mainly big coppices under 2 metres high so DBH was not measurable. Other qualitative data about the sites, their history, current firewood extraction practices, and legal restrictions were collected through interviews.

Data analysis

I carried out statistical analyses using R 1.14.1 (R Development Core Team, 2011). Non-parametric tests were used to explore relationships between variables because the response data are counts and so exhibit non-normal errors. The main response variable of interest was the number of branches cut per quadrat as a measure of cutting intensity. Qualitative data were analysed using NVivo as described in Chapter 2.

6.3 Results

History of local deforestation in Samdo

Many local people recalled widespread deforestation in the valley before and during the Cultural Revolution (1966-76), including on *yul-lha* by Chinese soldiers, local Tibetans and for the timber industry. An army camp was set up on the grassland in front of the monastery from 1958/59, remnants of which are still visible. Although many villagers recognised the improvements in the environment in the last 10-15 years, largely attributed to government policies, the forest has not been restored:

“When the Chinese [army/government] came they cut all the trees. In the valley where the monastery is, there was only a small path and lots of trees before that. You couldn’t even see the monastery through the trees. Even though the government has now planted more trees, there are still fewer than before.” [62 year old layman; agro-pastoralist; no.16].

Cutting of firewood and timber by local people and outsiders was widespread, opportunistic and largely unregulated by any institution – informal or otherwise - during the political turmoil spanning the thirty year period between 1950 and 1980. Specifically, people often recalled the total deforestation of site 3 – the local god Dorjetsemo - during the Cultural Revolution (1966-1976):

“During the Cultural Revolution people cut down all the trees on Dorjetsemo. They didn’t have any other income, so people made charcoal from the oak trees and sold it. Both the *yul-lha* and the monastery were destroyed. The money from the charcoal was collectively distributed in the valley, across 45 households...after that [liberalisation], our lives became peaceful again, the monastery was rebuilt and the trees grew back.” [52 year old layman; agro-pastoralist; no.5]

Before this time, and the arrival of Chinese forces in 1951, older people recalled local systems of governance centred around the *yul-lha* and monastery, which kept a check on wood extraction on sacred areas and the forest surrounding the monastery. On finding a person breaking these codes, they were said to be fined by local tribal leaders, given punishments of services provision to the community, and sometimes beaten by villagers. On other forest there was no regulation, and people extracted timber locally for housing and firewood. The main traditional areas of firewood extraction were in the north-western valley – in the now legal area (sites 1 and 2), and

on site 6 on the eastern side of the river, but older people said that firewood could be extracted on any site other than on *yul-lha* (so including site 4).

Site level analysis of cutting intensity

Initial qualitative observations on sacred sites in Samdo showed evidence of resource extraction including firewood (Table 6.2).

Table 6.2 Qualitative observation of resource extraction on local gods

Name of local god	Observations
Drupo	Old trees cut at base of mountain. Recent replanting under Grain for Green programme in 2009.
Gatzong	Rocky steep mountain on the east side with pine and larch trees lying far from the valley. No evidence of wood extraction.
Sohong	Firewood and earth (for walls) cut at base of mountain on slopes facing the village.
Soshipa-ge	Larch and oak cut in the valley towards the mountain (not part of <i>yul-lha</i>); and small amounts of larch and pine cut at base.
Tsongra	Small amounts of pine cut on slopes of mountain.
Dorjetsemo	Small levels of firewood extraction on north-side where pastoralists moving through; widespread fire on east side (likely resulting from pastoralist campfires) affecting pine forest.
Dra-ye	Evidence of fire damage to forest, and small amounts of pine cut – not recently.

A map of local gods is shown in Chapter 3, figure 3.1

There is a significant difference between sites in the number of branches cut (Kruskal-Wallis chi-squared = 18.68, df = 5, $p < 0.05$; Figure 6.2), but when site 3 is removed from the analysis, the difference is not significant (Kruskal-Wallis chi-squared = 4.55, df = 4, $p = 0.34$) showing that the difference is mainly attributable to this site.

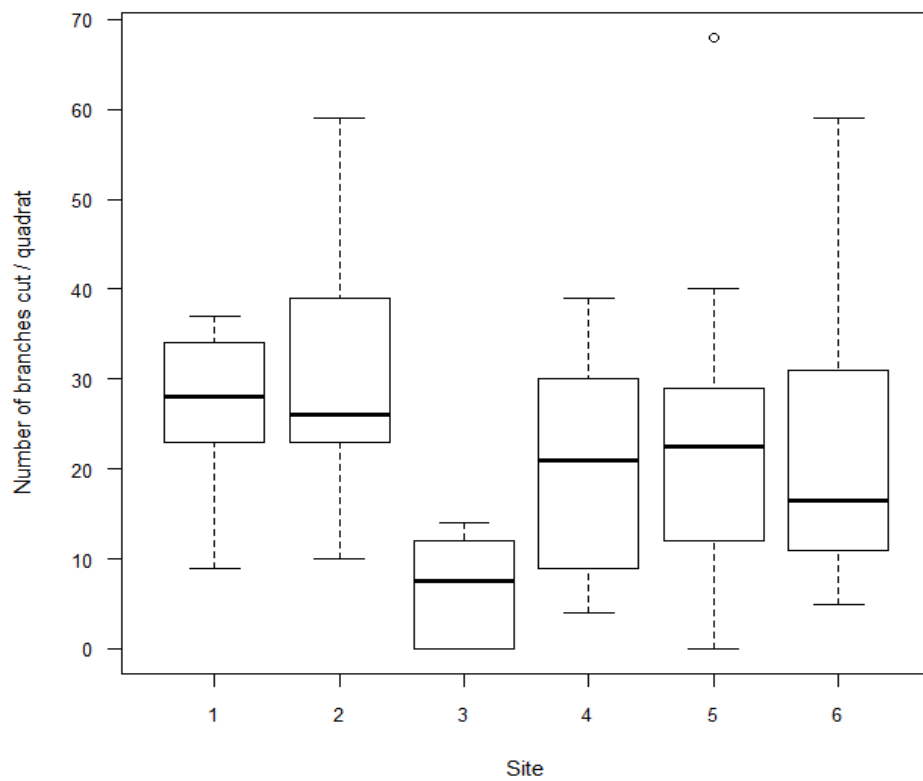


Figure 6.2 Cutting intensity against site number

There is not a large variation between sites in the mean proportion of branches cut and number of branches cut, except for site 3 which is far lower than the other sites. The ranges in the numbers of branches cut per quadrant are large, e.g. 10-59 for site 2, reflecting patchy areas of cutting (Table 6.3).

Table 6.3 Overview of data on firewood extraction by site sampled

Site	Mean branches cut (range)	Mean proportion branches cut (total branches cut)	Proportion of recently cut trees (0-2 years)	Mean total no of branches	Mean number of trees	Mean proportion of trees cut (total trees cut)	Mean coppice diameter / cm	Description of cut vegetation
1	27.3 (9-37)	0.18 (273)	0.07	151	18.2	0.65 (118)	57.0	Patchy areas of cutting; long term coppicing; dry wood left from last 2-3 years. Fire damage at furthest point 8-9 years ago. Small levels of extraction by pastoralists on northern side.
2	31.1 (10-59)	0.17 (311)	0.23	184	19.3	0.61 (118)	59.5	Patchy areas of cutting; visible paths to top of tree line; long term coppicing; very recent cutting & during survey.
3	6.6 (0-14)	0.8 (66)	0.0	85	12.3	0.33 (41)	63.2	No recent cutting; some coppicing >5 years old & old tree stumps; but many single un-coppiced trees
4	20.5 (4-39)	0.13 (205)	0.13	160	17.2	0.45 (77)	75.7	Fire damage at top of tree line. Patchy areas of cutting, and long term coppicing.
5	24.7 (0-68)	0.14 (247)	0.08	189	18.5	0.59 (109)	61.6	Evidence of cutting in last year; and more in last 3 years. Dry wood piled up for collection.
6	21.9 (5-59)	0.12 (219)	0.26	190	23	0.36 (82)	66.4	Mainly oak but some pine. Trees on higher slopes not recently coppiced; taller oak on lower slopes & recent cutting (1-2 years) evident.

Vegetation quality and size also varied within the sites. Sites 2, 5 and 6 had the greatest density of branches on the trees. Site 3 in particular had far fewer branches because the trees had grown large, and not recently been coppiced (Figure 6.3) – this was reflected in the fewer larger trees on the site. Site 3 had an average of 12 trees per quadrat.

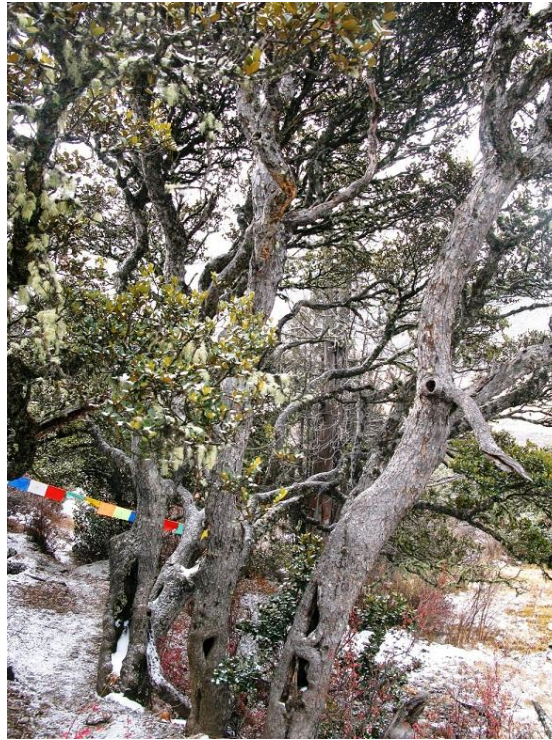


Figure 6.3 Large old oak trees on site 3 - the *yul-lha* Dorjetsemo. Prayer flags are shown.

Site 6 had the greatest number of trees reflecting the greater number of smaller shrubby specimens on the higher rocky slopes. The average coppice diameters between sites were quite similar, ranging from 57cm to 75.7cm showing that coppicing has occurred historically at all the sites. Local people indicated that quality of firewood is determined by coppice diameter, height, and high density of branches showing good regeneration, and previous coppicing so that shoots have a diameter of 5-10cm, and can be easily carried and cut to fit into kitchen stoves. Trees that have grown to the size of those on site 3 would not be practical to cut and transport. Shorter, shrubbier and low density trees are not perceived as good quality – these were found more on sites 4 and the higher slopes of site 6.

There was a low proportion of recently cut trees in the previous two years at any site but the most recently cut trees were found in site 2 and 6. The overall mean proportion of branches cut within a quadrat was 0.13, and on average 50% of trees had been cut. Cutting away a section

of one tree is commonly practiced (Figure 6.4) so that there was different levels of regeneration within one coppice.



Figure 6.4 Coppiced oak with a diameter of approximately 1.2 metres at the base of site 6

Factors explaining cutting intensity

Within sites, there is a positive correlation between the total number of branches in a quadrat (including visibly cut branches) and number of branches cut especially for sites 3 and 5 (the sacred sites) showing that especially for these sites, increased availability of wood increases intensity of cutting (Table 6.4). There is no significant difference in cutting intensity between different elevations within sites. Within each site, there is a negative correlation between distance from the entry point and cutting intensity, especially for site 1, 4 and 6. Measured across the sites, however, there is no significant trend between distance of the site from the village and number of branches cut (Pearson's correlation = 0.17, $p=0.19$). This may reflect differences in accessibility not necessarily connected to distance. Sites 1 and 2, although lying furthest from the village, are easily accessed by tractor. Sites 3 and 5 are easily accessed by foot. The distance of the site from the village is not explaining cutting intensity, but within sites distance becomes a factor in decision-making.

Table 6.4 Within site analysis showing relationships between number of branches cut and elevation (using Wilcoxon), distance and total branch density (showing correlation coefficients)

Site	Elevation	Distance within site	Total number of branches (density)
1	W = 11, p= 0.83	-0.599	0.430
2	W = 5, p = 0.15	-0.121	0.290
3	W = 6, p = 0.19	-0.410	0.895 **
4	W = 8, p = 0.42	-0.552	0.132
5	W = 12, p = 0.99	-0.315	0.872 **
6	W = 12, p = 0.99	-0.656*	0.567

W =Wilcoxon test statistic. Correlation coefficients are Pearson's product-moment correlation.

* = p value <0.05, ** = p value <0.01

The number of branches cut is significantly different between the different types of sacredness across the sites surveyed (Kruskal-Wallis chi-squared = 8.68, df = 2, p<0.05; Figure 6.5).

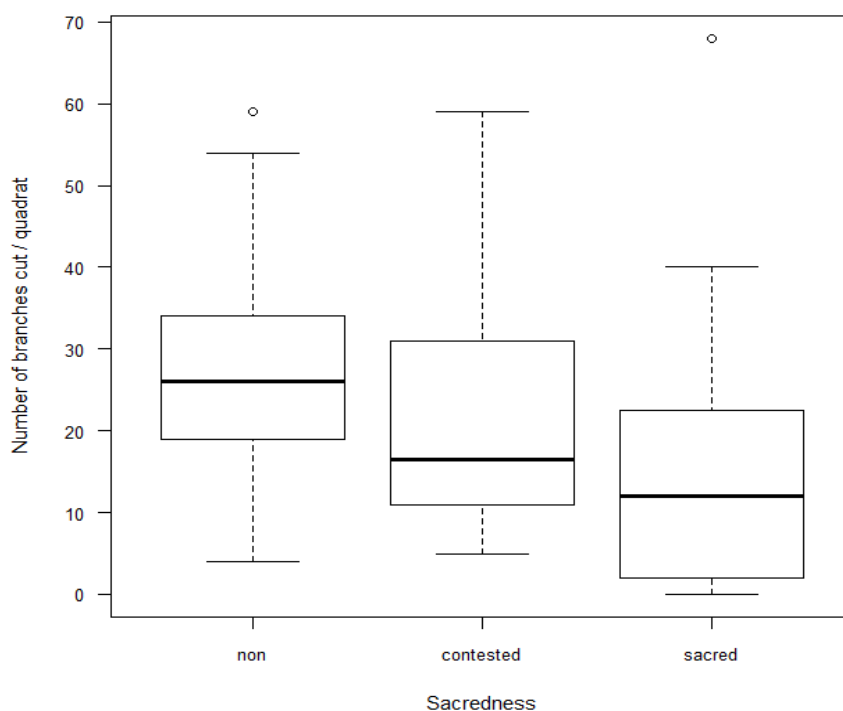


Figure 6.5 Cutting intensity against different types of sacredness

When site 3 was excluded from the analysis there was no significant difference between sites with different sacredness (Kruskal-Wallis chi-squared = 1.73, df = 2, $p = 0.42$), showing the significance can be attributed to this site. There is no significant difference between sites of different legality, with or without site 3 in the analysis (With: Kruskal-Wallis chi-squared = 0.077, df = 2, $p = 0.96$; Figure 6.6. Without: Kruskal-Wallis chi-squared = 4.33, df = 2, $p = 0.12$).

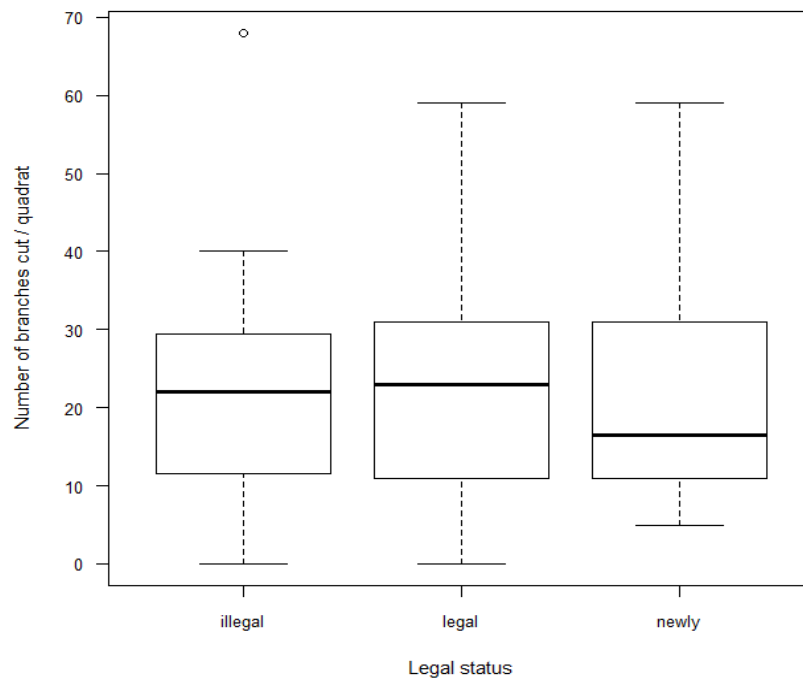


Figure 6.6 Cutting intensity against legal status

6.4 Discussion

Site 3 – the local god Dorjetsemo – is clearly the most distinctive site showing very little resource extraction and larger mature trees that have mostly regenerated subsequent to the Cultural Revolution. The observed lower levels of firewood extraction in sacred sites than in other sites can be attributed to site 3. This reflects the widespread and regular ritual attention paid to this particular local god. It forms the centre of a popular pilgrimage as the principal territorial divinity in the valley and holds wider significance for Tibetan Buddhists in the region (Chapter 3). There was reduced firewood collection at the site despite it being a legal collection point according to state policies, although in key informant interviews local village leaders and the Forestry Bureau appeared to take it for granted that residents would not collect firewood there. Legality did not seem to have an effect across the sites and this is not attributable to site 3 being legal. Overall, excluding site 3, the sites are remarkably similar. As suggested in Chapter 4, legal status and rules in the study area are ambiguous, differently interpreted, and not always enforced, which is generally not conducive to sustainable resource management (Borgerhoff Mulder & Coppolillo, 2005). People reported knowingly extracting firewood illegally from accessible sites surrounding the valley. Broadly, legal sites have been developed upon areas of land traditionally used for cutting – in the north-west of the valley – but there is some mismatch with the newly restricted area on site 3 and illegal status of site 5. It may be significant that Dorjetsemo is not only an important religious site but that religious authority through the monastery has been legitimised by the state with respect to forest management (Chapter 4). Other sacred sites in legal areas in Samdo are not recognised as any different from state owned forest, raising the problem as in India that overlaying new state forest categories on traditional institutional landscapes may lead to unpredictable and unsustainable outcomes (Chandrakanth et al., 2004). Distance was also not a significant factor overall, as it does not fully reflect accessibility, for instance the furthest sites are easily accessible by tractor. Within sites, distance does have significant effects on decision making and people collect less wood at greater distances to avoid carrying the wood. There was no effect of elevation even on sacred sites, and this may reflect reports that people are moving to higher slopes more often as availability of wood decreases at lower elevations.

The presence of a god did not necessarily reduce extractive behaviour. The practice of extraction on sacred sites in Samdo shows not only a kind of flexibility regarding norms, but more broadly a gap between what is said and done in practice. These two domains are notoriously non-reflective of each other in social studies. Through discourse, people in Samdo were reconstructing idealised models of traditional Tibetan society, and asserting group and

religious identity through the stated norms, which may not always be reflected in behavioural practice. The varying ritual attention paid to different gods in the valley between the five villages described in Chapter 3, can explain the different levels of resource collection on sacred sites. Communities are not homogenous entities, can have different priorities and not always reach consensus regarding resource use (Agrawal & Gibson, 1999). There was significant extraction on Site 6 which was identified as a local god by only some villagers and had ambiguous legal status. The results at Site 5 show that both sacred and legal status does not necessarily affect resource use decisions in an easily predictable or consistent way. Sohong – the *yul-lha* of site 5 – is of lesser religious significance than Dorjetsemo, and the threat of retribution not so severe and perhaps not sufficient motivation for restraint for some households. There were not only differences in importance between sites but gradations within sites. Discussions with local people suggested that the area of the mountain Sohong facing south-west where the survey was conducted was considered of lesser importance than that area facing north-east into the village (with pine dominated vegetation) although still considered a *yul-lha*. This was also the case for the mountain Tsongra for which only the forested part of the mountain was considered part of the god (see Chapter 3). Small levels of extraction were also present on other *yul-lha* especially at the base.

There are likely to be pressures on local resources due to the growing population in the valley in the last 50 years. The state restrictions and required financial payments for firewood introduced in 1998, as well as a blanket ban on timber extraction in the local area on both collective and state land may in fact have had negative effects on rule breaking behaviour. The lack of trust in some elements of state policy and lack of confidence in resource security, given the history of deforestation and poverty, may exacerbate resource extraction on illegal and sacred land. New and dramatic economic incentives provided by caterpillar fungus are no doubt playing a large part in extraction of that particular resource on sacred areas (Chapter 4), and practical needs may also be playing a part in firewood extraction, incentivising illegal extraction from accessible sites near the home such as on sites 3, 4 and 5. Site 5 which is both sacred and illegal is especially easily accessible from the road, and out of sight of the village. There was less collection on site 4 which is illegal and not sacred, but this may be attributable to it being both more difficult to access (there is no road), and having a lower density and quality of firewood.

The standard narrative about sacred sites in the conservation literature is that changes arising during the colonial and post-colonial era have eroded institutional legitimacy and cultural relevance of religious sites (e.g. Byers et al., 2001), but this story does not ring entirely true for Samdo. The destruction of sacred sites was symbolic of religious persecution and the attitudes

towards nature of Maoist powers, and the result of widespread poverty. But now Tibetan Buddhism is undergoing a revival. In its newly constituted form, changes in religious practice are undoubtedly emerging but the importance placed upon Dorjetsemo by all generations and almost complete lack of resource extraction seems to challenge ‘cultural erosion’ as an explanatory narrative. Sacred sites may encompass diverse and shifting meanings. Although conceptually the sacred may stand apart from society, it is sensitive to and reflective of forces at work in society.

Given the historical changes to the landscape and reported widespread deforestation in recent memory, the *yul-lha* are not likely to be remnants of pristine forest as sacred sites are often presented, but rather in continuing cycles of regeneration. It is likely that *yul-lha* in Samdo have a long history - perhaps stemming from the pre-Buddhist era – but the sites do not exist as relics, and are related to the social history of the people connected to them, with the meanings attached to specific sites in constant flux. The *yul-lha* are both discursive and material phenomena, the ecological conditions interacting with not only ideological systems but social and political organisation through history. Many different types of practice are conveniently amassed under the rubric of the sacred, but these results suggest that we cannot assume that the presence of gods and spirits in the landscape provide an all encompassing, complete or static ecological protective mechanism. Small scale resource use is instead, a complex picture of religion, state policy intervention, and livelihood needs in historically contingent relationships.

7. Scales of change

Sacred sites, forest & policy at the county level

7.1 Introduction

Environmental problems exist at multiple levels, and research must address change at different geographical, ecological and institutional scales. Just as the natural environment is a complex adaptive system, social systems also have layers (Dietz et al., 2003), ranging from individual decisions to national and international level policy making. Environmental degradation can arise due to mismatches between the scales of management and the scale of ecological processes (Cumming et al., 2006), and focusing only on the community level ignores the need for managing resources at multiple scales (Berkes, 2007). A case study is necessary for an in-depth understanding of individual notions and household level actions, but does not necessarily capture larger scale social, economic and environmental changes which affect forest dynamics (Sikor, 2006). Broad scale social and policy changes have occurred in recent history and into the present day in Tibet, with environmental repercussions, including new forest policies and the revitalisation of religion. Having examined local ideas and practices relating to local gods and spirits in one community, a landscape approach is also needed to understand the relevance of sacred sites in the context of the broader scale changes (Bhagwat et al., 2005)

Given the vast size of the People's Republic of China, the state administration must balance power between the central government and the periphery, including 'minority' groups which often have distinct languages, cultures and livelihoods, and live in diverse environments (Xu & Ribot, 2004). To deal with this diversity and scale, there are six levels of government jurisdiction in China: national, provincial, prefectural, county, township and village. At the prefectural level are 'ethnic autonomous regions' which have distinct development plans within the national framework, and a level of political, economic and cultural autonomy. Daocheng

County is one of 18 counties within the Ganzi Tibetan Autonomous Prefecture. At the prefectural and county level, the administration holds power to interpret state policy and implement it according to the local situation. Even as policy filters down to the lowest levels, there can be room for innovation and adaptation (Plummer, 2004). In particular the Village Organic Law of 1998 reflects the trend for local level institutional management. It allows villages to elect leaders and village committees who develop the collective economy and are encouraged to make regulations for community natural resource management (Xu & Ribot, 2004). However, truly local level initiatives remain limited in China.

With regards to forest and land management and change, larger scale deforestation managed by the state has occurred during the latter half of the 20th century in China. This is set against smaller scale extractive use around settlements which is mediated by forest policy formulated at the prefectural, county as well as village level. Given the overall administration by the County Forestry Administration in Daocheng, and the limited powers of village and township leaders to shape policy, we should expect a high degree of similarity between policies across villages in the county. However, the implementation and outcomes of policy may be quite different due to: environmental variation across the county and therefore resource access and livelihoods, the effectiveness of monitoring and sanctions due to different village administrations (e.g. village leaders and forest guards); and the presence and importance of religious institutions and their role in forest management. For example, religion is not considered to be such a central point of people's lives in the far south of the county, and there is only one small monastery with six monks. Sacred space representations are common across Tibet, but just as there is variation between individuals and households, Tibetan communities are not homogenous across the region (Samuel, 1993), and the presence, history and significance of sacred sites may also differ.

There is natural variation in forest cover across Daocheng which is likely to affect the level of deforestation and management. The vegetation type reflects a multitude of climatic site conditions, topography, as well as human impact. Overall the forest is dominated by a combination of spruce and fir with oak dominating south facing slopes. Juniper trees grow on exposed and degraded sites, and between forest and grassland. The north of Daocheng lies at a higher altitude (3600-4200m) and is dominated by relatively flat plateaus and grassland, and forested valley sides of larch and oak, and has a higher population. In the middle region, the altitude becomes lower (max 3500m), and the landscape is dominated by pine forest. The most southerly region is characterised by high peaks (up to 6000m) and deep valleys, and is generally less populated. The south is more forested due to the warmer climate at lower altitude and the

lack of access. There has not been any commercial forestry in Dongyi township, in the far south of the county.

This chapter aims to complement the in-depth case study in the previous chapter with an exploration of the broader scale geography and larger scale social changes at the scale of Daocheng County. This extends the study out beyond the particularities of the case study community and compares it with other sites. Studies often focus either at the level of the ‘community’ and therefore small scale resource use, or national scales and therefore the largest institutional forces. It is also useful to work at the scale between these two extremes, as decisions about policy implementation are often taken at this level, and resources are often used beyond the boundaries of the village or community. In this case, it is also an appropriate level at which inferences from the case study can be validated at a larger scale.

Drawing upon participatory maps and interviews with seven other communities, and key informant interviews, I examine the role of sacred sites and other institutional forces in shaping forest patterns at the county level. I start by outlining forest change and policy at both the scale of Ganzi Prefecture and Daocheng County using key informant interviews and information from the literature. I then go on to summarise data from participatory mapping and interviews in each of the seven communities, specifically focusing on: the landscape and vegetation including extraction; sacred sites and other religious institutions; and reported environmental changes. The maps drawn tended to represent the scale of a valley, and neighbouring valleys, which is traditionally the level of a community in Tibet, and so encompassing several administrative villages. The chapter asks:

- *How has religion and environmental policy shaped vegetation at the landscape level?*
- *What are the parallels and differences that exist between the case study community and other villages in Daocheng in terms of forest changes, policy implementation and sacred land?*

7.2 Methods

Participatory mapping

Participatory mapping was originally developed in the 1990s for community forest projects, and is one of a set of methods known as participatory rural appraisal (PRA), which aims to enable local people to share knowledge and analyse issues, allowing them to participate in planning and action (Chambers, 1994). Maps are a means of communicating information instantly, reflecting people's perceptions of and relationships with the land, and the types of information and issues important to them (Alcorn, 2000). It can be useful for rapidly assessing resource use practice and territorial perceptions (Evans et al., 2006). Tibetans have used a variety of oral and written textual maps to navigate and interpret their physical and religious landscapes (Huber, 1999b), and have spatial understandings amenable to this technique.

Participatory mapping was used for geographic identification, definition, and description of landscape in eight villages (across seven townships) in Daocheng County (including Samdo). In particular the community maps were used with the aim of exploring: 1) local perceptions and practices towards the local environment; 2) locations of and characteristics of sacred land; 3) customary land use, boundaries and areas of natural resource extraction 4) location of and perceptions of environmental change.

The term 'participatory' is attached to such a large range of practices that it has been rendered next to meaningless (Chapin et al., 2005). There are certainly different levels of participation covered by the idea. In Daocheng I used the method primarily as 'extractive knowledge capture', rather than a fully collaborative process where participants would be involved in the research questions, design and methods (Evans et al., 2006). However, participation became a goal in itself to some extent by engaging local people and encouraging them to think about and discuss environmental issues, and create knowledge collaboratively. The understandings and perceptions in these sessions were heterogeneous, and knowledge was contested and negotiated within the group, and this formed part of the process. The sessions were also used as a relationship building exercise, icebreaker and preliminary research tool at the start of my field work in 2009, and as a means of gauging important issues regarding the environment, and understandings of religious relationships.

The villages were selected for a geographical spread across the county within different townships and according to access and permissions granted by local police. Although permission was granted to visit villages in Dongyi township in the far south of Daocheng, on arrival security

was high. Interviews were monitored by local police and consequently local Tibetans could not speak openly so the information from this township has not been used.

In each village, members of the community were invited to attend the sessions through contact with the village leader. These groups ranged in size from three to 10 participants, composed mainly of men. Social barriers and male dominated cultures remain barriers to inclusion and equity, even in supposedly genuine participatory programmes (Keller et al., 2000). The problem was partially overcome by interviewing women individually (at least two in each village) or in groups in each village, centred on the maps. Women tended to provide additional information on locations and details of resource extraction. Overall, it was difficult to access marginalised members of the community given the time limitations, but I ensured that it was made clear that the session was open to everyone. The group was asked to draw their local area (as outlined above this was mostly at the valley level and so often included more than one village) including the main physical and cultural features. During and after this process I asked questions to draw out details and create discussion amongst the group. Based on the maps, community members volunteered to locate areas of land change and sacred sites, and the co-ordinates were recorded with a global positioning system (GPS), thus integrating local knowledge and cultural landscape elements into a geo-referenced standardised map (Eghenter, 2000; Smith, 2003) using satellite imagery in the program Google Earth.

Integrating indigenous knowledge with geographic information systems (GIS) in this way, has generated concerns that it reduces and manipulates traditional knowledge to a reductionist conceptualisation of the environment and that using high-tech and expert knowledge is at odds with participatory philosophy (Chapin et al., 2005). It has potential complications and unanticipated consequences which may either serve to empower or marginalise people (Fox et al., 2006). Bearing these concerns in mind, I worked with people to locate areas identified on the sketch maps, and through interviews and discussions aimed to contextualise the knowledge and represent people's understandings through their own language alongside the maps shown below. Information from the mapping exercises was triangulated through interviews with key informants in the village, based around discussions of the map.

Data on the history of forest change was obtained from informants in the villages, from a key informant from Ganzi Autonomous Prefecture Forestry Bureau, and interviews with Daocheng Forestry Bureau staff.

7.3 Forestry policy and forest change in Daocheng County & Ganzi Tibetan Prefecture

In Ganzi, and more specifically Daocheng, there are broadly three eras in the recent history of forest policy and change according to the Forestry Bureau and government literature. Before 1955, there was no market for timber and people used firewood and timber for their own use locally, supported by the fact that there was very little infrastructure. The land owned around the monastery was restricted for use, enforced by the authority of the monastic community.

1) *The collective system*: Between 1955 and 1980, under the collective system, all forest was state owned, and until 1998, the Forestry Bureau focused on exploitation of timber. There was not a big steel industry in this particular area, so this did not lead to widespread deforestation and degradation as in other areas of China. Every county in Ganzi had a timber processing plant including Daocheng, and all profits went to the government. In Ganzi, 400-800,000 m³ was extracted each year. In those 25 years, 20 million m³ of timber was cut in Ganzi, affecting 100,000 hectares of land, and 6% of total forest resources in the prefecture. Forest cover declined from 30% in 1950s to 14% in 1980s (Li, 1993). Cutting mainly took place near to inhabited areas due to accessibility and lack of infrastructure, and logging efficiency is likely to have been low for the same reason. Around villages the land belonged to the productive team, and people had to apply to cut wood for housing. Logging, more widely, was the primary economic sector for development in Western Sichuan, even up to the 1980s providing 70% of cash revenues (Winkler, 2003). In Ganzi, forestry brought in 80-90% of state revenues. In Daocheng, there were seven commercial forestry sites, and the proportion of state revenues this represented was thought to be slightly less than average, at 50-60%. Timber was transported to lowland regions across China where there was a lack of wood resources, and the revenues were used to fund infrastructure development in the West such as roads. Local Tibetans for the most part did not gain from the timber industry, and workers came from lowland Sichuan.

2) *Economic liberalisation*: Between the early 1980s and early 1990s, upon economic liberalisation, the price of timber rose, and a Forestry Bureau was formed in every county, responsible for commercial forestry. 20,000 Han Chinese workers were in commercial forestry in Ganzi at that time. From the early 1980s until 1995 logging is said to have increased linearly in Daocheng County, when restrictions came into place, and some tree planting began. Areas of forest were allocated to villages for firewood, and local deforestation by villagers was not monitored. The rest of the forested land remained state owned, and therefore under state management. Intensive exploitation occurred in accessible areas.

3) *Environmental protection*: From 1999, there has been ban on commercial timber logging, restrictions on timber cutting and firewood collection, intensive tree planting efforts and monitoring and prevention of forest fires. Total forest cover has increased, largely due to tree planting as well as natural regeneration. The forest reforms of 2009, which gave private user rights for collective forest to households, had generally not taken effect in Daocheng at the time of research, and large scale land use changes are in the hands of the state. Small scale exploitation continues around villages, and in designated areas of timber extraction, in particular in Julong township, and outside Daocheng County town. Deforestation occurred in old growth forest between 1955 and 1999, and thought to have been accompanied by an overall decline in forest quality and diversity, soil fertility and habitat degeneration (Li, 1993). The published forest cover is 32.93% in Daocheng (Daocheng County Administration, 1995), and measured at 37% by Daocheng Forest Bureau in 2010, the target being 40%. There is small scale illegal timber extraction, and firewood extraction which is in high demand for almost all rural residents in the county (Chapter 5). The demand for new housing depends on the wealth of the village and households. To compensate economically for the loss of the forestry industry, there has been big push towards tourism – both nationally and internationally – and Daocheng is now marketed as “the last Shangri-La on Earth”, the pristine natural wilderness being a key element in this image (Daocheng Tourist Office, 2001). Approximately 2300 hectares (35,000 mu) have been planted under the ‘Grain for Green’ programme in Daocheng between 1999 and 2010. More trees have been planted in the north where more deforestation has occurred, whereas in the south, the focus is on enforcing the ban on logging and hunting. The type of tree planted has depended on the altitude, climate and soil. In the north, this has focused on poplars (*Populus schneider*), in the middle region on conifers (*Picea balfouriana* and *Larix gmelinii*), and in the south on fruit (peach, apple and apricot) and walnuts, which have economic benefits. This is a priority for the local government of the southerly region, especially as there is far less caterpillar fungus (CF) than in the grasslands of the north.

7.4 Sacred sites & forest cover in Daocheng county

Sacred land across the county

The areas of sacred land were located with local residents, and mapped with geographical coordinates (Figure 7.1). Due to time limitations and the scope of the landscape, it was not possible to visit and locate each sacred site identified in the participatory mapping.

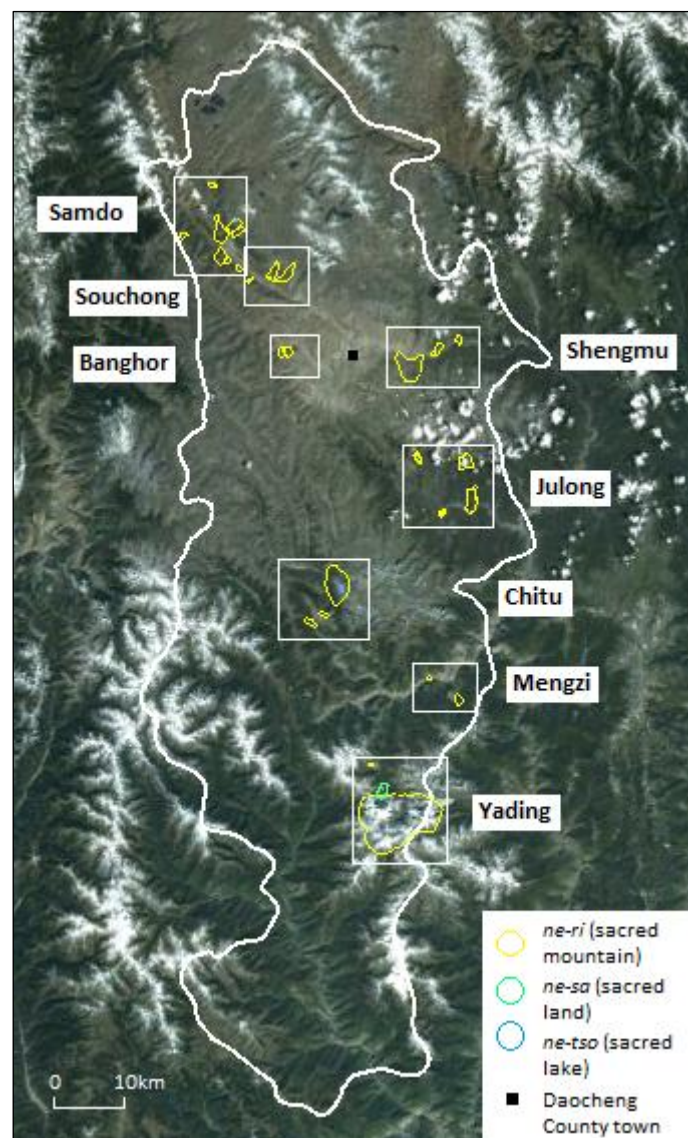


Figure 7.1 Map of Daocheng County showing sacred areas in the eight townships surveyed
Satellite imagery is taken from Google Earth using CNES/SPOT imagery 2012.

Local gods were a feature of every community sampled. These ranged in size from very small *yul-lha* of importance to individual villages, to larger deities of wider significance. The smallest was

approx 0.25km² (the *yul-lha* in Yading village), and the largest was 80km² the area encompassing the pilgrimage site of Rigsum Gampo in Yading. The approximate total area of land covered by sacred sites sampled here was 150km² out of 7323km² – the total area of the county. It was difficult to demarcate sacred land precisely to the diffuse boundaries (see Chapter 3) but the map gives some sense of the scope of the sites. There was no consistent association with type of land and the sites included forest, shrub-land and bare rock. Due to the nature of *yul-lha* as protective deities of villages, they mainly lie close to settlements at lower elevations where there is likely to be more extraction and disturbance, but several sites, notably the peaks of Yading, are further from villages and at high altitudes.

Village mapping: similarities and particularities

Descriptions of the sites sampled from the north to south of the county are discussed below, with distinguishing features highlighted, and examples of the participatory maps drawn. Almost all mountains and pieces of land in their local area are named by Tibetans, showing their importance for navigation, livelihoods (e.g. pasture land) and their religious significance. Although details of Dongyi in the far south are not included, and the reputation of that area is that it is not religious, people still recognised *yul-lha* there. Names of the townships are listed in Chinese, with Tibetan names in brackets if known.

- **Sangdui (Samdo)**

A detailed map and description of Samdo is in Chapter 3 and the original participatory map is given in Figure 7.2.

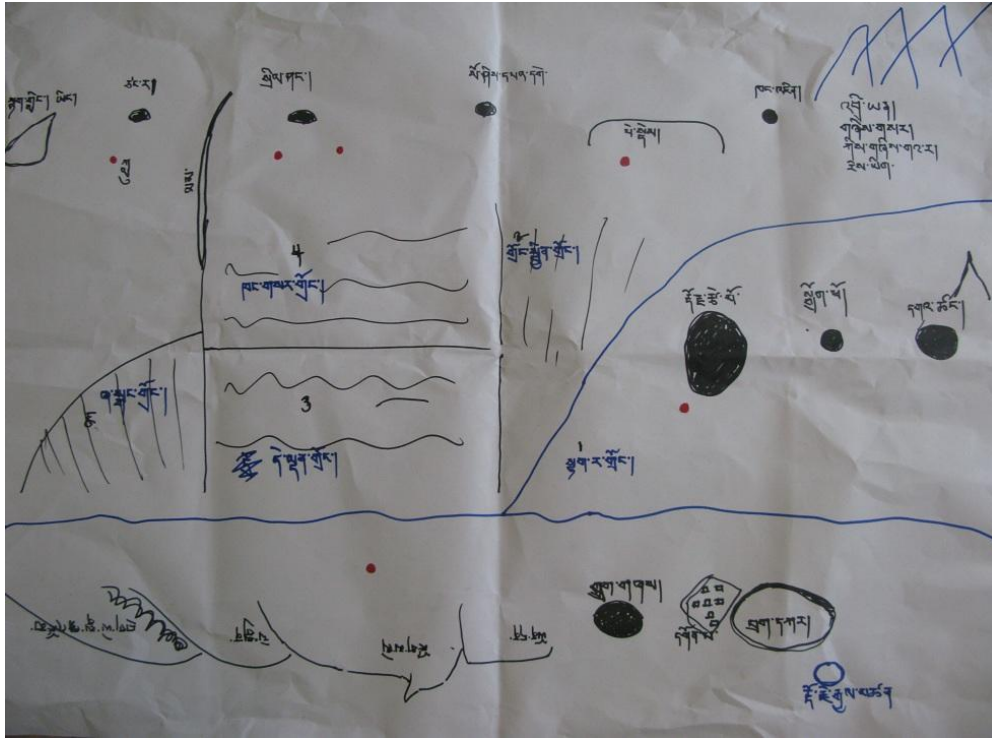


Figure 7.2 Map of Sangdui (Samdo) drawn by community members in 2009

The top of the map is west; blue lines are the river; and the five villages are numbered. Black circles represent *yul-lha* with their names in black; red dots represent *lu* (water spirits), Bengpo monastery is shown by small squares in the bottom right, and the blue circle is the sacred lake.

- **Souchong (Sam tsang)**

Souchong valley is composed of three villages (shown in Figure 7.3) also in Sangdui (Samdo) township, and is closely connected to Samdo community through links between the two monasteries, which were said to be built by the 1st Karmapa (alongside another monastery which was destroyed), and the sharing of grazing pasture to the north of the valleys. Like the mountainsides of Samdo, the immediate area around the Souchong villages is not heavily forested, and consists of patchy oak shrubs and larch on the north and east facing mountain sides. The *ne-ri* for all three villages – Drujie ja chung - is the mountain where Drujie monastery lies, and is represented as a blue deity riding a blue horse surrounded by two ‘doors’ and featuring meditating caves (*gom-khang*). The woodland on this mountain is continuous oak shrub (*Quercus aquifolioides*). Firewood was collected at the base of the *yul-lha*, and the next mountains

north and south also suggests a lack of concern over boundaries of the *yul-lha* in the face of livelihood needs. The *yul-lha* for one of the Souchong villages (Donka) is a small mountain on the opposite side of the valley (north-east facing). Wood was also collected from this side of the valley, but there was not any obvious extraction on the *yul-lha*. There were also two further *ne-ri* behind the monastery. There was not considered to have been any major forest changes in recent memory in Souchong, but less wildlife especially white eared-pheasant due to hunting during the last 40 years.

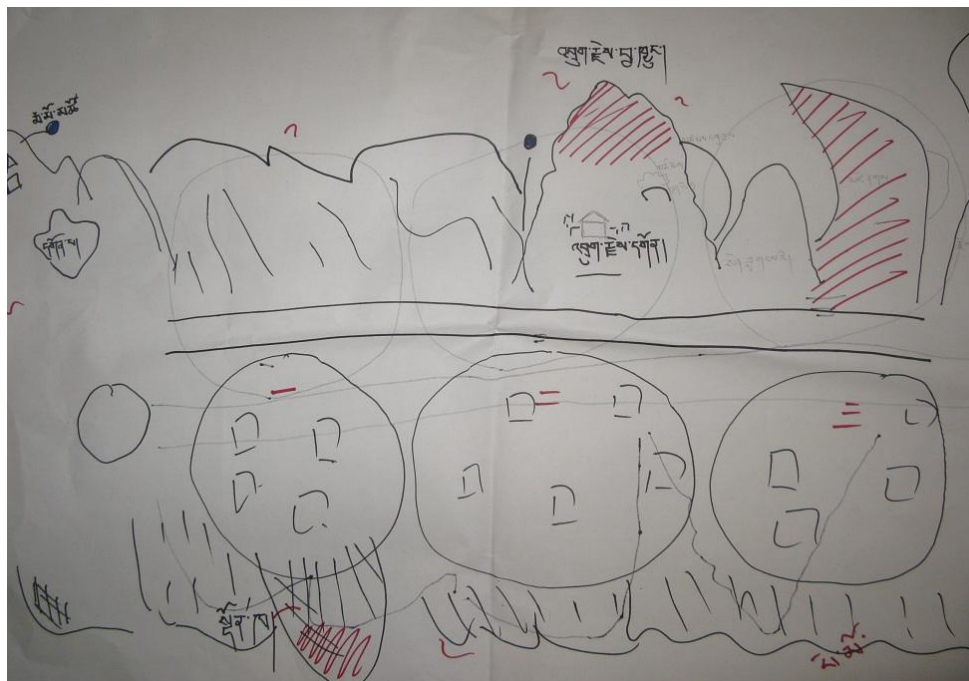


Figure 7.3 Map of Souchong drawn by community members in 2009

The top of the map is north-east; the three circles in the middle are the three villages which make up the valley; three *ne-ri* are marked in red; the house shape shows the monastery.

- ***Banghor (Bangchu)***

The landscape around this township in Daocheng consists mainly of grassland and agriculture (there is only 3 hectares of forested land in the township), and the valley lies at an altitude of 3900m. The participatory mapping was carried out in Buya village. The lack of available firewood means that residents use a combination of yak dung and fuel wood bought in from other areas. The main forested area of larch in Buya village is near to the monastery (Dranam gompas; Figure 7.4) and is two *yul-lha* suggesting either that the designation had afforded effective protection, or that the trees were important in the recognition of the site as a god. One of *yul-lha* Yumo - was “destroyed” during the Cultural Revolution because people did not “have the ability to protect it”, but has regenerated, as in Samdo. Although the grassland ecosystem is a result of the harsh

climatic conditions in this township, older residents and the township forest bureau suggested that there were previously more patches of forest before 1955. 70 hectares (1000 mu) have been planted under the Green for Grain in the last 10 years, mainly poplar on the banks of the river.



Figure 7.4 Dranam monastery in Banghor showing the grassland dominated landscape

- ***Shengmu (Sammo)***

The map drawn by people in this valley (Figure 7.5) depicts four villages which make up the township along a narrow valley, and the *yul-lha*. There is no local monastery but villagers travel to Yangteng monastery which is about 90 minutes away. Pine, poplar and willow have been planted under the ‘Grain for Green’ programme. Caterpillar fungus is collected on the grasslands on top of the mountains running north and south/west of the river – a practice which was not permitted according to local norms (in this valley) before the 1950s.

Each of the four villages has a *yul-lha*. Those *yul-lha* located on the map north of the river (three) were naturally not very forested as compared with the south side of the river. On the south side of the river, facing north, the forest is composed of spruce and larch on the lower slopes and had been logged for firewood and house-building. This included the *yul-lha* Gonbar on which firewood was collected, as a young woman explained:

“The whole of Gonbar mountain has gods. Because the village is here, people have to collect wood from the *yul-lha*. If there is a forest you have to rely on it. If there is water, you to use it. The *yul-lha* can forgive because he is the protector of the village so he understands people’s lives.”

The mountain also holds special significance for the medicinal plants and fungus that grow there and it is known as ‘medicine mountain’ locally. The importance of medicines on sacred mountains has also been found by other research (Huber, 1999b; Anderson et al., 2005), although the significance of the *yul-lha* did not appear to confer special protection in this case.

The *yul-lha* Tragger which is further east on the map was the centre of discussions and concern by villagers in Shengmu. Copper was found in the land, and a mine has now been built to extract it. This has caused some conflict between the mining company and local villagers who have voiced their concerns that disruption of the land will “harm their fields” – creating bad weather and reducing the agricultural productivity of the valley due to retribution from the local god. This was also connected to Tibetan identity and concerns that not protecting the *yul-lha* would be “letting Tibetan customs disappear”. The responsibility which the village had towards their respective *yul-lha* was emphasised; that although the Chinese government ‘owned’ the earth, Tibetans had now been given authority to protect it (as in Chapter 4). But this did not necessarily mean that people were protecting the environment effectively, and this was considered to be due to the pressures of development, rather than ineffective policies or cultural change:

“Before the Chinese government rules, it was the opposite to now. No one asked us not to hunt or log and no one did. And now the government has rules, but people do hunt and log. Before we didn’t need to be asked because there was no traffic or development”.

This reflects the fact that Shengmu is relatively accessible (lying approximately 12km off the main road), and has been affected by deforestation as well as new developments.

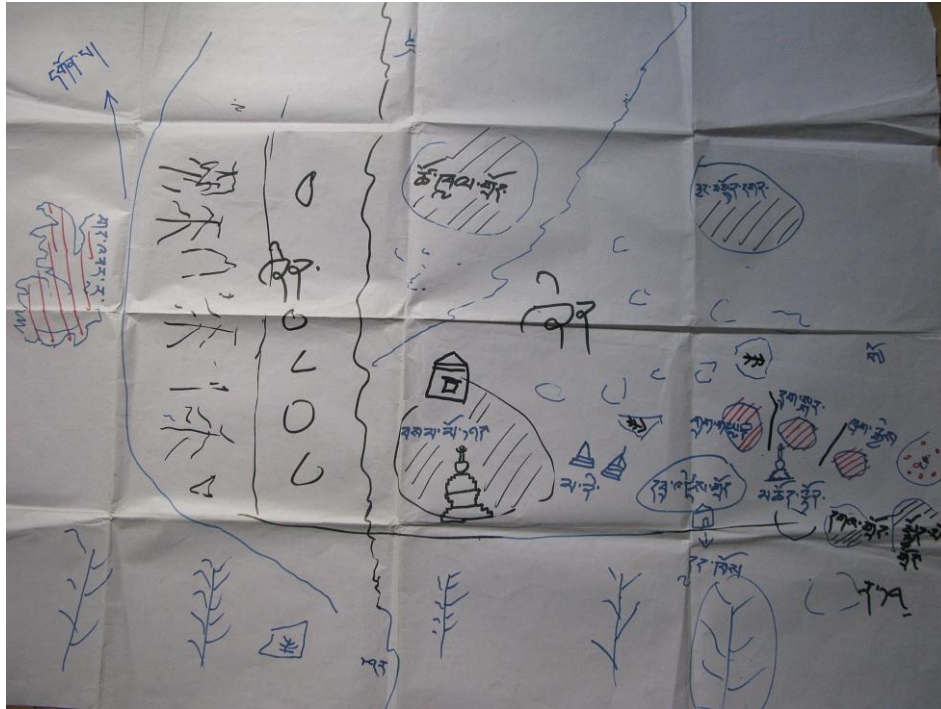


Figure 7.5 Map of Shengmu drawn by the local community in 2009

The top of the map is approximately north. *Yul-lha* are shaded in red; and villages in black. The river runs west to east, and agricultural fields lie to the north, and forest to the south.

- ***Julong***

Julong lies at a lower altitude than the north of the county (3100m) with thick pine forest, and oak and larch above 3700m. A local village leader suggested that deforestation has been limited because of the lack of infrastructure and the distance of the valley from the main road. There is, however, continued legal logging in Julong township for housing for the township's villages and for others in Daocheng County. There are low levels of timber extraction in other parts of the forest. Three *yul-lha* from the participatory map were identified by coordinates: two village *yul-lha*; Dratson and another behind the monastery, and one for Zasser village (Da je) – a small village on a mountain terrace. The norms were the same as other *yul-lha* described in Chapter 3, but one significant statement was that extraction of Juniper for incense used in Buddhist ritual is the exception in terms of acceptable wood extraction, highlighting that it is not the ecological consequences of extraction that are seen as of importance but the religious significance of the activity. There was wood extraction opposite the monastery, on the south side of the river, and in the valley next to the *yul-lha* Dratson, which was composed of a mosaic of grassland and forest patches, with selective logging on the mountain side (Figure 7.6).



Figure 7.6 Logging on mountain slopes in Julong township

The monastery was established approximately 10 years before the date of research, and the most striking element in discussions was the effect of a visiting incarnate lama (*tulku*) four to five years before on people's environmental discourse, and if reports are correct, on their actions. A decree was given by the lama that there should be no hunting of wildlife by local people and no logging on the *yul-lha*. This included fishing which was particularly emphasised in this valley – eating fish appeared to be particularly taboo amongst the Tibetans. A monk reported that local monks had stopped people fishing, released the fish and burnt the nets. The result of breaking these rules was not just retribution in the form of bad fortune but social and ritual exclusion. One layman described:

“If someone breaks the rules, that family will no longer belong to that village. All the villagers will not help them. When rituals are carried out by monks, the villagers will not collect barley flour and butter from that family to take to the monks...they will be breaking three rules...the rules of the village, the rules of the lama, and the rules of the Chinese.”

Logging on other land was not connected to the monastery rules – and some respondents clearly stated that people would not protect the other forest if it were not for the government's rules.

These rules were seen to be generally effective and to have reduced extraction. One local monk in particular presented a romanticised narrative of the effect of the lama's visit to the monastery and its positive effect on the valley, bringing peace and solving conflict and the complete prevention of hunting and logging. He suggested that the reason that people followed the government rules on forestry and more generally was through religion brought through the lama's authority. But even he spoke of the effect of economic development, which in this example demonstrates its positive effect:

“People said that just because the lama came here, they have a rich and peaceful life. But there are two reasons – the first is the lama and the second that the country is getting more developed. Both the lama and the government arrived simultaneously.”

- ***Chitu***

Chitu (Figure 7.7) runs along the main road running north south to Yading national nature reserve centred upon the three sacred mountains of Rigsum Gampo. There is conifer forest surrounding the township, and there is a monastery for the three constituent villages – named San gon. The *yul-lha* for one village - Desa - is Hangda, which is in the image of a crow, and is the guardian of Rigsum Gampo – the three deities at Yading. This connection between local gods surrounding villages and a regionally important pilgrimage site is a recurring feature across Daocheng. The physical form of the mountain is said to have changed after Chinese forces invaded, when the opening into the mountain closed with stones, a material representation of the political turmoil affecting local relationships with the landscape. Two other gods were located – Menri and Sokana. The latter is a large *ne-ri* with three sacred lakes on top of it, which local people circumambulated, but due to the grassland that it encompasses, they also collected significant amounts of caterpillar fungus from it.

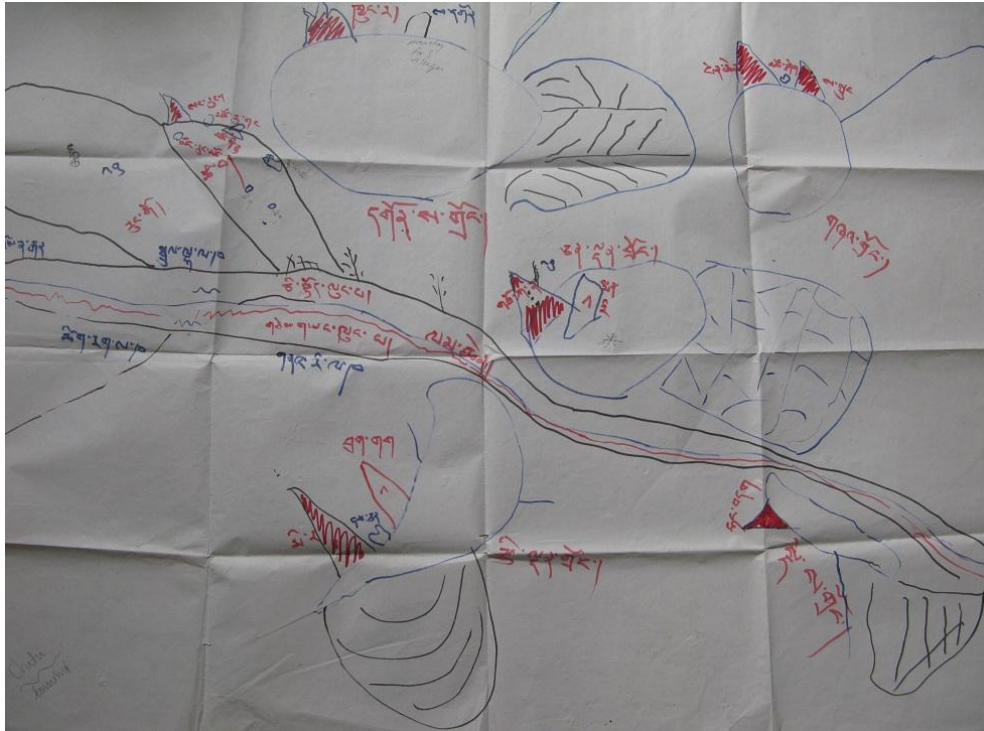


Figure 7.7 Map of Chitu drawn by the local community in 2010

It shows six villages (ovals drawn in blue) around the river (black central line), and their *yul-lha* (in red); fields marked in hashed black lines. The top of the map is roughly west.

- **Mengsi**

This township, lying north of Yading, is heavily forested with little grassland so the people are reliant on agriculture rather than livestock and caterpillar fungus. There are three main villages in the township, and the mapping was carried out in Wa-ge village. The *yul-lha* Sa-sang is a small rocky peak on the edge of the village, and does not contain any forest (Figure 7.8). It was said to protect travellers going on pilgrimage to Lhasa. Further east on the border with Muli county, there are three mountains which are emanations of Rigsum Gampo. The *yul-lha* for Gong-guan village – Anye rakang, a forested mountain - was also located. Apart from patches of firewood collection around the valley, there was little recent disturbance of the forest and many villages are very inaccessible (I had to travel by motorbike and on foot to Gong-guan village). Timber for local housing was mainly collected further south in Rewu township approximately five km away.



Figure 7.8 The local protective god (*yul-lha*) Sa-sang in Mengsi

- ***Yading (Nyenten)***

Yading village is situated just outside the boundaries of the national nature reserve and is composed of only 31 households. The village *yul-lha* (Nak-mo) is very small, and lies to the north of the park. Near the entrance to the site is a renovated monastery – Drung-go gumpa. The three mountains of Rigsum Gampo are the protector bodhisattvas (*changchub semspa*): Jampalyang - of wisdom, Chenresig - of compassion, and Chyagna Dorje – of power, and are the focus of a popular pilgrimage taken by Tibetans. They are also the central attraction for the hundreds of thousands of tourists (largely from China) who visit Daocheng every year. Yading was established as a national nature reserve in 1998, and the boom in domestic tourism in China has affected the region since the early 1990s. It is a place where, according to Chinese tourist guides “you will be drawn not only by its magical natural scenery, but also by its mysterious religious culture” (Daocheng Tourist Board, 2001). This is far removed from the image depicted by the first Westerner to visit the area – Joseph Rock - in 1928 who named it the “Holy Mountain of the Outlaws” (Rock, 1931), due to the area being controlled by a gang of Tibetan murderous brigands who attacked any outsiders who dared to visit. The tourism is based on the imagined idea of untouched landscape, and culture, redefining and in parts creating the required landscape for consumption. Boardwalks have been constructed, the valleys landscaped, and a concrete road built into the valley for electric cars which carry tourists to the views of Chenresig (Figure 7.9).



Figure 7.9 Local women sitting on board walks under Chenresig in Yading 2009

The pilgrimage in fact takes in a number of smaller sacred mountains (*ne-ri*), sacred lakes (*ne-tso*) and land (*ne-sa*) and important historical sites shown in the map (Figure 7.10). The mountain before Chenresig (the tallest peak) is in the natural form of the door to the peak, and serves to adjust the numbers of people going through in order to stop too much ‘pollution’ (*dip*; Chapter 3.4). The land in front of Chenresig called chu-mo, is *ne-sa* (land where there is a divinity) and people are forbidden from grazing their cattle there. Some other pasture (*losong mu chang*) is sacred but is used for grazing because the god is said to have made it fertile to help people herd their animals – an example of an extractive (but not necessarily unsustainable) rather than a non-use norm associated with a religious narrative. There are also several sacred lakes at the site. Mountains and lakes commonly form a gendered pair in Tibet, together forming the ideal and powerful combination within sacred geography in Tibet (Huber, 1999b). The waters often provide access to other dimensions of space and time and one lake in Yading was said to give visions of the future.

Although now swarming with tourists in the summer months, the site is still an important focus of pilgrimage for Tibetans, which has three levels according the level of pain

and exertion and therefore merit gained. The most common circuit is to circle Chenresig which is possible in one day; the second to circle all the mountains and lakes which could take 10 days; and the most arduous to cover an area up to the Daocheng border, which can take months due to the extreme terrain. Certain places along the route are especially auspicious and able to facilitate in purifying sin (*digpa*), for example a sandy area near Chenresig (*jang gi rung*) where pilgrims take off their shoes. Behind Chenresig there is a place named 'hell' representing the 18 levels of death, where there is a natural form of scales where dead people's sin is said to be weighed against their merits. Again the sacred/profane division falls away, as heaven, hell and earth interpenetrate the mountains, and divine beings surround the pilgrims. Although extractive use is forbidden within the park, pasture land lies to the east of Chenresig, so that traditional livelihoods are very much a part of the landscape. Firewood is collected just outside the boundary to the east.

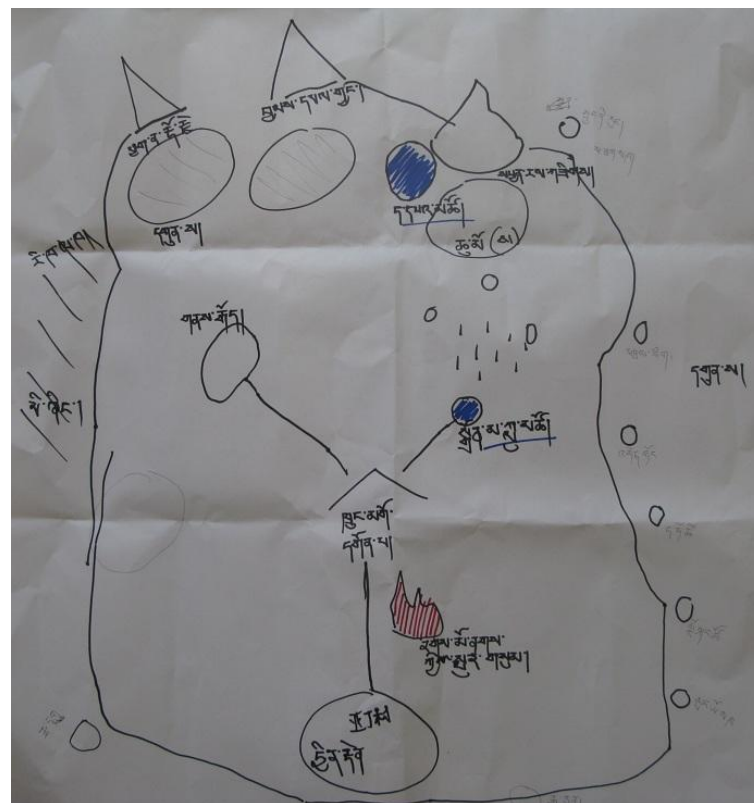


Figure 7.10 Map of Yading / Rigsum Gampo drawn by local community of Yading village in 2010

The top of the map is South. Yading village lies in the north, and next to it the *yul-lha* in red. The three mountains of Rigsum Gampo lie at the top of the map with areas of grazing land to the front. Sacred lakes are in blue; dashes show where caterpillar fungus is collected; and circles around the edge of the site are grazing areas; firewood is collected to the east of the park (big black dashes).

Local Tibetans run horse rides up the uneven path at the entrance to the site, and carry tourists struggling with the high altitude on chairs. The local people have generally gained from the surge of tourism, although use of electric cars has reduced the need for horses and guides. Informants also aired concerns about the building constructed at the base of the mountain Chyagna Dorje, which has been expanded into a tourist centre that is bigger than original plans suggested. This was at the centre of more general concerns about the impact of tourism which was thought to bring ritual pollution, thus reducing the power of the mountains as well as their economic benefits, as one layman explained:

“If people build hotels here and stay here, they will create ‘pollution’. The women will menstruate and pollute the river, and give the local people a headache; and tourists will swim in the lakes which will cause it to dry up. Eventually the snow will melt. Then the mountains will be ordinary and there will be no more tourism. The deities will be angry and local people will get diseases.”

There are no enforceable guidelines for sustainable tourism in Yading, and since it has become the main revenue in Daocheng, the local authorities are keen to continue with expansion. The fee for entering for non-Tibetans was £15 at the time of research. Local people were positive about the effects on wildlife since the designation of the area as a nature reserve, and restrictions and enforcement on hunting and logging were generally stricter than in other parts of Daocheng. Other biological changes, probably stemming from climate change, were seen as a threat to the deities’ power, and linked to tourism:

“Before, the three mountains were covered in snow because the gods’ sweat is snow, but it has melted because too many people have visited. If there is less snow than people’s life expectancy will be shorter.”

The interpretation of these changes illustrates the lack of power the local people feel about the changes – both social and environmental – which are outside their sphere of influence, and are interfering with their religious relationships with the landscape.

7.5 Conclusions

Through exploring the landscape across Daocheng, the larger scale ‘sacred geography’ of the region emerges, encompassing the high peaks of pilgrimage sites, local protective gods (*yul-lha*) close to valley settlements, and the lakes associated with these mountains. These types of sites are important for almost every community across Tibet, and share the common aim of organising the hostile forces within nature (Ramble, 1999). Natural features become symbolically ordered in this process, and there is continuity between environmental biophysical features and the divine inhabitants. The study highlights the heterogeneity, however, in specific norms, history, and the ecological constitution of these deities. Some, for instance were not forested, but bare rock, and some gods allowed extractive practices according to social norms. The scale of the mountain is often important in recognition of the divine, and the village *yul-lha* was often the most prominent or unusual mountain in form in the vicinity. In some places the *yul-lha* were ecologically distinct, as in the case of the intact forest in Banghor, but it was difficult to discern the direction of causation – whether the religious status had protected the forest or the presence of the forest had resulted in religious recognition.

The perspectives of the environmental phenomena of interest change as the scale of analysis changes (Berkes et al., 2006) so that there is a need for pluralism in viewpoints taken. The type of method used also needs to be appropriate for the scale being examined. From the experience of carrying out research in Samdo, I predict that more in-depth longer term research in each of the villages examined here would result in more sacred sites being identified. This points to the limitations of rapid social methods such as focus groups for this kind of subject matter. Understanding of religious relationships with the landscape requires building up trust with people, as well as participant observation. Each case is conditioned by the historical, political and cultural context in which it developed so that one conservation solution at the community level cannot be transferred directly to another (Zerner, 2000). Using these methods, it was only possible to take a cursory look at some of the elements of people's relationships to the land at the village level.

A focus only on sacred sites, although found in every community, can ignore the wider processes of landscape change and divert attention away from the secular and the larger proportion of the landscape (Dove, et al., 2011). The small area of land potentially protected and its uncertain ecological value, highlights that the conservation value of sacred sites will also depend on the effectiveness of landscape management between the sites (Bhagwat et al., 2005).

There has been a long history of human management of the forest in Daocheng, and wider scale pockets of deforestation in the county during the last fifty years, mainly in the most accessible areas but leaving large areas intact, especially in the south of the county. Viewed from a larger temporal scale it is likely that forested ecosystems have been transformed into pastures and agricultural land, as in other parts of Tibet (Ryavec & Winkler, 2006). Poor regeneration and long production cycles may result in some areas remaining deforested due to the high altitude and topography of the region (Li, 1993). The political chaos during the period of the Cultural Revolution destroyed traditional land management practices, including in many cases those relating to religion, on many sites. The landscape is therefore reflective of human culture, which includes the material transformation of nature, as well as the collective creation of meaning about it. Religious relationships with the landscape and those related to livelihoods vary according to the topography and vegetation structure, from the grasslands of the north to the high peaks and dense forest of the south.

Small scale, patchy timber and firewood extraction continues around villages, so that forest is kept at different stages of regeneration. The potential value of sacred sites in this context lies mainly at the scale of the valley, as intact forest patches could act as refuges for forest-dependent species such as pheasants. Yading presents one model of a protected area based around a larger scale sacred area, focused upon income generation from tourism which has replaced the forestry industry in the area. The *ne-ri* at Yading can be viewed as a type of 'place creation' in Tibetan culture, which redefines nature without physically altering or constructing the land (Huber, 1999b). Tourism in Yading does the same but in a different way, creating a certain kind of space and but also physically constructing it based on the ideal of the sacred as wilderness, and for the consumption of tourists (West & Carrier, 2004). The way in which this has been done raises issues about the impacts of development associated with tourism, even that dressed up as 'eco-tourism', and the potential conflict in ideology with local people who view the site in quite a different way – as both a source of their livelihood and of sacred power and renewal.

The new protective approach to forests in China is increasing tree cover, but the ecological and biodiversity benefits of this reforestation are likely to be negative (Cao et al., 2009). Viewed from an even broader scale, the environmental impacts have not been removed but merely displaced. Since the National Forest Protection Programme was implemented, China's timber imports have dramatically increased (White et al., 2006) mainly from Russia and South East Asia where there is poor environmental governance. This draws attention to the issue of scale when studying environmental change, which is a multi-level problem in which the focus

of conservation action also need to be at different scales (Berkes, 2007). Given that, historically, deforestation in Daocheng has largely been out of the hands of local villagers, and current policies which are reshaping the landscape such as the ‘Grain for Green’ are designed at the national scale and implemented at the county level, conservation intervention needs to span these connected institutional levels.

8. Implications for conservation practice

This thesis aims to hold practical relevance for conservation. In this final chapter I give an overall summary and reflect on the findings in relation to environmental conservation. The idea of ‘cultural conservation’ and ‘sacred natural sites’ are emerging themes in international conservation. I explore these discourses and approaches in relation to my own work, and discuss the implications of my findings for research and practice generally as well as for the specific case study in Daocheng.

8.1 Overall findings

The aim was to gain an empirically based understanding of how Tibetan Buddhism shapes people’s relations with the natural environment in the context of state policy and market changes, in order to inform conservation interventions. I used a case study and inter-disciplinary methods to explore these multi-dimensional human-environment relationships, and observational and interview data to understand people’s notions and actions. The thesis brings together data on religious ideas and discourse, institutions and power, livelihoods and natural resource use, to form a more holistic, place based approach to understanding how people relate to their environments. In particular, I focused upon the idea of sacred sites which has received increasing attention by conservation practitioners within the framework of ‘community based conservation’.

People in Samdo were found to be orientating themselves towards the environment by means of local cosmology incorporating local gods and spirits, ideas of karma and Buddhist morality which were interlinked (Chapter 3). The sacred, in this sense, was not completely separate from the profane for the whole community: boundaries were unclear, there was differential importance of local gods and spirits according to ritual attention, and conflicts with

practical and immediate livelihood concerns. A gap between local knowledge and a conservation perspective was found especially in the way that protection toward local gods was stated in ritual rather than governance terms. The sacred cannot be said to be related to completely distinct ideas or sets of behaviours in Tibetan Buddhism, and there was overlap with the karmic model which was in particular connected to non-violence towards living creatures. The notions and religious actions described in Chapter 3 could not exist without a system of authority and must be set in their social and political context, including the institutions of religion, state and market (Chapter 4). Religious authority in the form of ritual lent weight to relationships with local gods, and environmentalist discourse transported through global connections was beginning to give new meanings to the environment. Forms of authority do not act in isolation, and the legitimacy of state policy was reinforced by its alignment with religious norms and traditional forms of authority. Commodification of the environment occurring through both the government tree planting scheme and the booming caterpillar fungus market was also reshaping environmental relationships.

Chapter 5 showed another element of these human-environment relationships in the form of provisioning ecosystem services. Focusing on three resources – caterpillar fungus, matsutake mushrooms and firewood – I showed that access to services was structured according to wealth within Samdo, highlighting the heterogeneity of communities and dynamic relationships with the environment. Despite this, there was a high dependence on caterpillar fungus for livelihoods across the community. Using direct observation of firewood extraction, Chapter 6 reflected findings in Chapter 3 regarding notions of local gods. Evidence of resource use indicates that one particular place of religious significance to a wide group of people resulted in consistent non-extractive practices. But overall the research revealed a dynamic picture of sacred sites set in their historical and policy context. Both practices and ecological conditions change within sacred sites, running counter to equilibrium models of both nature and culture. Taking a wider geographical perspective, Chapter 7 showed that sacred sites in different forms exist across Daocheng County, but they are heterogeneous with differing norms, histories and ecological constitutions. The wider perspective highlights the issue of scale in environmental studies, and the need for conservation interventions that span levels of governance. The limited coverage of sacred sites is set against larger scale forest changes of the last fifty years, suggesting that the conservation value of sacred sites lies at the local level.

Limitations of the study

It was not possible due to time limitations to study the pastoral systems in Daocheng and instead I focused on forest use and changes, and to a lesser extent wildlife and hunting. This was because the management of forested areas close to settlements appeared to have closer relationships to religion. The work of other researchers on pastoral systems in Tibet (Gruschke, 2008; Yeh & Gaerrang, 2011; Goldstein, 2012) points to a range of pertinent issues related to this thesis. The way that the interplay of traditional management, livelihoods, state policies, and historical degradation affect environmental change could equally apply to grasslands, and the relatively unexplored impact of caterpillar fungus collection, both ecologically and economically, should be an area of further research. Inclusion of the grassland system into my research would bring a more complete picture to human-environment relations.

The focus was largely on the way people represented and talked about the environment, their actions rather than any analysis of ecological effects, and widening the scope to incorporate more ecological data would strengthen further studies. I aimed for the thesis to be interdisciplinary, but there were challenges to conducting a fully integrated study. In particular, I was not able to directly link norms and representations to environmental actions at an individual level with the data I was able to collect, but rather presented a picture of how these elements of social reality fitted together across one case study community. This highlights the challenges on the ground of linking different sets of data using different methods in complex social settings. At a conceptual level, however, the study was interdisciplinary in that natural and social science methods were used as appropriate for different parts of the thesis within an integrated conceptual framework. The research forms the first step in dialogue about environmental issues and conservation with people in Daocheng, and this should be built upon with further community based work.

The core of the research focused upon the case study of Samdo – a community of only 200 households. Chapter 7 showed that the results with regard to sacred sites were broadly generalisable to the regional level with some village level specificities, and given that belief in and norms regarding the type of local gods discussed here are ubiquitous across Tibet, the study holds significance for the whole Tibetan cultural area. But the results cannot be directly transferred to other local sites, and specific cases will need to be understood within their own contexts. A more in-depth comparison between communities could also shed light on the relative importance of different institutions, for instance a comparison of the south of Daocheng where there are few monasteries with communities in the north. The study does however, raise

issues and provide lessons regarding the importance of sacred sites, culture, and livelihoods which will be relevant for any conservation project.

8.2 Culture, religion and sacred sites in conservation: implications & recommendations

Conservation NGOs are increasingly using indigenous peoples as exemplars of cultures with strong conservation ethics, equating local resource management practices with Western environmentalism (Conklin & Graham, 1995). This is particularly expressed through community based conservation (CBC) which incorporates ‘cultural values’. The importance of indigenous knowledge and culture has been recognised through the work of international organisations. The IUCN now recognise that all protected areas should aim to “conserve natural and scenic areas of national and international significance for spiritual, cultural and scientific purposes” (IUCN, 2012). The organisations also launched a ‘Sacred Natural Sites’ initiative in 2007 to build alliances amongst groups “in support of the conservation and cultural revitalisation” of these sites (Verschuuren et al., 2010). The World Heritage Convention of UNESCO had already adopted the cultural landscape category in 1992, giving the sites international recognition (UNESCO, 2003), and the Convention of Biological Diversity, agreed by 188 governments who pledge to protect and maintain indigenous knowledge for conservation, produced guidelines for conservation outside of protected areas in collaboration with indigenous groups (Secretariat of the Convention on Biological Diversity, 2004).

In the more recent ecosystems services framework of the Millennium Ecosystem Assessment (MEA), cultural services are one of four services provided by ecosystems for human wellbeing, and religion is placed under the category of ‘spiritual services’ (De Groot et al., 2005). Several conservation organisations have developed projects which explicitly make the link between religion and conservation. Most notably the Alliance of Religions and Conservation aims to help religions “develop their own environmental programmes, based on their own core teachings, beliefs and practices” (ARC, 2012). ARC was born out of WWF’s work on religion, and in particular the Assisi Declarations of 1986 in which WWF invited leaders of five main religions to discuss how their religions could conserve the natural world (ARC, 1986). Fauna & Flora International (FFI) have recently established a Culture and Conservation Programme which is working to develop policies and guidelines for engaging people in conservation through cultural values. The pilot project in Uganda is incorporating sacred land into park management,

and championing the culturally significant and historical relationship between pastoralists and their cattle which have previously been excluded from the protected area (FFI, 2011). Given this growing trend in conservation approaches to culture and religion, what does my research suggest for conservation policy, practice and research?

Approaching culture and religion in conservation through anthropological methods

The case study demonstrates that culture and religion are important factors in the way people discuss the environment and interact with it. Conservation does better if it takes the cultural context into account (Waylen et al., 2010) and increases community participation (Spiteri & Nepalz, 2006), both in terms of the long term sustainability of projects and meeting social and ethical objectives. However, the concerns, interests and needs of communities vary along with the social, economic and political contexts so there can be no blue-print frameworks. A pluralistic approach is needed that treats the environment as a complex systems problem (Berkes, 2007). By focusing on the social, political and economic factors that shape the daily lives of people, their ideas and actions, this thesis highlights the fact that local contexts count in conservation. For these kinds of specific insights a grounded case study is needed. By demonstrating the value of an ethnographic approach, I advocate for more concerted efforts to work with anthropologists and trained social scientists for high quality, in-depth, and sensitive studies aiming to understand and work with people. The trend for global approaches to conservation may be useful for securing funds, but there is a value in locally important case studies which support implementation (Smith et al., 2009). The social side of conservation should be as empirically driven as ecology currently is, whilst acknowledging that the methods and frameworks may be quite different.

Social science in conservation has often taken a fast and dirty approach to identifying ‘threats’ posed by local people, but this may give a misreading of local complexities (Brosius, 2010). The approach taken here emphasises the varied relationships with the environment people have in one place, moving away from a preoccupation with ‘community’ as a bounded entity with exactly replicated relationships with nature (Agrawal & Gibson, 1999). There are in fact multiple groups of people and institutions at play at one locality, and conservation takes place through networks of relationships (Brockington et al., 2008). In Samdo, although ‘dominant discourses’ existed, there were varied perspectives, livelihood portfolios, and a network of actors involved. An anthropological approach appreciates different viewpoints, accesses those most marginalised and takes a collaborative approach, attempting to work with people to resolve problems.

The distinction drawn in this thesis between discourse and spoken norms, and the actions people take should be drawn upon more generally in conservation studies which tend to equate ‘perceptions’ with actions, when in fact attitudes towards conservation may not relate directly to behaviour (Holmes, 2003). There is a proliferation of attitudinal studies in conservation projects but this disjunction is not often addressed. By making a further distinction between representations and norms in this study, I aimed to understand social norms which are directed towards particular actions, and the indigenous ideas behind them, for example norms towards local gods were found to be based on specific representations about a particular history and character of the god. But norms can, in fact, be rhetorical devices used to achieve specific goals and legitimise action (Bruun & Kalland, 1995). Here, norms and therefore actions shifted according to livelihood goals, for example resource extraction on *yul-lba* was justified due to necessity. Norms also seemed to be used as an assertion of cultural, religious and community identity. The study also highlighted another problem with treating religion as a private belief system accessed through spoken assertions (e.g. Shen et al., 2012), when it is at least in part a social institution with ritualised and hierarchical relationships of power. I found people’s beliefs difficult to access through structured interviews because they were largely taken for granted within the community of Samdo. Specific recollection of religious observance and observations were more effective in understanding the ritual relationships people have with the landscape. This study demonstrated the importance of the social elements of religion in the traditional and charismatic forms of authority through the role of the monastery and incarnate lamas.

‘Sacred natural sites’: conceptual, practical and ethical concerns

The approach to religious or spiritual practices in conservation is typified by the use of the term ‘sacred’ as in ‘sacred species’, ‘sacred landscapes and ‘sacred groves’, and even ‘sacred value’ as examples of how beliefs regulate actions towards the environment. The term has been used to encompass many ideas, but needs to be specified for the particular context. In this case study, sacred sites referred to land where local gods and spirits are thought to exist and to which certain norms apply. Conservationists should recognise the particular history of the concept. Émile Durkheim saw the sacred as the basis for religion, and as separate from productive everyday dimensions of life: “the sacred thing is par excellence that which the profane should not touch, and cannot touch with impunity” (Durkheim, 2002). Taking this definition, from a conservation perspective, the sacred is thought to represent the interests of the group and centre on unity as opposed to mundane individual concerns, in particular productive practices of natural resource extraction. The idea of a sacred site protected for religious reasons is certainly a powerful image,

and appears to hold a “critical mirror” up to the West’s profligate and secular resource use (Dove et al., 2011). Sacred sites epitomise contemporary conservation policy’s goals of grassroots participation, socio-cultural legitimacy, and ecological pristineness.

Recently the term ‘sacred natural site’ has emerged specifically in conservation to mean “areas of land or water having special spiritual significance to peoples and communities” (Wild & McLeod, 2008), and guidelines have been produced to help conservation professionals and custodians to conserve and revitalise the sites, guided by the IUCN Specialist Group on Cultural and spiritual values of Protected Areas. The mobilisation of this concept in conservation has generally been based on three premises. Firstly, that there is a conceptual and material distinction between the sacred and profane common to everyone in a ‘community’. Secondly, that there is a clear relationship between people’s stated norms about a site and their actions, and therefore outcomes beneficial to conservation. Lastly, that there is an institutional similarity between sacred sites and protected areas.

Addressing the first point, conceptually I found the areas of divine presence associated with the sacred to not be an entirely separate domain but part of the lived experience of local Tibetans. The identity of a space must be maintained or transformed continually through ritual and narratives contingent on human action, and so it is dynamic. Even within the tradition it is certainly not a homogenous category and could apply to range of local gods, water spirits as well as Buddhist deities of wider significance. The divinities in the landscape have their own personalities and histories so that no two sacred sites are the same. The conservation literature does not often take these kinds of subtleties into account. Although the heterogeneity of the sacred across different cultures is recognised in some documents (e.g. Dudley et al., 2005), the fundamental conceptual difficulty of applying the sacred/profane dichotomy is not addressed, nor is the fact that it is an imposed categorisation. The conceptual distinction between wild nature and spaces where human beings do their productive work is epitomised in the idea of sacred natural sites, and in its simplest characterisation, it is merely an extension of the myth of wilderness which formed the basis for early modern conservation.

The second broad assumption is that “due to the spiritual values attributed to these sites, restrictions on access and use often apply, and many such sites remain in a natural or near natural condition.” (UNESCO, 2003). These restrictions are in the form of social norms which are then thought to be consistently followed in actions. This study casts doubt on the kind of ecological idealism found in some literature on sacred sites, Tibet and other ‘indigenous cultures’. The assumption, again, does not take into account the different realms of social reality, and intervening factors and context. I found community members were extracting resources from

sites identified as local gods despite the spoken norms, although there was coherence in norms and actions for one particularly important local god which has become a site of popular pilgrimage. The study also showed the importance of authority in bolstering the informal cultural code. The fact that poverty and other resource restrictions may also be reasons that people collect resources at these sites is also not generally discussed in the conservation literature, or only in terms of ‘cultural erosion’ rather than an actions born out of necessity or livelihood pressures, and justified within the belief system. For example during the Cultural Revolution, when religion was completely forbidden and poverty increased, people cut trees on the *yul-lha* but retrospectively explained the lack of retribution either because of the extreme situation or that the gods had physically moved with refugees to India. The conservation narrative suggests that as long as people get back to their original indigenous state, and in doing so see the true value of nature as biodiversity reservoirs, they will protect the sites. But this approach does little to address the changes and current problems in their everyday lives which may be resulting in environmental degradation.

The narrative also presumes an ideal static view of culture and ecology as set apart from history. Freeman (1999) takes the view that the sacred grove concept derives not from local understandings but a landscape ideal of pristine forest. Understandings of ecology have moved away from fixed equilibrium concepts of ecological systems, and likewise culture is considered fluid and permeable, rather than an autonomous entity with uniform relations with the environment. The archetypal image of a sacred grove preserving a relic forest, based on static cultural values, does not fit this conception well. My research found that the ecological condition of sacred sites shifted with historical social and political changes, most notably the Cultural Revolution when the sites were often deforested. They have subsequently (at least partially) regenerated with the religious revival of the last 20 years. Vegetation patterns have and continue to change in relation to humans and climatic influences through history. Given these refined conceptualisations, conservation becomes about managing change in dynamic systems rather than protecting a static ideal (Adams, 2003).

The third premise is that sacred sites fulfil “similar functions as legal protected areas” (Wild & McLeod, 2008). There is increased interest in forming official protected areas around sacred sites, translating religious tradition into legislation. Many sites have already been incorporated into protected area networks either accidentally or intentionally. Protected areas are bounded and have systems of governance to ensure rules are not broken. Similarly, sacred natural sites are thought to be looked after by ‘custodians’ – individuals or groups of people, who have responsibility to take care of specific sacred natural sites, to which they are linked

through history, culture, self-identification and spiritual practice (Wild & McLeod, 2008). But are sacred sites really like ready-made protected areas?

The converged conceptualisation assumes an overlapping relationship between religious ideas in a particular cultural and social context, and Western environmentalism. This study, however, suggests that conservation as envisaged by Western scientists is not the manifest reason for the emergence and perpetuation of sacred groves at the study site (see also Arora, 2006). The relationship with the environment is instead mediated by a mutual interdependence with local gods and spirits. Local Tibetans ensure harmonious relationships with these beings by not angering them through resource extraction. There are connections and overlap between this indigenous model of environmental relations and Western justification for environmental concern. For example both conceptions include an interest in retaining or restoring human health and prosperity, but there is a very different mechanism at work. People 'protected' the sites by ritual means, and local governance was politically rather than religiously framed, so that people were not enforcing rules specifically for these sites. This suggests a difference between Western and 'indigenous' knowledge (see below).

At a practical level the amount of land covered by a sacred site may be very small. In Daocheng, some sites were only one part of a mountain, and also took a variety of forms including scrubland, pine forest as well as lakes and bare rocky mountain sides which may not be the ideal focus for a conservation project. Some research has noted that small remnant forest patches can hold high species diversity (Arroyo-Rodríguez et al., 2009), although there would need to be a certain density and number of patches (Tabarelli & Gascon, 2005). Further ecological studies are needed to assess the biodiversity value of specific sites, in the context of the wider landscape. Some researchers have raised the issue that sacred sites somehow downgrade land outside the site (Bruun & Kalland, 1995). Freeman (1999) found that forests outside sacred groves in India were viewed only as a resource pool, but in Daocheng, due to other norms of non-violence, moral consideration was given to trees and animals outside the sites, although livelihoods and access tended to be a priority. Protected areas are useful in conservation as they can act as reservoirs, and are robust against uncertainty (Milner-Gulland & Rowcliffe, 2007), but must be viewed in the context of other wider landscape changes. Likewise, sacred sites could form one element of a conservation programme with complementary interventions, as a centre for promoting and enhancing wider conservation goals (McWilliam, 2001).

Dove et al. (2011) see the idea of 'sacred sites' as "fundamentally orientalist", since it creates difference, and imposes values onto other people. From an ethical perspective the idea

could be seen as just another dimension of neo-liberal conservation practices, which result in the territorialisation of nature – demarcating it for the purposes of controlling and excluding people and resources (Vandergeest & Peluso, 1995). Indeed, there are examples of NGOs appropriating traditional knowledge of this kind to legitimise their own interventions (Kassibo, 2001). By drawing a distinction between the sacred and profane, the discourse invokes a bounded natural space kept apart from people. Communities may see the process as just another means of appropriating their lands for economic and other benefits not distributed to them. The imposition of formal rules and institutional involvement may cause cultural disruption and resentment by local people (Dudley et al., 2005). There is the possibility in fact, that communities may not wish to reveal the location of sites and the practices regarding them at all, and that should be respected. I found that people were at times reticent to discuss the specifics of local gods and their religious practices due to the political situation in Tibet, and the focus of religious authority being held in the monastery.

Overall, the question of whether basing protected areas on sacred sites is appropriate can only be taken on a case by case basis. A facilitation role for conservation NGOs would be more appropriate, and there may in fact be great demand from indigenous groups for international involvement in reclaiming lands and rights, and restoring cultural heritage which can be centred on sacred land. Recognition of sites as protected can bring extra resources for conservation and communities (Dudley et al., 2005), but can also result in loss of sovereignty and value. The construction of a tourist centre centred on an important Tibetan Buddhist pilgrimage site in Daocheng has prioritised economic gain over respect for religious tradition resulting in conflict. Despite the increased attention on the social impacts of protected areas (e.g. West et al., 2006), overall the impacts of specific exclusionary projects are not critically assessed (Igoe & Brockington, 2007). There has certainly been very little examination of the consequences of formalising sacred natural sites. The IUCN provide a good starting point in their guidelines which includes ethical and social aspects of projects, and they are collecting evidence from projects on how these guidelines work in practice. But a lot of questions have not been answered, and policy makers must proceed with caution. Projects centred on sacred sites can only “act as models for participatory conservation” if social factors are dealt with sensitively and collaboratively.

Indigenous vs Western knowledge and the rise of capitalist forms of conservation

Conservation conflict is caused not so much by a difference in aims, but by divergent conceptualisations of nature (Infield, 2002; Peterson et al., 2010). The idea of ‘sacred natural

sites' raises quite directly the more general problem which arises in conservation over the meeting of two different types of knowledge – scientific and locally embedded knowledge. Conservation projects, especially those aiming to be community based, are now beginning to take indigenous knowledge seriously, yet it remains peripheral and is often not taken into account in decision making (Brosius, 2006). There can be big cultural distances separating traditional religious conceptions of environment from modern ecological knowledge (e.g. Bird-David, 1990). For example in this case study the forest was considered to protect people rather than the other way around. The place of sentient animals in the world of Tibetans also serves to remind conservation that humans have social relationships with animals (Hill & Webber, 2010). Animals can be both vilified and venerated, and at times live within the same moral universe as humans.

Conservationists have advocated conservation based on 'cultural values' (Infield, 2001), and the need to take into account “intangible benefits” such as spiritual and religious services (De Groot et al., 2005), but also should remember that these categories are not emic – they are not meaningful to the people under discussion. For example, the benefits from protecting a local god are very tangible and material to the Tibetans in Samdo – ensuring good weather, productive harvests and the health of the valley residents. In contrast, the way in which ecologists and conservationists interpret the world is through a quantified scientific framework involving concepts such as biodiversity. Basing conservation purely on this knowledge may lead to conflict and misunderstanding, and a form of land management that highlights specific values (West & Carrier, 2004). Indeed, imposing a different set of values, by making sacred sites' legitimacy dependent on conservation status, could undermine the indigenous moral framework (Cleaver, 2000).

However, some scholars question whether the divide between the two types of knowledge exists (Agrawal, 1995), and suggest that there may be confluences bridging knowledge types and complementary concepts and aims between religious and scientific spheres (Chandrakanth & Romm, 1991). For example, in Samdo water spritis (*lu*) which existed for local people at springs and streams could serve to reduce pollution of water sources, thus supporting environmental protection. Communities are not isolated entities, and through global connections there is also now a mobilisation of environmentalist discourses which people adopt. In this study this global influence included the use of the world 'environment' (*kehoryug*) itself, further diffusing the boundaries between knowledge types. In the process of transfer and integration, knowledge may be adapted making it more powerful in the particular context (Dove et al., 2003). Religion as

a whole has also transcended the local setting and is also exposed to the global ideology of environmentalism, and must now confront global issues.

The rise in the commodity approach to conservation epitomised in the valuation of ecosystem services may be a point of particular concern in cultures where nature does not have a direct market price. It was highlighted in this study in the use of payment for tree planting under the 'Grain for Green' programme. Here, it was not so much the process of valuation that undermined people's faith in the scheme, but the poor results (trees dying) and competition with land for subsistence farming. There was little affiliation between this and religious meaning placed on the landscape and living things, with possible disengaging effects for conservation. Cultural and moral values of nature are not easily amenable to pricing and economic value and may serve to cultivate lasting conservation sentiment (Sullivan, 2006). Most Western conservationists themselves are driven by moral feelings and a sense of intrinsic value in nature, and these values may be much more similar to other forms of culturally based reverence towards nature than is often acknowledged. Market approaches are a potentially a powerful tool for conservation and cannot be ignored, but given these concerns should be used as one of a set of tools under the right circumstances (Redford & Adams, 2009) rather than an overarching principle. I used an ecosystem service perspective to examine the value of wild products in Samdo. Two of these services (caterpillar fungus and matsutake) did have a market value, and their value to livelihoods was measurable in that respect. I also ensured that the data was contextualised with qualitative knowledge about these trades and their social values. Attempting to measure the 'cultural services' provided by a forest may prove much more difficult given the complexities described in this thesis, and the reductionism involved which could ultimately be counter-productive for conservation.

Politics and power relations

Basing projects on cultural values appears, on the surface, to get around tricky and systemic inequities and power relationships involved in environmental issues, but there is a danger in attempting to depoliticise conservation by ignoring issues of power and suppressing rather than dealing with conflict, and rather focusing on technical details (Brockington et al., 2008). Environmental degradation in the forested regions of Tibet has largely been an outcome of power changes, political chaos, poverty and misguided policies rather than a collapse of cultural values, although this has been part of the process. I identified in this thesis that power related to the environment is not simply about coercion but a more subtle and implicit form of authority effective in shaping relations with the natural world, for example, the power inherent in the

identity of the incarnate lama, and therefore environmentally related edicts made by him. There are also unexpected interplays between state and religious authority, for example the management of forest by the monastery showing on the ground expediency within an apparently oppositional power structure. Amongst the actors at the field site, there is also plurality of values towards nature so there can never be a completely rational solution to environmental problems. By acknowledging the multiple views and the way in which actors present, view and pursue projects, scientifically based conservation is “brought down to earth” (Blaikie, 1995) and better able to deal with practical problems. Integrated responses involving negotiated problem identification and frameworks need to involve networks of government, NGO, private, and civil society (Berkes, 2007).

The language of participation is ubiquitous in conservation practice nowadays, but needs to stand up to scrutiny on the ground. There are oxymoronic uses of language with regards to sacred sites in the literature such as guidance to “ensure” voluntary participation (Wild & McLeod, 2008: p.23). Even when acknowledging local perspectives, there is a distinction between knowledge mediated by a social scientist and that articulated by people themselves (Brosius, 2010), and the ideal is to move towards the latter in representations of knowledge. For example the use of maps may be useful in identifying and creating boundaries around sacred sites, but conservationists should be aware how mapping may reinforce patterns of power (Brosius & Russell, 2003). The limitations of this approach was shown in this thesis in that exact boundaries of *yul-lha* were not recognised by local people and therefore transferring participatory maps to geo-referenced maps is not a perfect translation of knowledge.

Taking livelihoods and poverty into account

Although the central message of this thesis is the importance of culture and religion in environmental relationships, the work also highlighted the prominent place of livelihoods and the high dependence people have on natural resources. The services provided by ecosystems are a defining dimension of relationships with the environment, and although religion affects people’s actions, these are modulated by economic factors and livelihood needs. Making a living is obviously a key concern for households, and within a community there may be different livelihood strategies and wealth levels, highlighting the need for equitable distribution of benefits. In Daocheng, although people are becoming wealthier there is still relative poverty, and there are limited opportunities to expand livelihoods. In Samdo, cynicism was aroused by the failings of tree planting, which for some was having a negative effect on their livelihoods. Some tensions exist between the aims of conservation, and pursuits of prosperity and economic development,

most obviously in the collection of caterpillar fungus. Although research on the fungus has been limited, concerns are starting to be raised about the sustainability of collection (Stone, 2008), and the effect of collection on the grasslands (Winkler, 2005). The low impact of Tibetan societies in the past is likely to be due in part to low population, lack of technology and infrastructure (Clarke, 1998; Huber, 2005), and this was reflected in the views of many people in this study. A return to 'traditional values' will not necessarily result in sustainable use in resources, given the changes in the socio-economic context, for example improved infrastructure such as roads, increased material wealth, and demand for timber, as well as the rise in population. Older people recalled there being only 45 households in Samdo valley before the 1950s. A two child policy is in place in rural and minority areas in China, but did not appear to be enforced in Daocheng.

The difficulties raised here are not to completely dismiss the idea that conservation can have a fruitful relationship with religion and culture (and in fact it should take the local context into account), or the entire concept of the sacred, but to raise doubts about the unified and rather idyllic picture that is commonly portrayed. Understanding the nuances, politics and case specificities in these relationships will support better conservation interventions.

8.3 Implications and recommendations for Daocheng

The environmental history of Daocheng over the last sixty years is characterised by extraction, deforestation and degradation, but policies implemented during the last decade are attempting to undo the damage through protection of forest ecosystems. The overall outlook for the environment is quite positive. There is no unbridled destruction by local people or for that matter industry or government any more. But there are emerging pressures on natural resources including new infrastructure development, mining, population increases and tourism, alongside the potentially negative impacts of tree planting efforts. It is a situation of non-uniformity, push and pull, protective policies versus extractive development, and some difficult but sometimes positive collaboration between institutions. The research suggests that there is space and need for local knowledge in future conservation. It has highlighted the importance of the monastery in people's lives and in environmental governance, and the elements of Buddhist doctrine which could form the foundation for an environmental ethic. There exist norms of non-extraction on

divinities embodied in the landscape which have the potential at least in some cases to prevent extractive use.

The current management system has areas of strength – the fact that some parts of local government policy and the way they are communicated builds on local religious understandings for instance, but there are indications of problems and conflict: illegal logging, the lack of livelihood diversity and failures in the ‘Grain for Green’ scheme. There is the potential for much better collaboration between institutions and actors. Deforestation and hunting of wildlife have generally decreased during the last 10 to 15 years, but there are areas of conservation concern which could be targeted. Firewood extraction is likely to have increased during the last half century due to population increases, and this was reported by local people. Although a generally sustainable approach is taken by coppicing oak for firewood, the resulting degradation may affect the habitat of wildlife populations including pheasants. There could clearly be improvements in reforestation efforts to increase biodiversity and habitats. Further research on the impact of caterpillar fungus and matsutake extraction on grassland and forest ecology is required, to improve sustainability.

Given the critique over attempts to divide people from their environment, the challenge facing conservation becomes “not to preserve ‘the wild’ but people’s *relationships* with the wild” (Adams, 2004: p.235). One type of relationship people form with the environment in Daocheng is through local gods in the landscape. This suggests conservation is not necessarily best served by the imposition of a protected area, but support for relationships that already exist and strengthening of connections between civil society, the government and monastery. Religious relationships with the environment, in terms of conservation aims – sustainability or protection – are generally positive. Being part of the cultural heritage, they are likely to be resilient, although that does not necessarily mean static. For example there has been a shift, at least in the monastery towards a more Western environmental discourse. In encouraging these relationships, conservation should also be empowering local people, and supporting their culture.

The World Pheasant Association, a conservation NGO, has had links with Daocheng for the last eight years, largely through ecological research. The general philosophy of the organisation, which focuses on promoting goodwill amongst people and emphasising the cultural significance of pheasants, fits well with a locally driven and participatory approach to conservation. The location of Daocheng in a Tibetan region of the China, however, brings particular challenges for an international NGO, and for a community approach. Having outlined the general implications of the work, I discuss and point towards potential directions for future work in the specific locality of Daocheng County. I firstly examine the different groups of people

who need to work together for successful conservation. Community based conservation cannot be pursued by any one group and requires new institutional frameworks (Adams & Hulme, 2001). Secondly, I set out ideas for a participatory approach in Daocheng. Given the political system in China how could rural Tibetans participate in conservation and natural resource management? I lastly look at the livelihood situation and how it could be diversified.

Actors and institutions: confronting conflict and working towards collaboration

The study has highlighted the uneven relations of power, and different understandings of the environment by groups which are somehow involved in natural resource management. Development in practice tends to be driven not by policy but by the multilayered complex of relationships and the culture of organisations involved (Mosse, 2004). Table 8.1 gives a simplified summary of the interest groups in Daocheng, and draws attention to differences and overlaps in values and benefits gained from ecosystems, primary interests, means of gaining benefits and scope of power. No one group takes a purely exploitative approach to the environment; all have interest in sustaining ecosystems, but with different perspectives and particular benefits gained and at different scales. The government tends to use rationalist and scientific discourse, focused on economic improvements and restoration of the environment and state stability. Civil society relationships with the environment are grounded on multiple concerns of continuing convivial relations with local gods, karmic and moral responsibilities towards living things, negotiated against sustaining livelihoods and economic prosperity. But there are multiple and interpenetrating discourses, positive institutional relationships, areas of contestation as well as agreement in Daocheng.

Relationships with positive effects on the environment have formed between the monastery and the government, and this is a point of opportunity for future work to improve outcomes. There remain, for example, mismatches between traditional areas of extraction and the legal status of land. The monastery is an important institution and the burgeoning environmentalism emerging there could be built upon for future conservation, but would need to be dealt with carefully given the political sensitivities regarding religion. Some government initiatives illustrate a mismatch in perspectives. Where a sacred site has been officially acknowledged by the state in Daocheng, it has become the focus of concerted efforts towards national tourism which brings problems not only to the environment but local culture and livelihoods. Perspectives by different groups also depend on the scale of concern (Reid et al., 2006). The rural communities are interested in access to local resources, the Daocheng government in generating income from County wide tourism, and national government in

watershed protection at a regional level. In an increasingly globalised world, linkages between groups and natural resource claims across scales grow, and these need to be understood to manage the environment. The distribution of benefits across groups is important in legitimacy, so that if the local community see a loss in benefits or control of resources, the system is undermined (Adger et al., 2005).

Adding a further dimension to institutional relationships through the involvement of an international NGO is likely to complicate the situation with potentially negative outcomes. Conservation NGOs are often the party in a position of authority in unsymmetrical relationships of power with communities, in which systems of governance are mostly produced through knowledge making coming from the West (Brosius et al., 1998). Outside intervention from the World Pheasant Association or other organisations should come in the form of support, facilitation and aiming to build consensus on approaches between groups. There is a problem of lack of trust due to historical relationships between the state and civil society Organisations which form a 'bridge' between different groups, supporting collaboration and negotiation and supporting policy negotiations, can be a key element in governance systems (Folke et al., 2005). Conservation NGOs would need to work with and between leaders and groups, negotiating the loci of power including the village committees, leaders, party secretary, and township and county government.

Table 8.1 Interest groups in environmental conservation in Daocheng; based upon Brown (1998)

Group	Values on environment	Scale of influence	Source of power	Interests/aims	Means
Rural Tibetans (agriculturalist/pastoralist)	Direct provisioning services for livelihoods Local regulating services Cultural – religious value	Local	Limited Through village committee & village leader	Livelihood maintenance and enhancement incl: caterpillar fungus trade; fuel-wood; timber; medicinal plants. Ensuring harmonious relations with local gods and karmic good fortune.	Subsistence agriculture and pastoralism; trading; purchasing; legal and illegal extraction of resources; religious norms.
Entrepreneurs/ Traders	Provisioning and cultural services (dependent on trade)	Local	Limited lobbying power	Caterpillar fungus trade, improving infrastructure, tourism.	Small business enterprises; buying and selling to local people and tourists
Local township government	Local regulating and provisioning services	Local	Administrative	Meeting targets set by County; tree planting; forest protection; reducing forest fire; conserving wildlife; ensuring good social relations and sufficient resources for local residents.	Monitoring; imposing fines; working with village leaders; information distribution
County government	Regulating services	National	Legal; scientific discourse	Meeting targets set at Provincial level – as above; increasing revenue from tourism	Monitoring local government activities
Monastery	Largely religious value; Also provisioning services	Local	Significant at local level; traditional authority; political discourse	Maintaining community social relations with environment	Ritual; teaching.
Tourists	Recreation and aesthetic value	National/ international	Revenue generation	Landscape protection; wildlife; infrastructure e.g. roads and hotels	Purchasing
Conservation NGO	Existence value	International/ national/local	Funding; global environmental discourse; networks in China	Conserving biodiversity primarily; maintaining supporting services of ecosystem functioning; human welfare	International legislation; lobbying; funding projects

The term ‘participation’ can often be a masquerade for quite a different range of processes, meaning cooption and consultation rather than allowing people to be active agents in conservation (Ribot, 1999; Swatuk, 2005). Deliberation – an inclusive process of sharing information and collectively considering issues – can work to organise and validate different values, perspectives and knowledge to support well informed and socially legitimate decisions especially where there is mistrust amongst groups (Stern, 2005). This process gives people better incentives to uphold norms and sanction violations. In China, participatory approaches to community projects such as these are in the early stages of development, and generally policies are implemented using a top down approach (Plummer, 2004), thus not confronting power imbalances and underlying conflicts (Brown, 2002). Given the political situation in Tibet, projects initiated by local people can be viewed with suspicion. In the last ten years there has emerged local environmental movements in Tibet which draw upon Western ideas and indigenous Tibetan ones (Shielding the Mountains, 2010), but since 2008 organisations have been closed down and local people sometimes arrested for environmental activities which are deemed subversive (e.g. Phayul, 2012). This suggests that any project requires the full consent and participation of local government, who will need to see the benefit of participation by local people.

Although the Chinese government largely leads through command and control processes, in reality, given the scale of the country, the local level government has significant authority and room to interpret policy. In Daocheng, there appear to be some local innovations, for example the employment of a local monk as a forest manager. There is, however a tendency for risk aversion amongst local government employees, alongside trust issues due to the historical associations of ‘participation’ with mass mobilisation in political campaigns (Plummer & Taylor, 2004). The sacred sites around villages in Daocheng form the possible basis for local community based programmes. Several organisations have tried this approach in China in the past. Conservation International implemented a ‘Tibetan Sacred Land Project’ between 2005 and 2008 in Eastern Tibet, the aim being to revitalise Tibetan cultural values as an “effective measure for creating and expanding the number of community based protected areas” involving community based environmental monitoring, training of leaders, knowledge exchange programmes and grant giving to community groups (CEPF, 2008). Another project carried out by the Alliance of Religions and Conservation and WWF-China, based around a Daoist sacred mountain, aimed to formally recognise sacredness, develop an ecological training centre and encourage sustainable tourism (ARC, 2008). These types of project show the potential which

exists to develop conservation projects centred on culture in minority areas of China, and any lessons from previous projects should be built upon through open dialogue with these organisations. Whether a similar style of project is feasible after 2008 is uncertain, but a project focused upon nature conservation rather than education or development is likely to be viewed more favourably by the government in the current political climate.

Given the nuances described in this thesis, and difficulties discussed in this chapter, sacred sites should not be the basis for an entire programme of work, but rather local knowledge and participation should be built upon more generally. This also ensures that attention is not diverted away from wider relationships with the environment including broader religious ethics and livelihoods. IUCN guidelines suggest that conservationists could aim to support 'cultural revival' and the 'resanctification' of sites (Wild & McLeod, 2008), which poses the ethical difficulties discussed above. In Tibet, cultural revival is already underway but is being closely managed by the Chinese state, and intervention in this respect would require especially sensitive treatment. The sacred sites are anchors for cultural identity, and also therefore seen as potentially threatening by the government. Likewise, any project which appears to be aligned with top down regulations is likely to result in resentment from local people who see the sites as belonging to the community and monastery. Indeed, in Samdo, the government has handed over responsibility to some extent. Local people and local government will be in the best position to lead the project, with facilitation, funding and information provision from an outside organisation.

A fully participatory, deliberative, and equitable process is an ideal, which would need to be adapted for the social and political setting, into what Grumbine & Xu (2011) call 'conservation with Chinese characteristics'. In China, where economic reforms have preceded socio-political reform, participation may take a different form, or be incremental (Plummer, 2004). It is worth noting that Daocheng on the whole has not been at the centre of political unrest which has been further north in Kham, and the county Forestry Bureau have been supportive of WPA's work so far, although how far this will extend is uncertain. The initiation of any project would require open communication with local authorities to explore and negotiate possible avenues for improving local participation. Given that the environmental situation is not deteriorating in this particular area, though improvements to management could be made, it is a very real possibility that the barriers to an effective community conservation programme at this time may be too great for a fully realised project, and rather small targeted interventions are more possible, for example small scale habitat restoration, or a participatory environmental education programme.

The community includes a range of different people, with varied livelihoods and skills, who would need to be taken into account in any project. Some people such as the poorest or women are likely to be marginalised from decision-making, but their inclusion is important for social equity. For women, who take an important role in natural resource extraction, there may be practical barriers to involvement such as heavy workloads and less experience with communication, which need to be acknowledged and accommodated. For example, a building block approach could be taken, starting with small women's groups. Best practice in participatory or co-management approaches, in which there is shared responsibility, involves leaders and agents of change who are important in conflict resolution and facilitating vertical and horizontal linkages (Olsson et al., 2004). In Daocheng the village leaders are well respected, have widespread legitimacy as they have been democratically elected, and are recognised by local government. They already play a role in the mediation of disputes, and welfare in the community. Other people from traditional power bases may also be important, as well as their kinship ties. The thesis has primarily focused attention at the local level, whilst recognising wider social influences, but it is not enough to have support from local people alone, and ultimately there may need to be broader facilitating policies at a wider level, through environmental policies, legislation and market changes (Tompkins et al., 2000).

Diversifying livelihoods

One of the key values placed on the environment for local rural Tibetans is the livelihoods they gain from it, but these may conflict with government policy and conservation approaches. The communities of Daocheng, especially in the north of the county, are heavily reliant on caterpillar fungus, and the trade has become economically and culturally integrated into their lifestyles (Chapter 5). If the market declined due to regulations, a fall in price or overexploitation, it would be potentially disastrous for the local people. Diverting some livelihood activity towards alternatives could remove pressure from the grassland, and provide a back-up in the case of market decline. Indeed, livelihood diversity is an important element for resilient rural communities (Ellis, 2000), and in Tibet, rising incomes may be hiding the erosion of asset based subsistence through population and economic pressures (Fischer, 2008). In Daocheng, and more broadly in Tibet, rural Tibetans find it difficult to access livelihood opportunities due to lack of skills and education. The government approach has generally been to provide subsidies to rural people. In the case of the 'Grain for Green' programme cash was given for perceived conservation actions, which has problems of lack of sustainability both ecologically and economically (Chapter 4). This is largely due to the criteria for success of the project being

increasing forest cover or simply counting number of trees planted, while measures of success would be multi-dimensional, including equity, economic benefits and sustainability (Pagde et al., 2006).

Alternative livelihood options which Tibetans could integrate into their lives would need to be attractive within the cultural norms regarding dignity i.e. not considered menial, and adapted to local skill sets, whilst meeting economic expectations and environmental aims. In Daocheng, and even locally in Samdo township, growth of locally controlled business could focus on those trades where rural Tibetan may have an advantage (Fischer, 2005), including crafts, medicine, livestock products, and given the growing tourist industry – guesthouses and hotels. The problem with tourism, even that attempting to be ‘eco’ or ‘sustainable’, is that it tends to morph into something much more intensive, with environmental implications (King & Stewart, 1996; Harris, 2008). Only a small percentage of benefits from tourism may even reach poor communities unless purposeful strategies are in place to ensure a locally led industry (Mitchell & Ashley, 2007).

Summary of specific recommendations for Daocheng

- Given the sensitive political situation in Daocheng, initial interventions should be perceived as politically neutral and not religiously based with clear conservation goals for example habitat restoration, reforestation, biodiversity monitoring. As far as possible these activities should foster positive relationships with the environment, thus they should be participatory from the start, engaging communities carefully through the process rather than alienating them.
- Conservation organisations (most likely the WPA) should take a ‘bridging’ role, facilitating collaboration between institutions and people, and ensuring participation by the local community and open communications with local government. The positive relationships already built with the county Forestry Bureau should form the foundation for extending connections with other areas of government.
- Village leaders and elders are a key point of entry into communities but should not preclude the participation of marginalised groups including women who are important players in natural resource management; and poorer or socially excluded households to ensure benefits and costs from interventions are equitably distributed.
- To some extent the aims of the monastery and local government align with regards to conservation. The formal role of the monastery in forest management in Samdo should be built upon, supported through training and extended to other communities. A better

alignment of illegality and sacredness in land management could be one practical aim when encouraging collaboration between the monastery and the state.

- Before any intervention involving sacred sites or religion, a process of lesson learning from previous projects in the region should be undertaken through dialogue and /or workshops with NGOs, government and community leaders.

The resolution of conservation problems with local communities will involve understanding and respecting different worldviews. Rather than romanticising or sidelining other types of knowledge, conservationists should be incorporating it into their work. This involves working with people rather than against them to find practical solutions. Building personal connections with communities and other actors is a key to success. The methods used in this thesis allow a presentation of the situation at one locality, but the complexities found here will be reflected anywhere around the world. There are not only important religious values, but livelihoods to consider, and a variety of interest groups set within a layered institutional context, which only an interdisciplinary research approach can successfully navigate through to understand environmental change. Human cultures shape and are shaped by ecosystems in dynamic interactions, so that conservationists cannot afford to ignore these relationships in working towards the long-term sustainability of socio-ecological systems.

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Appendix I - Tibetan words

Tibetan transliteration is based on Wylie (1959).

Phonetic	Wylie transliteration	English translation
Amdo	a mdo	region of Tibet
Anye rakang	a nye sra skang	<i>yul-lha</i> in Mengsi township
Bangchu	dbang chu	township (Chinese: Banghor)
Bengpo (Gompa)	spang phug dgon	Bengpo monastery in Samdo
Beshing shamo	be shing sha mo	matsutake mushroom
Buya	phe yag	village in Banghor township
changchub semspa	byang chub sems dpa'	bodhisattva
Chatreng	phyag 'phreng	place in Kham (Chinese: Xiangcheng)
Chenresig	spyen ras gzigs	bodhisattva of compassion
chinlab	byin brlabs	blessing
chö	chos	Dharma
chökhang	mchod khang	shrine room
chorten	mchod rten	Stupa (Sanskrit) / reliquary
choskyong	chos skyong	protective deity
chu-dag	chu bdag	water owner/spirit
Chu-zhi gang drug	chu bzhi sgang drug	'Four rivers six ranges' resistance movement
Chyagna Dorje	phyag na rdo rje	bodhisattva of power
Dabpa	'dab pa	County (Chinese: Daocheng)
dagpo	bdag po	owner
dendrel	rten 'brel	Dependent origination
De'ra	stag ra	1 st village in Samdo
Desa	sde sa	village in Chitu township
Diden	bde ldan	3 rd village in Samdo
digpa	sdig pa	sinful deeds
dip	sgrib	pollution
dompa	sdom pa	vows of Buddhism
Donka	sdon kha	<i>yul-lha</i> in Souchong
Dorje	rdo rje	Vajra / diamond
Dorjeatsum	rdo rje rgyal mtshan	name of lake & <i>lu</i> in Samdo
Dorjetsemo	rdo rje rtse mo	territorial deity in Samdo
Dranam gompa	drag nam dgon	Dranam monastery in Banghor
Dra-ye	grag bzhal	name of <i>yul-lha</i> in Samdo
drokpa	'brog pa	pastoralist/nomad
droma	gro ma	Silverweed (<i>Argentina anserine</i>)
Drongshen	grong sbyin	2 nd village in Samdo
Drujie je chung	brug rjes bya khyung	<i>ne-ri</i> in Souchong
Drujie (gompa)	'brug rjes dgon	Drujie monastery
Drung-go gompa	khrung mgo dgon	Monastery in Yading
drupen	sgrub dpon	meditation retreat teacher
Drupo	sgrog pho	<i>yul-lha</i> in Samdo
dugdal	sdug bsdal	sorrow
dugsngal	sdug bsngal	suffering
dul	'dul	subdue

dze	mdze	leprosy; skin disease
ganglha metok	gangs lha me tog	snow lotus (<i>Saussurea medusa</i>)
Garze	dkar mdzes	Garze / Ganzi (place name in Kham)
Gatzong	dga' tshong	name of <i>yul-lha</i> in Samdo
gelong	dge slong	fully ordained monk
Geluk	dege lugs	school of Tibetan Buddhism
go	mgo	head (of caterpillar fungus)
Golok	mgo log	Golok (place name in Amdo)
gom khang	sgom khang	meditation house/cave
Gonbar	gan 'bar ru	a <i>ne-ri</i> in Shengmu township
gon-khang	mgon khang	protector temple
Hangda	hang bdag	<i>yul-lha</i> in Chitu township
jadam	lcags sdam	ornate cabinet
Jampalyang	byams dpal dbyangs	Bodhisattva of wisdom
jigtenpa'i-lha	'jig rten pa'i lha	worldly gods
jigtenlasdasp'ai-lha	'jig rten las das pa'i lha	supra-worldly gods
Kagyü	bka' brgyud	school of Tibetan Buddhism
Karma Kagyü	ka rma bka' brgyud	lineage of Kagyü school
Karmapa	(rgyal ba) karma pa	lineage of lamas, head of Karma Kagyü school of Buddhism
katag	kha btags	ceremonial scarf
Kembel	mkhan po	abbot
Kham	khams	Kham (region of Tibet)
khang-chen	khang chen	'big house'
khang-chung	khang chung	'small house'
kha-len	khas len	promise/vow
Khongsar	khong gsar	4 th village in Samdo
khoryug	khor yug	environment
kor	skor	circumambulate
la ja	la-rgya	honour/loyalty
lay ju dray	las rgyu 'bras	karma
Litang	li thang	Litang (place name in Kham)
lha	lha	god/deity
lha ma yin	lha ma yin	demi-god
lha to	lha mtho	deity shrine
longta	rlung rta	prayer flags (literally 'wind horse')
Losar	lo gsar	Tibetan New Year
lu	klu	water spirit
lu-khang	klu khang	water spirit shrine
lu-na	klu-nad	water spirit illness
mani (stone)	ma Ni	stone inscribed with mantra of Chenresig
marme	mar me	butter lamp
Menri	sman ri	<i>yul-lha</i> in Chitu township
mi	mi	human (realm)

mi-chos-tsangma-	mi chos gtsang ma bcu drug	16 human pure laws
chu-drug	mi dge ba bcu	Ten Buddhist prohibitions
mi-ge-ba-chu	mo	divination
mo	mo pa	diviner
mo-pa	dmyal ba	hell realm
myalba	nags mo	<i>yul-lha</i> for Yading village
Nakmo	gnas ri	‘sacred mountain’
ne-ri	gnas skor	pilgrimage
ne-kor	gnas sa	sacred land /valley
ne-sa	gnas mtsho	sacred lake
ne-tso	mnga' ris	region of Tibet
Ngari	rnga ba	place in Kham (Chinese: Aba)
Ngawa	gnod	harm
no'	nyin rten	Place Daocheng county (Yading)
Nyen-ten	nyes pa gsum	three humours of the body
nyepa sum	nyi lda mtshan lda	auspicious dates
nyida tsanda	rnying ma	school of Tibetan Buddhism
Nyingma	dpa' bo	hero
pabo	pa ka	mountain area in Samdo
Paka	spang rgyan	Gentian (<i>Gentiana crassicaulis</i>)
Pang-jen	bad kan	phlegm humour
paygen	ped ma	<i>Fritillaria cirrhosa</i>
pema	phun (sum tshogs pa)	perfection (good luck)
pu (sum sho'pa)	rigs gsum mgon po	3 protector bodhisattvas
Rigsum Gonpo	rkjen	misfortune
jen	sa bdag	earth spirit/owner
sa-dag	sa skya	school of Tibetan Buddhism
Sakya	rnyul chu	Salween river
Salween	bsam mo	township (Chinese:Shengmu)
Sammo	bsangs	purify (smoke offering)
sang	gser-thar	place in Kham (Chinese: Seda)
Serta	gza' bzang	<i>yul-lha</i> in Mengsi township
Sa-sang	zha sgang	5 th village in Samdo
Shagong	sha mo	morel mushroom (<i>Morchella spp</i>)
Shamo	shing bdag	wood owner/spirit
shing-dag	skyid po	happy
shippo	srid pa' 'khor lo	Wheel of Existence
Shri pai khor lo	sril shang	name of <i>yul-lha</i> in Samdo
Sohong	gzo ka na	<i>yul-lha</i> in Chitu township
Sokana	gsol	make offering
sol	sro lo dmar po	Golden Root (<i>Rhodiola crenulata</i>)
solo marpo	bsod nams	merituous good fortune
sonam	so shis dpa' dage	name of <i>yul-lha</i> in Samdo
Soshi-pa-ge	gso ba rig pa	(science of) Tibetan medicine
sowa rigpa	gsum tsang	Village (Chinese: Souchong)
Sum-tsang	thar gling	name of <i>yul-lha</i> in Samdo
Taleng	thang ka	hanging scroll painting
tangka		

tolaji	tho la ci	tractor
Tragger	khyag rgyes	<i>yul-lha</i> in Shengmu township
trapa	gra pa	monk
tsen	btsan	warrior deities
Tsongra	tsong ra	name of <i>yul-lha</i> in Samdo
tsul trim	tshul khrim	moral discipline
tulku	sprul sku	incarnate lama
U-Tsang	dbus gtsang	region of Tibet
wang	dbang	blessing
wangcha	dbang cha	power/authority
yagpo	yag po	good
yartsa gunbu	dbyar rtswa dgun 'bu	caterpillar fungus (<i>Ophiocordyceps sinensis</i>)
yidak	yi dwags	hungry ghosts
yidam	yid dam	tutelary deity
yongchab	yon chab	water offering
yul-lha	yul lha	local god
zhi-dag	gzhi bdag	foundation owner

Appendix ii – Household questionnaire

1. Demographic information:

- 1.1. For each person in the household, please give the following information (include those living away who are contributing to household materials and income):

Person	Relation to head of household	Sex (M/F)	Age (years)	Education (0-3)*	Occupation (any work that contributes to the household livelihood & ordered by contribution to overall livelihood).
1 (interviewee)					1. 2. 3
2					
3					

*Education: 0=none; 1=primary; 2=secondary; 3=higher

- 1.2. How long have you lived in this village?
1.3. If not born here, where did you come from?

2. Income and livelihoods:

- 2.1. Which of the following does your household have?

Motorcycle

Tractor

Storey house

Jewellery

Display cabinet (rgya.sdam)

Shrine room (chos.khong)

- 2.2. Do you receive government subsidies? (di bao; wu bao hu)
2.3. Number of livestock:
2.4. Amount of land managed (mu):
2.5. How much of the land is given over to sloping land conversion program?
2.6. Approximate size of house (m2):
2.7. How much did your household earn in the last month?
2.8. How much did your household earn in the last year?
2.9. Is this typical of previous years?

- 2.10. In relation to all other households in this valley, do you consider your household to be:
Wealthy Comfortable Managing Poor

2.11. Compared to 10 years ago, do you consider your household to be:
Wealthier the same Poorer

2.12. What are the reasons for this change?

2.13. Compared to 10 years ago, do you consider your valley to be:
Wealthier the same Poorer

2.14. What are the reasons for this change?

3. *Harvesting of natural resources:*

3.1. For each wild product harvested by someone in your household, please give the following information:

Product	Who collects?	Season	Amount collected last season	Units	Proportion consumed at home and sold	Sold to who? ¹	Average price per unit (RMB)	Change ²
Yartsa gunbu								
Firewood								
mushrooms								
Plants (specify type)								
Matsutake								

¹ 1 – sold to someone in the village; 2 – sold to an outside trader

² Change in amount collected in last 5 years = 0 remained the same; 1 – increased; 2 – decreased; and give reason.

- 3.2. For each wild product, please show on the map where household collects it.
- 3.3. How does the location of collection vary seasonally for your household?
- 3.4. How has the location of collection of these products changed through time –for your household / and for the valley?
- 3.5. For each product please show on the calendar when your household collected it in the last year.

Timber

- 3.6. When was your house constructed?
- 3.7. How much timber was used?
- 3.8. Where was the timber obtained from? (locate on map or describe)
- 3.9. How much did you pay? (RMB)

Religious behaviour:

- 4.1. What rituals/rites have been performed for your household in the last year? (zhabs brtan / rim gro). Show on the calendar when these rituals were performed.
- 4.2. What rituals (dbang skur) have monks or lamas performed for your valley in the last year? Show on the calendar when these rituals were performed.
- 4.3. When have lamas visited the local area?
- 4.4. What did he/they do?
- 4.5. When has someone from your household attended religious teachings in the last year by the lama? (show on the calendar) Who?
- 4.6. What kind of ethical content was involved?
- 4.7. What vows/promises did anyone in your household make to the lama?
- 4.8. What are the pilgrimage sites in Daocheng/Dabpa?
- 4.9. When did someone in your household visit the sites in the last year?
- 4.10. What kind of ritual activity was performed?
- 4.11. Which local gods exist in this valley? (confirm with map)
- 4.12. Which of these local gods did someone in your household take offerings to/ propitiate /visit in the last year? (Show on the calendar when this happened)
- 4.13. What do you do when visiting the deity?
- 4.14. What are you allowed and not allowed to do on the land of the local god?
- 4.15. How do the things you should not, differ between each deity? (show map)
- 4.16. How do you distinguish the boundary of the deity domain?
- 4.17. What other kinds of actions not on the abode of the local gods may affect them? (e.g. ritual pollution?)

Local gods and the environment:

- 5.1. How have people actually offended the local area gods in this valley? Give specific example.
- 5.2. What were the consequences for:
the individual
the household
the local community?
- 5.3. How did local people treat the offending person and household?
- 5.4. Who took responsibility for dealing with the person? What do they do in response? (e.g. fines, punishment, rituals)
- 5.5. Have you yourself seen anyone doing something they should not do on the land of local gods? What actions were these?
- 5.6. What did you do in this case, and why?
- 5.7. What would you do if you saw someone carrying out these actions (mentioned above) on the abode of the local gods?

Deal with the person yourself – how?

Or report to:

- i. Village council/leader
- ii. Monastery
- iii. Forestry bureau
- iv. Police
- v. Someone else
- vi. Do nothing

- 5.8. Why do you think this is the appropriate thing to do?
- 5.9. What would be your response if you found someone doing these things on land with no gods present?
- 5.10. Who owns the land where the gods reside?
- 5.11. Who is responsible for managing/protecting this land?
- 5.12. If the forest on land with no gods was cleared, what would happen?
- 5.13. What about if the forest on land where the gods abide was cleared?
- 5.14. Before the Chinese government laws, what were the customary rules on cutting down trees, collecting firewood and hunting?

6. *General environmental change*

- 6.1. How have the forests in the valley changed compared to the past? (and explain where)
 - Fewer trees
 - More trees
 - Different types of trees
 - Newly grown trees
- 6.2. Why has this changed occurred?
- 6.3. Can you explain what the following policies are, and how each has affected your valley and your household:
 - National Forest Protection Programme
 - Sloping Land Conversion Programme
 - Hunting policy changes
- 6.4. Are there any types of wildlife that you used to see, that does not exist here anymore or have decreased in number?
- 6.5. Are there any types of wildlife that you did not see, but you do now, or have increased in number?
- 6.6. How did these changes happen?
- 6.7. Have you seen/heard of anyone hunting animals in this village; this county?
- 6.8. What are they hunting?
- 6.9. How would you like to see this valley develop in the future?

Appendix iii – Quantile probability plots before and after square root transformation

