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Traditional Architecture in Tibet

William Semple

Linking Issues of Environmental and Cultural Sustainability

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This paper examines the changing conditions, including accelerating environmental degradation and the influence of modernism, and the impact that these are having on Tibetan architecture and the Tibetan building tradition. Examples of architectural design and resource management projects throughout the region are used to explore how the cultural significance of building traditions and environmental resource management can provide a methodology to promote

preservation of traditional architecture and the natural environment. The issues examined and solutions explored could easily apply to other rapidly changing mountain regions of the world where the deterioration of natural resources calls for a richer understanding of the connection between environmental and cultural sustainability. The growth of ecotourism as an industry in many mountain regions gives greater weight to the issues discussed.



Builders and buildings: the Tibetan tradition

Traditional architecture, with its symbolic value and rich artistic embellishments, is one of the measures of the quality of the craftsmanship that exists within a society. For Tibetans, this is demonstrated in the high quality woodwork found in their

buildings. Their architecture portrays many aspects of Tibetan society and the variety of influences that have affected the culture over the centuries, particularly those of Buddhism.

Tibetan architecture also reflects the important blend of practicality and symbolism that exists in Tibetan society. While the Buddhist scriptures provide guidelines

FIGURE 1 Logs being gathered for house addition. In eastern Tibet—where wood is plentiful and houses are larger than in the west—houses are often referred to by the number of columns or pillars they have. (Photo by William Semple)





FIGURE 2 The community donates labor to the rebuilding of Litang Monastery. (Photo by William Semple)

for temple design and layout (including proportioning of structures), in resolving the span and proportions of a temple and other building elements, the master carpenter will often base his final decision on the quantity and size of the local materials available, allowing the practical reality to overrule the strict interpretation of the Buddhist texts.

Intermixed with this is the training of Tibetan carpenters, based on an oral tradition passed on from father to son and carpenter to apprentice. This is the tradition's strength and its weakness, providing the trade with social status while making it vulnerable to the impacts of dramatic outside influences. This was highlighted during the cultural revolution, when the destruction of temples and monasteries was accompanied by an attack on all cultural traditions, including that of the builders.

The stocking of wood timbers for a Tibetan building reflects another aspect of tradition and the collective importance of resources. Typically, whether for a monastery or a dwelling, the owner is responsible for collecting all the construction materials needed for a project (Figure 1). When the materials are gathered, the building is often constructed with a great deal of donated labor (Figure 2).

Woodwork plays an equally important symbolic role, demonstrated in the carved detailing found throughout traditional Tibetan buildings. Elaborate woodwork is executed on door and window frames, paneled doors for window openings, and the exposed parts of buildings such as awnings, rafters, and beams. In addition, both columns and capitals receive a high level of carved and painted detailing which, in architectural terms, gives them a special status in Buddhist iconography (Figure 3).

Tradition versus style

For Tibetan communities, preserving traditional architecture can thus mean not only ensuring sociocultural continuity but also making sure local livelihoods are maintained, based on more sustainable natural resource use. As part of an inter-

national team working under the auspices of the United Nations Development Programme on the development of an Ecotourism Plan for the Qomolangma Nature Preserve (QNP) in the Tibetan Autonomous Region of China (TAR), I was asked to design several buildings and develop design guidelines; I also assisted communities in establishing reforestation projects and helped them deal with the infrastructure demand from the growing domestic and international tourism industry.

Ecotourism and design guidelines

With its southern border shared with the mountain nation of Nepal, the QNP covers 33,819 km² and is among the highest nature preserves in the world. The preserve has a population of 34,000 people, ranging from nomadic herders of the high plateau to foresters and woodworkers of the valleys along the Tibet/Nepal border. It includes 4 mountain peaks over 8000 m, among which is Mount Everest (Qomolangma in Tibetan).

Ecotourism development was established as a goal for this region by the government of the TAR—its isolation, breathtaking landscape and Tibetan culture being well suited for this industry. While foreign travelers to the region are willing to spend more money for less infrastructure, where the draw is the experience of an authentic culture and natural environment, much of the existing situation in the QNP has not been supporting these values. Government buildings and hotels in the region have increasingly been constructed in the modernist Chinese style, using imported materials and builders for their construction.

Using the broad ecotourism goals of the project, and drawing upon past experiences in the Himalaya and my understanding of the economic impact that the construction industry has on local employment, I developed a set of design guidelines for the QNP which addressed more than just issues of 'styles' of buildings. It included specifying the use of local/traditional materials in construction, the use of local building methods, and the employment of local builders. The guidelines were a necessary criterion

for the Government to get UNESCO heritage status for QNP.

Designing for tradition

Another task was to design a QNP Training Center (Figure 4), an Administration Building/Guest House, and prototypes for Guest Houses and Park entrance buildings. In all cases, the designs were developed using traditional Tibetan architectural principles, including passive solar design features to improve energy efficiency. Structurally, the spans of the interior timber frame and load bearing capacity of the walls were designed to be fabricated entirely with local materials.

In addition, the designs re-introduced important traditional Tibetan spatial concepts that have largely disappeared from the institutional buildings being constructed in the region. Thus, the QNP Training Center has a characteristically Tibetan style. Spatially it uses the courtyard and enclosed circumambulatory hallway to establish movement in the complex. Careful consideration was also given to significant regional stylistic variations in the designs of the other buildings. For example, the entrance building near the Nepal/Tibet border utilizes a blend of Tibetan and Nepali styles: a Nepali style roof is complemented with Tibetan detailing, similar to the blending common in the region, particularly in the temples. Stylistic blending is typical of many areas of the world and of mountain regions, particularly where cultures have existed in greater isolation and the transition from one culture to another can be read in the decorative details and in the construction techniques of buildings.

Tourists interviewed during extensive fieldwork fully welcomed the return to a more traditional building form, lamenting the trend towards a building style typically found all over China today. While local Tibetan officials and builders have reacted very favorably to the ideas, seeing the QNP as a positive supporter of the local culture and environment, it is difficult to know what the outcome of these efforts will be in the long term. A success would support the case that ecotourism has the potential to help revive traditional architecture and sustainable resource use.

Forestry management and traditional architecture

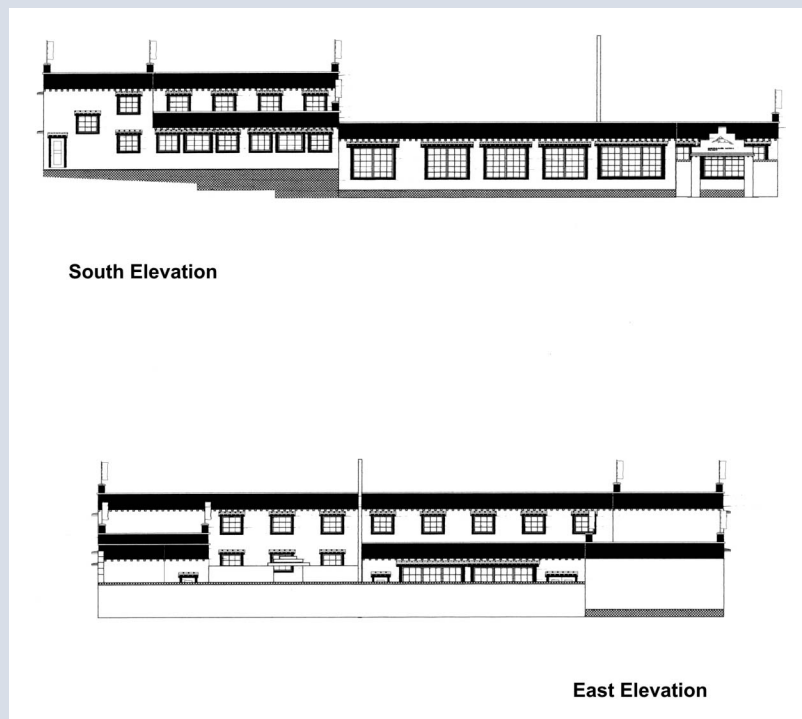
Ladakh

Ultimately, the future of many traditional architectures depends on the natural resources needed to construct these buildings. One of the major challenges facing the survival of a building tradition and traditional architecture is deforestation. One example is Ladakh, a small part of the

FIGURE 3 Elaborate woodwork at the entrance to the main Prayer Hall. (Photo by William Semple)



FIGURE 4 The QNP Training Center, Xegar, Tibet. The complex uses 2 courtyards, the first for offices and classrooms, the second for trainee residences—a common traditional Tibetan spatial hierarchy. The south and east orientations maximize passive solar gain. An internal walkway, connecting all parts of the complex, provides protection to the north elevation of the complex. The design includes use of local materials and building techniques. (Design by William Semple)



Tibetan plateau located in the northeast corner of the Indian State of Kashmir.

Traditionally, the pattern of life in Ladakh revolved around the extremes of its seasons and the tasks carried out to survive in this environment. Construction of buildings would begin in the early spring, commencing when, as locals would say, “the waters begin the flow.” In this rugged dry region, these are the meltwaters from the snow-covered mountains, delivered to the villages in hand-dug channels. This water was necessary for the fabrication of the mud blocks used in the construction of walls. In less remote areas, as the economy developed and life became less solely reliant on local materials, people started to speak of construction beginning when the roads over the mountain passes opened, bringing the trucks carrying imported materials.

In remote areas, however, small timbers are still harvested by the carpenters during the winter, a period when it is easier to skid logs along river beds. While many in the communities remember when trees could be accessed within a day from their villages, in many areas carpenters now travel 3–4 days or more

to access this same material. For these carpenters, who continue to hope to be able to hand their tools and skills on to their sons, this is a growing obstacle and concern.

During an architectural project in the remote community of Lingshed, I helped the community explore this issue. An existing tree planting program, set up to provide fuel for the community, was expanded to include the goal of providing a long-term supply of wood for their buildings. There was strong local community support for this new idea, through their recognition of the importance of traditional building as part of their cultural values.

Eastern Tibet

Many parts of Eastern Tibet were heavily forested in the past. Yet these areas, as a result of extreme deforestation and poor land use management practices, are beginning to suffer from a lack of materials for traditional buildings. In the 1950's, with the movement of the Chinese communist government into the region after the civil war, a forestry industry was established to tap into the rich resources of the region. While providing some economic development, this process resulted in widespread deforestation—with at least 60% of the region's virgin forests being clear-cut (Figure 5)—and environmental deterioration. Heavy rainfall in the region combined with deforestation was seen as one of the major reasons for the devastating flooding on the Yangtze and other rivers during the summer of 1998.

As a result, the Chinese government enacted a total ban on logging in the region as of 1 September 1999. One impact of the ban has been uncertainty regarding the supply of construction materials, since the gathering of timbers has traditionally been the responsibility of the homeowner or the monastery. In response to this, the government has stated that individuals will still be permitted access to these resources upon receipt of a special permit. There is, however, no guarantee that this will occur. Conversations with many builders showed that the future of wood supplies for their craft and liveli-

hood was an unknown and timber resources for building have become a difficult commodity to acquire in some villages, and are disappearing from the larger centers.

There are many skilled local carpenters in the region, employed to build houses and to work on the construction and restoration of temples and monasteries. But the amount of work available for local carpenters has been steadily decreasing, compounded by the influence of Chinese modernism and the dogma, which now dominates national policy, that “modernism and science” are a solution to all problems. Traditional ways of life and knowledge are overlooked to the extent that carpenters in rural areas often view the new glass and concrete buildings as something superior, with their own ideas being primitive.

Several options for the future of the region could be explored: agriculture, more sustainable forestry, ecotourism, etc. Indeed, recognizing the natural beauty of the region and the value of its rich Tibetan culture, local government officials are now touting ecotourism as a sector to be developed as a replacement for the battered forestry sector. Unfortunately, the new mantra of modernism has done little to prepare them for understanding the nature of ecotourism and what travelers require in the way of services, facilities, and cultural amenities or natural resources.

To support ecotourism, the development of long-term actions that will provide the conditions upon which the traditional architecture of the region can be both preserved and evolve is needed. In meetings with local officials in this region, recommendations provided to support this included the need to:

- Develop a tree planting program to control erosion and ensure the reestablishment of a rich local biodiversity;
- Encourage the establishment of small-scale village tree nurseries throughout the region to grow a diversity of locally typical tree species;

FIGURE 5 Loading logs in heavily deforested area. (Photo by Pam Logan)



- Develop forestry policies to ensure the supply of wood products for the construction of traditional architecture by local builders;
- Establish a formal process for the training of Tibetan carpenters;
- Develop design guidelines for a sustainable tourist industry, including guidelines for developing facilities, sustainable trail systems, and nature preserves;
- Provide guidelines for the protection of religious and natural sites in the region.

A brief conclusion

While it is true, especially in today's world, that cultural changes are natural and inevitable, larger issues remain. The examples of Ladakh (where the local cultural traditions provided a mechanism for promoting long-term land use management practices) and the QNP (where the importance of ecotourism performed the same function) demonstrate that placing value on traditional culture is essential for developing local plans for environmental sustainability and vice versa. It also demonstrates the use of architecture as a tool to address the connected issues of environmental and cultural sustainability.

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William Semple has degrees in Environmental and Resource Studies from the University of Waterloo and in Architecture from the University of Calgary. As a designer, builder and researcher, William Semple has traveled and worked extensively throughout the Himalayan region, carrying out the design and construction of traditional buildings and promoting environmentally and culturally sensitive land use management practices.