

The Role and Practices of Traditional Culture in The Tibetan Plateau Ecosystem: A Systematic Review

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Abstract. The Qinghai-Tibet Plateau (QTP) is known as the roof of the world. Climatic conditions and living environments in the QTP are extreme. Yet, its environment is vital for species conservation, freshwater resources and local livelihood. In recent years, the Tibetan Plateau's ecological environment has been degraded by climate change and human activities. Traditional Tibetan culture offers a new perspective on this issue of environmental degradation. Tibetan people, motivated by religion and custom, are kind to living beings as well as mountains and lakes. The sacred sites are therefore relatively well-preserved ecosystems. However, traditional knowledge alone is inadequate for preserving this endangered environment and should therefore be combined with modernity. An ecosystem service-based economy has the potential to balance culture, techniques, ecosystem health and economic growth.

Keywords: Qinghai-Tibet Plateau, Traditional ecological culture, Service-Based economy, Environmental protection, Biodiversity.

1. Introduction

As the highest elevated plateau in Central and East Asia, the Qinghai-Tibet Plateau (QTP) is heralded as the “roof of the world” (Yao et al., 2012). It stretches roughly 1500 kilometres north and 3000 kilometres south, covering roughly 2,500,000 square kilometres (Li et al., 2013; Wang et al., 2019). Due to its latitude (26°N–40°N), the QTP has extremely cold temperatures. It also has the largest glacial ice volume in the Earth's middle-latitude region (Xu et al., 2008; Yao et al., 2012). The plateau is an important world ecological reservoir of alpine biodiversity. It serves various ecological functions, including controlling water resources, and hosts ecological services, including tourism and aesthetic recreation (Wang et al., 2016; Dong et al., 2020). However, the QTP's ecology is being degraded by such factors as climate change and human actions. This situation is alarming but not surprising. According to Qu et al. (2019), numerous metal irons derived from mining activities have been identified as causes of heavy pollution in rivers and lakes in the Tibetan Plateau. The water quality in Lake Hurleg in particular has declined significantly. Furthermore, grasslands in the QTP have shrunk by approximately 38.8 per cent (Wang et al., 2016). Climate change accounts for 56.7 per cent of grassland degradation (Wang et al., 2016), and population growth, overgrazing and rodent damage have been proven to be other drivers (Harris, 2010). Additionally, glaciers have been melting; loss of glacier mass has been especially marked in the southeast of the Tibetan Plateau and Himalayas, whose glacier loss accounts for approximately 30 per cent (Zhang et al., 2021). Yao et al. (2012) concluded that albedo reduction accelerates glacier melting.

In recent years, Traditional Ecological Knowledge (TEK) has received more recognition in conservation biology and ecosystem management than it had in the past (Armstrong et al., 2007). TEK is a “knowledge-practice-belief” complex. It includes local observational knowledge of species and environmental phenomena, resource utilisation practices and beliefs about how people relate to nature (Berkes, 2000). This kind of knowledge propagates across generations and has religious overtones. Tibetan ecological culture – an expression of the relationship between humanity and nature – is deeply influenced by both Bon religion and Tibetan Buddhism (Zhang, 2013). Many scholars and institutions have re-examined the relationship between this culture and modern ecological conservation. However, that body of research has merely expressed traditional culture's ecological effects and described real-world projects for tackling environmental challenges systematically.

This article will first evaluate the extent to which the traditional culture on the QTP is beneficial to eco-conservation and then examine TEK's limits. Finally, this article indicates practices that could integrate TEK with modern protective measures.

2. Traditional Culture' Active Role in Ecological Conservation

TEK has a positive impact on QTP locals' attitudes and behaviours towards biodiversity and the environment. Shen et al. (2012a) found that villagers with high traditional practice index (TPI) scores had more positive attitudes towards eco-conservation and more actively participated in conservation efforts than did villagers with low TPI scores. Their regression analysis also showed that species richness, the Shannon–Wiener index and the number of individual birds increased as an indirect proportion to villages' TPI scores.

Tibetan people's religions and harsh living conditions have led to them developing a lifestyle and culture that are in harmony with nature. They believe that everything in nature – including heaven, mountains, forests, rivers, grass, wood, stones and springs – has a soul like human beings do (Zhang, 2017). For example, Tibetan people commonly revere water and consider its waste to be a blasphemy against the god of water (Du et al., 2021). Moreover, “sky burial”, a traditional Tibetan Buddhist form of funeral, is environment-friendly; bodies are left outside, beneath the heavens, where birds or other animals can consume them. Sky burials are a means of giving back to the wildlife, of participating in the circle of life (Britannica, no date). Tibetan people's ancestors did not understand the alien yet awe-inspiring forces of the natural environment and thus developed innumerable god systems. Those systems developed into Bon and Tibetan Buddhism (Zhang, 2013). Through their two native religions, Tibetan people have forged a strong interconnection with Mother Nature. That connection is evident in the taboos and sacred sites Tibetan people respect.

Taboos involve social and religious sanctions (Berkes et al., 2000). In Tibet, numerous taboos and religious precepts govern all aspects of people's lives, including worship, production and food (Zhang, 2013). Prescribed practices help people obey the rules. Hence, in QTP culture, all killing is discouraged and sacred sites (homes of deities, natural spirits and spiritual leaders) are revered and protected (Nan, 2001). Furthermore, Tibetan people believe that being kind to all creatures brings good karma (Feng, 2005). All of the flora and fauna in the territories are regarded as holy. These cultural customs and restrictions, which restrict hunting, grazing and logging, are the mechanisms behind sacred sites' eco-resilience (Anderson et al., 2005). Sacred sites can be divided into five categories: sacred mountains, lakes, forbidden areas and pilgrimage sites (Shen et al, 2012b). Dozens of biodiversity reserves have been established in and around traditional sacred sites (Pei, 2006). According to Yang et al. (2019): Tibetan sacred sites have ample vegetation cover, stable community structures and rich varieties of species; the ecological functions – including biodiversity; spirit support; and water, meadow and soil conservation – in a number of sacred mountains in Bazhu Village, Kegong Village and Zhuida Village, were assessed as well protected. Menri, which lies in southeastern Tibet and includes several sacred mountains, is another example. Menri differs from non-sacred sites in terms of useful and endemic species (Anderson et al., 2005).

3. The limits of Traditional Ecological Culture

There are several problems with traditional culture. Tibetan religious tenets have permitted numerous alien species to invade habitats – transmissions science would have advised against (Zhang, 2013). According to China's Ecological Environment Report (2020): more than 660 invasive species have been identified across China, 219 of which have invaded national nature reserves. Of those 219 species, 48 already pose a threat or have the potential to threaten natural ecosystems. Furthermore, herb collection, a traditional livelihood and source of medicine for Tibetan people, could be environmentally damaging. Local residents' over-exploitation of Matsutake mushrooms has led to a decline in natural habitats and biodiversity (Amend et al., 2010).

Additionally, most nature reserves in Tibet lack sufficient staff and funding (Shen et al., 2012b). Due to environmental laws' and policies' lack of legitimacy, local people's conservation behaviours are primarily guided by religion, which is mutable (Wilshusen, 2002; Shen et al., 2012b). Traditional ecological culture needs to be supplemented with modern approaches and support from private institutions and the government.

4. Intergrating Traditional and Modernity

An ecosystem service-based economy (ESBE), based on the community agreement protection mechanism, is intended to protect the environment and promote local economies through the marketisation and industrialisation of ecological products and services (Feng et al., 2020). The government and social organisations make decisions; they also fund and provide technical support to community residents. Residents take responsibility for protecting their communities' environments while benefiting from selling ecological products to the public (Chou et al., 2020). This economic model provides a new perspective for assessing the trade-offs between economic development and ecosystem sustainability. Moreover, it can combine traditional culture and modern measures, simultaneously spreading local culture and solving ecological problems. The Forest School, Banbiantian Women's Collective and Ecological Patrol are three practices an ESBE would support (Feng et al., 2020; Chou et al., 2020; Qinghai Daily, 2021).

Forest School: DLYH (Denglongyunhe), a social business, established the Forest School, with support from the local government, to tackle economic development and environmental protection problems in Zhonglu Village. DLYH planned to operate the community for 30 years. In December 2018, the Forest School was awarded a license by the Forestry and Grassland Bureau of Sichuan Province to become a forest-nature education base. Residents and visitors can attend courses on nature, art and ecological conservation developed by the education department in collaboration with the Forest School. Additionally, DLYH began building-improvement projects. While maintaining a Tibetan style, the designers and engineers used green energy sources and installed water purification devices to solve the problem of weak building infrastructure.

Banbiantian Women's Cooperative: Since 2013, women in the Banbiantian Women's Cooperative in MZ Village have combined "tradition" and "modernity" to produce and sell traditional Tibetan handicrafts whose aesthetics appeal to domestic and foreign publics. The women weave and sew local natural materials such as goat's hair and fleece, and their handicraft designs incorporate customary symbols. This cooperative contributes five per cent of its annual profits to ecological protection funds.

Ecological Patrol: The Ecological Patrol aims to boost residents' participation in eco-protection practices. It is based on the Benkang Limin Cooperative and Banbiantian Women's Cooperative. Twice a year in October, the Eco Patrol team will organise a clean-up of the meadows and roads. Wildlife patrols will also be conducted along an eco-patrol route. Data on water quality and wildlife numbers will be collected using water detectors and infrared cameras. Furthermore, the community works with local primary schools to develop children's environmental awareness and encourage them to participate in eco-environmental initiatives. According to the feedback from local residents, wildlife populations, pasture quality and water quality have all improved thanks to ecological patrols and waste collection.

5. Summary

The traditional culture of the Tibetan Plateau has generally had a positive impact on ecological conservation. Over thousands of years, nurtured by a culture that reveres and cares for all living things, the Tibetan people have developed an environmentally friendly lifestyle and environmentally friendly forms of production. Tibetan people's worship at sacred sites has provided a solid foundation for establishing nature reserves. Tibetan people also contribute to biodiversity. Establishing bridges between tradition and science is critical. Doing so would preserve the virtues and avoid the vices of

both. An ESBE provides a path for navigating the trade-offs inherent to eco-protection, although it has its own challenges. For instance, a lack of managers and technical experts, simple industrial structure and relatively small market size would constraint the further development of new practices. In the future, the government needs to provide the financial support and policies to encourage social enterprises to invest in eco-friendly industries. Institutions such as the Forest School should be encouraged in order to improve communities' scientific literacy and environmental awareness. Furthermore, communities need to create incentives to attract more residents to adopt environmentally friendly practices.

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