Acknowledging the Contribution of Mountain Communities – Investing in the Future

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The resources of biodiversity benefit people in numerous ways. They provide basic subsistence needs, such as traditional medicines, food crops, and non-timber forest products. Although this applies to people in general throughout the world, for mountain communities these resources are particularly important as contributions to their subsistence, their welfare, and to the improvement of their livelihoods.

Less evident benefits include a range of ecosystem services, such as clean water, slope stability, or the long-term disease resistance and food security provided by crop genetic diversity. There are benefits also that cannot be seen, benefits which are aesthetic and religious. Traditionally there is a wide variety of culturally significant resources; for example, rudraksh seeds, bodhi trees, lotus blossoms, and sacred groves. A diverse collection of flora and fauna, such as multipurpose trees and medicinal plants, plays an important role in mountain economies throughout the Hindu Kush-Himalayas (HKH). Many important food crops and other plant and livestock species have originated from within mountains landscapes. Landraces and wild relatives of many agricultural species and cultivars either have their origins in mountain areas or are conserved within them. There they are actively maintained and selected by mountain farmers using their traditional knowledge, adding to the richness of mountain and global biodiversity, especially in the HKH and other remote mountain areas where market penetration has been limited by the topography and heterogeneity of the landscape. Mountains are refuges on a grand scale for the conservation of genetic resources in situ, upon which advanced plant breeding and crop production rely, rendering their contribution to global food security invaluable. Closer to home, mountain communities rely on this rich biodiversity to maintain subsistence livelihoods and resilient farming systems under some of the most difficult conditions on earth.

Mountain communities benefit from the biodiversity and play an important role in maintaining and enhancing it. Maintenance of sacred groves and culturally significant plants; selection of useful species, varieties, and cultivars; and knowledge of crop traits are all among the resources protected by mountain communities. In many cases, mountain farmers are the stewards of regional agrobiodiversity and local genetic heritage, as well as the globally important genetic resources upon which our food security depends. This important role of mountain communities and mountain cultures in maintaining biodiversity has been recognised explicitly by the Convention on Biological Diversity (CBD) in its Mountain Biodiversity Programme of Work.

Payment for ecosystem services (PES)

The value of, and benefits from, ecosystem services are gaining increasing recognition locally, regionally, and globally. Several international and scientific forums, most notably the Convention on Biological Diversity (CBD), the UN Framework Convention on Climate Change (UNFCCC), and the Intergovernmental Panel on Climate Change (IPCC), recognise the global values of ecosystem services. Efforts are being made to identify mechanisms that will support and compensate, among others, mountain communities that maintain or improve upon these services. Various approaches, such as watershed management, biodiversity conservation in situ, or carbon sequestration, are being tried to support

Community forest in Sankhuwasabha, Nepal

the maintenance of ecosystem services through a variety of payment mechanisms generally referred to as 'payments for ecosystem services' (PES). To date, these have focused to a great extent on watershed services and water resources, the rationale given being in terms of upstream-downstream linkages. An example of these approaches is the Grain for Green (Green Hills, Clean Rivers) programme in China through which farmers have converted sloping agricultural land to tree or grass cover, for which they are provided with grain subsidies.

Carbon sinks and biodiversity

Climate change has brought the important role of carbon storage as a globally important ecosystem service into the limelight. Forests and trees are important components of the global carbon cycle, fixing and storing large quantities of carbon in vegetation and soils. Forests act as both sources of and sinks for atmospheric CO_2. They release carbon into the atmosphere when disturbed by natural or human impacts, and they absorb atmospheric CO_2 when vegetation and soil carbon accumulate after afforestation, reforestation, or natural re-vegetation. The global impact of deforestation, driven by agricultural expansion, is a major factor in ongoing global environmental change and contributes significantly to atmospheric greenhouse gas emissions and climate change. Land-use change and unsustainable land management accounts for approximately one-fifth of annual global greenhouse gas emissions: there has been a 40% increase in emissions from land use and land-use change since 1970. About one third of greenhouse gas emissions come from developing countries, with South and Southeast Asia being among the regions with the highest predicted rates of forest loss. Deforestation and ecosystem degradation likewise, contribute substantially to the loss of biodiversity, as well as to greenhouse gas emissions. Carbon finance mechanisms that conserve forests and promote sustainable land use could have a significant impact on biodiversity conservation within the HKH region; but only if the need to support both conservation and sustainable forest management is recognised.

Afforestation and reforestation projects could make substantial contributions to biodiversity conservation in the HKH. In particular, growing trees on farms in diverse agroforestry production systems could reduce pressure

on forest resources. The important aspects of biodiversity conservation in growing trees outside of forests should not be underestimated. Most people agree that forests and wildlife habitats should be conserved, but the growing demand for wood products places increasing pressure on remaining forests. Growing economies and burgeoning populations in South Asia will continue to drive the demand for forest resources. Growing trees on farms directly reduces pressure on forests, wildlife, and biodiversity, and carbon from the atmosphere is sequestered into wood and soils.

Reduced emissions from deforestation and degradation (REDD)

Maintaining the existing forests and promoting improved forest and land management to avoid emissions associated with deforestation and degradation of forests are key elements of any future international climate framework. The programme on 'Reduced Emissions from Deforestation and Forest Degradation' (REDD) has become a central component of the global climate protection regime currently being negotiated to replace the Kyoto Protocol which comes to an end in 2012. The possibility of significant amounts of funding becoming available under a post-Kyoto agreement to finance REDD has attracted the attention of policy makers and the public in the HKH region. Previous experiences have shown, however, that benefits for developing countries which have limited capacities to implement and participate in complex international agreements have been elusive. Significant inputs into capacity building at regional and national level will be required to ensure that the proposed implementation of REDD within the region contributes meaningfully to the goals of sustainable development, biodiversity conservation, and improved livelihoods for the poor. Creation of governance structures that address the needs of forest users and local communities, ensure that carbon benefits are distributed equitably, compensate livelihood losses, and promote sustainable development and environmental conservation goals is essential. Again, past experience has shown that neglecting the role and needs of local communities has led to failed resource management policies.

Developing a mechanism to conserve carbon within existing forests; that is, slowing down the rate of deforestation and degradation in the HKH, will not be easy. Mountain forests within the HKH region have unique and difficult conditions which will require carbon finance mechanisms appropriate for the environment. The diverse biophysical, socioeconomic, and institutional conditions pertaining in the mountains, particularly in the HKH, need to be recognised by the post-Kyoto international climate agreement. Likewise, any REDD agreement must also recognise and promote the conservation of the immensely important, and globally significant biodiversity found within the HKH region.

Tree planting in Nagaland, India