

ally—such as UNESCO's BRIM and the Global Terrestrial Observing System (GTOS).

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New Community-Led Conservation Efforts in the Cordillera Huayhuash, Peru

In late 2002 a new national conservation zone was created in the Cordillera Huayhuash mountain chain in the Peruvian Andes. After many years of studies, dialogue, and local, national and international support for conservation efforts in the area, the Peruvian Ministry of Agriculture temporarily designated approximately 67,000 hectares of land in the region as the “Reserved Zone of the Cordillera Huayhuash.” Following this

decree, a technical commission was created by the national Institute for Natural Resources (INRENA) to determine the level of protection that would be granted to the new conservation unit. After delays lasting several years, the preliminary technical report has just been completed.

While the national-level study was being conducted over the past 4 years, however, local communities protested the creation of the new

national conservation zone and have initiated new management plans that would create a series of community-led private conservation areas in the region. These 2 conservation plans present conflicting visions and goals for the future of land management in the region and also highlight a series of new and important issues concerning conservation efforts and resource management, local grassroots empowerment, and the future of eco-

tourism activities in the country.

The Cordillera Huayhuash is located in the Central Peruvian Andes south of Huascarán National Park. The range has Peru's second tallest mountain peak, Yerupajá (6634 meters), as well as 15 major peaks (6 of these above 6000 meters) and is the highest point of the Amazon Basin drainage system. The mountainous area is also one of the few tropical mountain chains in the world and is the location of important high mountain ecosystems. Studies have identified more than 1000 plant species, 62 bird species and more than a dozen mammal species in the region, including the threatened *quenal* (*Polylepis racemosa*) plant and the rare Andean condor (*Vultur gryphus*). In addition, the area is also an important source of water resources, as it contains more than 40 lakes and 115 glaciers.

Because the region is fairly remote and was inaccessible during Peru's recent civil war due to the fact that it was a base for Shining Path rebels, it has only recently become a major destination for tourists. Beginning in the late 1990s, international and national tourism in the region began to increase rapidly. In 2001, approximately 2000 international tourists visited the region to engage in trekking, wildlife observation and climbing activities. In addition, the region has recently become an important destination for transnational and national mining operations. In the mid-1990s Mitsui Mining and Smelting Peru began operations in the area adjoining the new conservation reserve, and a host of new mineral rights claims and exploration activities have just begun both within and surrounding the zone.

The communities surrounding the Cordillera Huayhuash have historically been isolated from the rest of the country due to lack of transportation networks and support from the Peruvian state. The reserve encompasses land belong-

ing to at least 8 communities that belong to 3 different national administrative units (Ancash, Huanuco, Lima). In 1993, roughly 23,000 people lived in the area, mostly at lower elevations and in widely dispersed communities. Livelihoods in the region have been dedicated primarily to agricultural and livestock production, but new opportunities to support ecotourism in the region have begun to integrate local communities into larger economic processes.

As the Cordillera Huayhuash has begun to be recognized as an important location for new conservation and resource management activities, a new debate has been ignited concerning the ways in which the region will be integrated into national protection activities. On one hand, the technical study process begun in 2000 would integrate the zone into the Peruvian system of national protected areas and, depending on the level of protection given to the area, would alter access to and use of resources in the region for local communities, tourists, and mining interests. In addition, the new zone would be managed in a traditional resource conservation model that is directed at the national level by institutions and personnel largely located outside the region. On the other hand, local communities are proposing new private conservation areas that would allow them to control conservation and management goals and activities. These contrasting approaches raise important questions about the future of conservation in the region, particularly about how it will be managed, by whom, and through what types of institutions.

Another important and related issue that new conservation efforts in the region have raised is related to local grassroots empowerment. The Peruvian system of national protected areas has perennially been plagued by inefficiency, lack of funding and personnel and centralized management from Lima that is ill-prepared or unconcerned

with addressing local concerns. This has led, in many cases, to "paper" parks that are either mismanaged or unmanaged and have historically neglected to resolve long-standing disputes over access to the areas by local communities.

The country's turn to neo-liberal political and economic reforms as well as new legislation reforming natural protected areas has given rise to new efforts to address the historical lack of community participation in management of protected areas as well as to privatize and decentralize the management and use of natural resources. These new developments have generated openings for novel local and private conservation areas that would delegate power and decision-making to local communities. Beginning in 2001, several new private conservation areas were created in the country, with many more under consideration.

In the Cordillera Huayhuash, several communities have been granted preliminary approval for private conservation areas, and nearly all of the communities affected by the new conservation zone are in the process of developing their own management plans. These new efforts by local communities may indeed represent new examples of grassroots empowerment and local resource management conservation, but it is important to note that this does not suggest that these efforts will be unified and devoid of conflicts over how and in what ways conservation will take place. This has certainly been the case in the Cordillera Huayhuash, as both the national classification process and the development of private conservation areas have heightened historical patterns of conflict over access to and use of resources in the region, and have created new conflicts within and between communities over who will manage the new areas.

Finally, the creation of the new national conservation zone and new private conservation areas in the

Cordillera Huayhuash have also raised important issues surrounding the future of increasing ecotourism activities in the region. Tourists utilize the trails that pass by or through many of the local communities in the region and across land held by households and communities. In addition, many tourists contract local people to provide mules and guides for their journeys, which represents an important source of income for households in the region. However, there is little infrastructure in the region to support tourism, including an almost complete absence of sanitary facilities, organized camping locations, and emergency support. Furthermore, providing for security within the zone is another important consideration. In 2003, several tourists were killed and several dozen were robbed at gunpoint in the region. In response, local communities have begun to patrol the region, in some cases armed with rifles.

Under either national protection or local private conservation efforts, these new flows of tourists represent important new economic opportunities for local communities, but also important challenges due to the environmental impacts of their activities. Unresolved questions for either conservation strategy include how security will be maintained in the region, how and what ways tourists will be asked to pay for visiting the region (in 2004 local communities began to charge tourists) and how and what types of services will be provided for tourists. Presently, local communities and guides are pursuing cooperative strategies to manage security and some waste problems, but disputes have occurred over the provision of services and charges for passage. The ways in which these new conservation plans address these issues will almost certainly affect the quantity of tourists visiting the region.

While the form of recent conservation efforts in the Cordillera Huayhuash region has yet to be fully developed and agreed upon, these efforts will affect the nature of future ecotourist activities in the region. They represent an important new instance of grassroots empowerment intent on maintaining local control of natural resource conservation, and illustrate the ways in which national and local conservation frameworks in Peru have been changing. Current research and efforts on the part of academics, policy-makers and organizations could both further refine the form and content of conservation activities and broaden our understanding of changes taking place in the Cordillera Huayhuash.

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Broadband for Mountain Development

In an economic and social system dominated by urban, industrial capitalism, mountain areas have been seen as peripheral to the process of growth and development. But today, as the service sector and the global economy are becoming increasingly more important than the industrial sector, a new world of opportunity is opening up for mountain areas. Today's global economy is increasingly focused on broadly diversified products and services. In this context, knowledge and skills are the winning element in global competition, just as brute force once was in agricultural society, and money in industrial society. And where knowledge or skills are concerned, there is no difference between mountain and lowland areas.

Mountain development projects should therefore aim primarily at enabling mountain areas to maximize their capacities and resources and apply them to different settings. This would foster the ideal climate in which to network with productive sectors located elsewhere, a *sine qua non* for bringing mountain communities into the mainstream. And what better tool than broadband Internet connections to hook up mountain economies with other production systems and bring them into the global economy?

Reducing the digital divide and connecting mountain people

The first notion of the 'Information Age' can be traced back to the early

1980s, when the advent of increasingly refined technological applications for information processing, alongside social transformation, gave rise to the idea that a completely new world was about to be born. Some authors have introduced the concept of an "interconnected world," to depict a scenario where distances are nullified by the existence of digital technologies. Among the information-based industries, the telecommunications industry is widely recognized as one of the most important in the global economy. The way of doing business in highly developed societies, and our lifestyle in general, would not be the same without digital telecommunication technologies—and in fact, the "Information Society" itself would not exist.