

## Intangible Ecologies: Sacred Mountain Landscapes in a Changing Climate

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*Taksang, Bhutan (Elizabeth Fry)*

The potential implications of climate change for culture, sacred landscapes and human spiritual activity receive little attention from the media, the scientific community, or the public. However, most of the world's cultures place significant value on landscapes which depend on fragile ecosystems. In many cases peoples act as stewards and protectors of such ecosystems; their cultures and beliefs depend on the landscape and its particular form. Often the landscape depends on their maintenance and protection of it, especially in a rapidly-changing world. How will this change affect human interaction with the environment? What age-old knowledge and practices will be lost?

Mountain environments and the societies that inhabit them are profoundly impacted by global warming. This impact threatens not only to destroy the natural environment but to change the very nature of belief and ritual and even to alter sacred practices in these places. However, local knowledge can be tapped and mobilized in the service of conservation and environmental protection. Local communities are likely to be motivated activists and they know the landscape better than anyone else. They can thus work in close partnership with scientists and conservationists. Moreover, heightened awareness about the destruction of mountain ecosystems can help to motivate a wider concern for the survival of their cultures.

While it is sometimes large corporations or states that directly threaten mountain peoples' societies, the perpetrators are more often invisible and their effects on mountain environments are indirect. Thus the action that can be taken by mountain peoples to

protect the environments they consider sacred must often take the form of publicity about their plight. Sacred mountain sites and landscapes hold a great deal of potential for generating awareness about climate change. In them we find a unique nexus of culture and environment through which it may be demonstrated how global warming affects *people and culture*.

### **Impacts**

How does climate change transform human interaction with sacred mountain landscapes? Potential effects of climate change are of course diverse. To begin, changes are likely in the form, appearance and status of sacred lakes. This may include a potential water-level rise or, in the case of increased aridity or over-irrigation, an evaporation and fall in water levels. A related process is decline in the size of snowfields and glaciers associated with high-altitude sacred sites or with local beliefs about sacred mountains. A change in vegetation and greenery, whose intensity is often associated with particularly special sacred sites, could also be a culturally-relevant impact of climate change. Among transhumant cultures, we might see a different range of seasonal or daily movement between village and pasture, defined by snowmelt and therefore in altitude-based zones of purity such as those found in Northern Pakistan. Other environmental processes salient for cultural interaction with the landscape include deforestation, including that in highly-valued jungle and forest areas; desertification, including formerly verdant mountainsides; change in the course and water level of important and revered rivers; and the disappearance or diminution of certain animal species associated with spiritual beliefs and practices.

A thorough field examination of these dynamics would require an exploration of indigenous explanations for global warming, involving an in-depth ethnographic and ecological analysis of (1) local cultural perceptions of climate change; (2) above and beyond perceptions alone, the way that climate change has led to adaptations in behavior and practice; and (3) the actual ecological changes that have occurred and are likely to occur.

### **Examples and Manifestations**

While research on the topic is scarce, it is not hard to find real-life examples of the many ways that climate change is likely to affect cultural interactions with the landscape. Examples of actual impacts of climate change on sacred landscapes, discourses and perceptions of such change and strategies and solutions for dealing with it are abundant. For example, the Amarnath Cave in Kashmir houses an ice *lingam* associated with Shiva. A yearly pilgrimage, a *yatra*, has as its destination the cave. Climate change has purportedly been associated with a diminished lingam. In the past two years, there was reported to be insufficient snowfall which, coupled with glacial recession, failed to form a full-fledged lingam. In 2006, a lingam suddenly appeared which some believed to have been fabricated. In 2007, only a very small one formed, which then melted before the *yatra* began. While there has been some controversy on this matter, locals and *yatris* have blamed global warming. The important point here is, in part, the perception of the role of climate change in the realm of the sacred.

Peru's Qolqepunku Glacier provides us with a particularly interesting example of the nexus between global warming and sacred mountains. The *Wall Street Journal* of July

17, 2005 ran an article entitled “The Ukukus Wonder Why a Sacred Glacier Melts in Peru's Andes: It Could Portend World's End, So Mountain Worshipers Are Stewarding the Ice.” A Quechua traditional pilgrimage of some 40,000 people, called El Señor de Qoyllur Rit'i, involves climbing to 16,000 feet to harvest large blocks of ice from a glacier to use as part of a festival. The glacier has retreated 600 feet recently and its retreat is visible by the year. To appease the *apu* mountain gods here, pilgrims are now forbidden to extract ice from the glacier. They believe that the disappearance of the glacier is associated with the mountain god's departure. The water derived from the mountain's ice is thought to have magical healing powers and to form the *apu*'s semen for the fertilization of Mother Earth (*Pacha Mama*). Some indigenous Peruvians are said to associate the loss of snow from mountain peaks with the end of the world.

In a similar situation in Northwest Yunnan, the sacred Mingyong Glacier (Kawagebo to Tibetan Buddhists) on Mount Khawa Karpo (Meili Snow Mountain), whose presence is heralded by long threads of prayer flags, is disappearing. The Nature Conservancy points out a retreat of some 200 meters in four years, with an increasing shrinkage rate. Mountain trees are slowly moving up the slopes. The area faces not only the disappearance of the glacier but also threats to the villages down valley. The Nature Conservancy is working with villagers to adjust their activities in alpine areas to changing conditions.

In India, the sacred Ganges river is threatened by glacial retreat. The *Washington Post* (“A Sacred River Endangered by Global Warming,” June 17, 2007) points out that the glacier at Gaumukh-Gangotri supplies about 70% of the river's water and that it is shrinking by about 120 feet per year. Predictions hold that the river will eventually become seasonal. As can be expected, many Hindu environmentalist movements have emerged around this issue.



*Glacier at Gaumukh, Uttarakhand, India (G.Areendran)*

A Mountain Forum online discussion points to a very interesting indigenous approach to climate change. In Northern Pakistan, the practice of artificial glacier grafting, in order to create a new glacier, is widespread. The conditions for this activity are very particular, and local people are beginning to understand and describe it as a counteracting measure to climate change. Glaciers provide water through ancient carved slopeside channels in these areas. Such practices as glacier grafting, and their preservation are essential for the provision of water in arid areas and are excellent ways to think about indigenous practices which can resist global climate change. Many of the contributors to the discussion board from a number of mountain regions explicitly tied the practice to the attempt to take action against global warming and made observations about the ways that it has changed in the context of climate change.

### **Strategies, Approaches, and Solutions**

Mountain societies and the organizations that work with them are not powerless to do something about this catastrophic transformation. It is imperative that experts on and advocates in mountain areas begin to imagine and devise possible solutions and approaches to address the cultural implications of climate change. Potential awareness-generating activities and effective strategies for advocacy can be modeled on past successes. Indigenous reforestation and ecological restoration programs such as those pursued by Chipko in India or the WWF in Northern Pakistan, have proven powerful. National Parks can be an excellent vehicle for demonstrating the natural and cultural value of landscapes and the mobilization of sister park relationships between national parks can exploit the solidarity inherent in that partnership. Sister park relationships can provide a forum for mountain peoples to share a common experience and network common solutions, and for wider public audiences to learn about mountain areas.

Other effective solutions may include publicity campaigns demonstrating the loss of cultural heritage, which will accompany ecological destruction and sustainable tourism programs raising money for and enhancing visibility of the struggle of cultures whose landscapes are being changed by global warming. Perhaps most promising, however, are programs which empower local societies to take action against climate change. Local inhabitants of affected areas can be mobilized as stewards of the environment, with motivations for such activity couched in terms of cultural beliefs on sacred landscapes. Moreover, educational programs by local inhabitants of threatened landscapes for outsiders, explaining methods for sustainable resource use and reasons to protect the environment from their perspective to generate concern among outsiders. Such programs highlight the inseparable and intimate connection between people and landscape, between natural and cultural ecologies; they show that the fate of the environment and the fate of human habitats are inextricably intertwined. Stewardship of one is stewardship of the other, and both demand our attention.

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**The Mountain Institute's** mission is to advance mountain cultures and preserve mountain environments. Core initiatives include conserving high priority ecosystems in the Andes, Appalachians and Himalaya mountain ranges, promoting environmentally and culturally sustainable livelihoods for mountain communities and supporting the Mountain Agenda through advocacy, education and outreach for mountain communities.