Key Principles and Strategic Actions for Conserving Cultural and Biological Diversity in the Mountains

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Key Principles and Strategic Actions for Conserving Cultural and Biological Diversity in the Mountains

A small sign nestling among the pines by the side of a road in central Bhutan quotes Lord Buddha: "The forest is a peculiar organization of nature that makes no demands for its sustenance and extends protection to all beings, offering shade even to the axe man who destroys it." This quotation encapsulates the relationship between man and nature in mountainous regions. Mountain residents broadly appreciate the values of the forest, water, wildlife, and soils that support human society in these often inhospitable environments. But at the same time, nature's productivity is being threatened as people attempt to wrest more from the environment than can be sustained for more than a few short years; the result can be the loss of the biological and cultural diversity upon which people depend for their continued survival.

There is an urgent need for new cultural means of controlling overexploitation of forests, land, and wildlife in mountain regions. These cultural means need to be based on ecological, political, and economic reality. It is clear that any conservation measure in mountain regions must be part of the cultural fabric if it is to make its necessary contribution to human welfare (McNeely et al 1985). But many governments have been lacking the political will to mobilize the resources—human, financial, cultural, and moral—to ensure the integration of ecological principles with economic development. The more powerful government departments tend to be those that pro-

Key elements in the CBD

Major principles

- Biodiversity has intrinsic value and is a common concern of humanity.
- Governments have sovereignty over their biodiversity.
- States are responsible for conserving their biodiversity and for using their biological resources in a sustainable manner.
- Causes of significant reduction of biodiversity should be attacked at their source.
- The fundamental requirement for the conservation of biodiversity is the in situ conservation of natural habitats and the maintenance of viable populations of species in their natural surroundings. Ex situ measures, preferably in the country of origin, also have an important role to play.
- Many indigenous and local communities with traditional lifestyles have a close and traditional dependence on biological resources and need to share equitably in the benefits arising from biodiversity.
- International cooperation is an important part of implementing the Convention.

Major measures

Contracting parties agree to:

- Develop national biodiversity strategies, plans, and programs.
- Identify and monitor important components of biodiversity.
- Establish systems of protected areas, manage biological resources, rehabilitate degraded ecosystems, regulate risks of living modified organisms, control alien species, and protect threatened species.
- Establish facilities for ex situ conservation of plants, animals, and microorganisms and adopt measures for the recovery, rehabilitation, and reintroduction of threatened species.
- Implement measures for sustainable use, including use of economic and social incentives.
- Establish programs for training, education, and research and promote access to relevant technology.
- Facilitate access to genetic resources on mutually agreed terms and under prior informed consent of Party providing such resources.
- Promote technical and scientific cooperation, including exchange of information relating to biodiversity, and provide funds to developing countries to help implement these measures.

duce income for the national coffers, and they often have a vested interest in maximizing short-term gains even at the cost of long-term environmental degradation.

Because the international community has become more aware of the importance of mountains for conserving biological and cultural diversity, new possibilities for supporting work in mountains have become available. At the United Nations Conference on Environment and Development held in Rio de Janeiro in June 1992, some 157 countries signed the Convention on Biological Diversity (CBD) (see Box). The Convention came into force at the end of 1993 and by the end of 1999 had 178 State Parties. Article 20, on financial resources, calls for special consideration to be given to the most environmentally vulnerable developing countries and specifically mentions mountainous areas in this regard. This specific mention of mountains is especially promising because the Convention itself contains a number of elements that are broadly applicable to the concerns outlined below. Agenda 21, the global action plan adopted at Rio de Janeiro, also makes specific reference to fragile ecosystems, which include mountains (chapter 13).

The following principles are designed to help integrate conservation with development in mountain cultures, leading to enhanced benefits to the community, the nation, and the world.

1. *Build upon the foundations of the local culture:* Very often, cultural elements are already available for contributing to conservation. Any laws or regulations emanating from central governments should be adapted to take advantage of local predispositions. Traditional cultural approaches to species conservation should be used and rekindled where possible. Cultural diversity parallels ecological diversity, and local traditional adaptations are often the most environmentally sound (Posey 1999).
2. *Link government development programs with conservation:* Road building, urban planning, construction of schools and health centers, agricultural development, hydroelectric facilities, improved communications, and other desired developments should have environmental and social components. Specific environmental programs that address main causes of habitat degradation, such as energy-substitution projects, are also required. If basic changes in the pattern of living of traditional subsistence farming and grazing communities in the hills are to be facilitated, attractive and meaningful economic alternatives must be made available to hill people. Tourism, if carefully planned and controlled, can provide one such alternative and has already led to a great increase in income for the Sherpas of Nepal (though this is not without problems). Also, the development of sound technologies for the use of these ecosystems should be a priority where mountains are at the center of the country's development, as in Nepal, Bolivia, Peru, Ecuador, Rwanda, Kyrgyzstan, and other countries.
3. *Develop incentives for the conservation and sustainable use of mountains:* Incentives can include water fees and compensation

schemes for the conservation of watersheds, tax exemptions for the maintenance of forest cover, special loans and fiscal incentives for productive activities that promote sustainability, and programs for social development and compensation for populations located near protected areas (McNeely 1988).

4. *Give priority to small-scale local development:* Mega projects, such as major dams, may be attractive to donor agencies, but they are unlikely to bring widely dispersed benefits (World Commission on Dams 2000). It may be far better to concentrate at the village level, with customized development projects that can enhance productivity of the best soils and provide local sources of energy; such development can be coupled with strong regulations to reduce human impact on steep slopes and wildlife.
5. *Encourage bioregional planning:* Given the existing relationship between mountains, valleys and lowlands, land use and natural resource management planning should be at a regional scale, to harmonize agricultural uses, protected areas, urban settlements, and industry (Miller 1996). Land tenure schemes should be developed in accordance with these plans.
6. *Give local people responsibility:* Local development priorities should be debated in village and district councils, and development projects should be at least partially funded locally. Long-term cultural stability in the past has shown that local people are fully able and competent to enforce regulations for the benefit of their community. In some areas it would be possible to establish management units under the control of local village councils, and local people should serve on the advisory board of each protected area. A key point is that local responsibility should follow local institutional patterns and that it is better to strengthen local institutions than to create new ones (McNeely 1998).
7. *Examine the options for protection of species and ecosystems:* In some cases, species can be best protected by simply providing a game guard in the highest village, without any declaration of a protected area. And even when a protected area is required, many levels of protection and permissible human uses may be appropriate to specific local conditions. The preparation of management plans for protected areas need not be a specialized task requiring major outside expertise; but each protected area should have a management plan, and the plan is most likely to be effective if it is developed in close collaboration with the local people.
8. *Have the courage to enforce restrictions:* Once it has been agreed with local people that certain restrictions (which may be those that existed when the local culture was still intact) are desirable, the regulations need to be strictly and equitably enforced. There is no need to apologize for any restrictions that may be necessary—people have always had to live with restrictions on their behavior, and local people know that letting people destroy a protection forest because "they have always been able to cut trees" is destructive to the community at large. However, enforcement should, whenever possible, be administered by local people, and at least a portion of any fines should go back to the village.
9. *Build conservation into the evolving new national cultures:* Traditional communities throughout the world have developed ways and means of conservation that are interwoven into their cultural fabric (Posey 1999). As nations are built, literacy becomes widespread, mass media become more effective, and new cultures are formed; conservation needs to become part of every possible section of the national development process and thereby part of the new national culture rather than just a discrete responsibility of a wildlife or national parks department.
10. *Go with diversity:* Mountain peoples have long recognized that diversity is the key to their survival, using a wide range of means to wrest a living from a reluctant environment. Mixed systems, transhumance, terraces, agroforestry, local varieties, hunting and fishing, and the forestry–agriculture–wilderness interface are essential to mountain cultures. This diversity needs to be maintained as a matter of highest importance. What works in one place will not necessarily work in the next valley, and small countries have different imperatives than large ones. A series of local adaptations based on local cultural diversity is required, not a "universal elixir" to solve all conservation problems.

Strategic actions to conserve biological and cultural diversity in the mountains

In order to put these broad principles into action, I would like to conclude by making a few specific recommendations for integrating human concerns into conservation in mountain regions.

1. Each nation should review its protected area and species management policies and legislation to ensure that human concerns are being appropriately addressed and that conservation is integrated into other development concerns. National biodiversity strategies, as called for under Article 6 of the CBD, can

be an effective means of coming to grips with the problems of integrating people, conservation, and development.

2. Research on traditional means of conservation needs to be carried out as a very high priority before these cultural elements are washed away with the tide of modernism (Gadgil et al 1993). Universities could be enlisted in this effort. Traditional means of conservation also need to be put into forms that would be useful to development planners and to protected area managers; workshops should be held to train resource managers to be sensitive to cultural means of conservation and to collaborate productively with local people.
3. Countries should develop national tourism policies that promote appropriate behavior by tourists and equitable distribution of the benefits of tourism and control the negative aspects of tourism. Trekkers and expedition members should be made aware of acceptable norms of behavior, following the example of "The Kathmandu Declaration" of the International Union of Alpine Associations. Training workshops should be organized on development and management of wildlife recreation for tourism development corporations, national parks, and tourist offices.
4. Countries should develop economic and social incentives for the conservation and sustainable use of mountain ecosystems and remove "perverse incentives" such as certain agricultural policies that result in environmental degradation. This may require promoting city dwellers' and government officials' awareness that what is happening in the remote or nearby but overlooked mountain environments is of direct interest to their own well-being. Such awareness may well be a prerequisite for mobilizing the resources needed to address the environmental problems of the mountains.
5. Countries should develop and package sound and convincing arguments to demonstrate that protecting critical natural areas helps support food production outside these areas, through such means as watershed protection, soil formation, microclimate amelioration, genetic resources, and animal husbandry on marginal lands.

These broad strategic actions can be converted into specific projects to address a number of the most important concerns voiced at the Earth Summit in Rio, including technology transfer, poverty, biodiversity, forests, agriculture, and trade. The Commission on Sustainable Development (CSD), established by the Earth Summit, is examining these issues on a regular basis, and the preparation of indicators of sustainable development in mountains could be a priority for CSD work. Further, a special focus on mountains would be entirely possible in the context of the CBD, especially because of the great relevance of mountains for implementing key provisions of the Convention. If requested by governments, the Global Environment Facility would be available to fund activities in mountain areas along the lines suggested previously.

Conclusions

Mountain regions have in the past served as refugia from changes in the lowlands, providing a stock of both cultural and biological riches that could subsequently recolonize the lowlands when conditions became more appropriate. As the spread of industrial civilization threatens to cover virtually the entire world, perhaps some mountains will be the last refuge of people living in a reasonable balance with their land and resources. The kinds of principles and actions outlined here will help enable the mountains to serve as "Holocene refugia" from which a more holistic and environmentally sound way of life might be developed.

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