

Issues in Sustainable Mountain Development: The Himalayan Experience

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Defining Mountains

There is no clear and valid definition of mountains and highlands and perhaps this will always be so, because mountains with different altitudes and specific patterns of ecosystems are found on every continent, from the equator to the Polar Regions. Given their three-dimensional nature, they encompass the most extensive array of topography, climate, flora and fauna, as well as human cultural differentiation, known on earth. In lieu of an overly simplistic definition with altitude above sea level, mountains can be characterized by their altitudinal succession of different climatic, geomorphic, and vegetational belts. Regardless of absolute altitudes, mountains include all areas of a marked relief with significant ecological differences and slopes which are susceptible to natural hazards and human activities. 46.7% of the total area of all the continents are above 500m; 26.9% above 1000m; and 11.1% over 2000m. These simple figures show that Mountains and Highlands are indeed a major ecosystem of our planet! (Mountain Agenda, 1997)

Mountains in development priority

It is very difficult to trace the intellectual origin of sustainable mountain development (SMD). However, it is believed that after the 1960s, SMD received a global attention and resulted in the establishment of many development organizations to work particularly in the mountainous regions. The movement begun with the establishment of "The Mountain Institute" (Formerly Woodland Institute) in ... and gained momentum after the establishment of organizations like the International Centre for Integrated Mountain Development (ICIMOD) in 1983, International Mountain Society (IMS), United Nations University (UNU), and then the informal gathering of Mountain agenda and publication of the Mountain Research and Development Journals. UNESCO's "Man and Biosphere" project also played a catalytic role to foster this message at global level.

After the generous effort made by the Government of Switzerland, Mountain Agenda, IMS, ICIMOD and other major stakeholders of SMD, the Earth Summit held in Rio de Janeiro of Brazil in 1992 turned out to be an ice breaker for SMD. This Earth Summit included the mountain development agenda with high priority for action as its major output Agenda 21. Chapter 13 of Agenda 21 states, "Mountains are an important source of water, energy and biological diversity. Furthermore, they are a source of such key resources as minerals, forest, agricultural products and recreation. As a major ecosystem representing the complex and interrelated ecology of our planet, mountain environments are essential to the survival of the global ecosystem". (United Nations, 1992)

Awareness of mountains since Rio and institutionalization of mountains

After the Rio Summit and the implementation of its Agenda 21, the mountains have been relatively less marginalized. A growing urbanized world population is beginning to recognize the value of human and natural resources of mountain areas. Governments are beginning to realize that long-term mountain policies are needed for SMD. But even though, mountains and highlands have acquired a spotlight in the 21st century, the political and economic power of decision making is normally located in centers outside the mountainous topography. Perhaps, it for this reason it is often said, "Mountains are only marginal areas, let them go, because they are only marginal! But: The fate of mountain ecosystems affects more than half the world's population". (Mountain Agenda, 1997)

In recent decades a large number of nongovernmental organisations, government institutions, intergovernmental organisations, UN agencies, research centers, funding organisations, voluntary alliances and private individuals have suddenly shown more interest in sustainable mountain development. Some noticeable players in SMD are African Highlands Initiative (AHI), Asia Pacific Mountain Network (APMN), CONDESAN, Food and Agriculture Organization (FAO), Swiss Agency for Development and Cooperation (SDC), Mountain Forum (MF), Mountain Partnership (MP), International Centre for Alpine Environments (ICALPE), International Centre for Integrated Mountain Development (ICIMOD), International Livestock Research Institute (ILRI), IUCN Mountain Protected Areas Programme, Mountain Research and Development (MRD) and Mountain Research Initiatives (MRI), The Banff Centre, International Potato Centre (CIP), Man and Biosphere (MAB) Programme of UNESCO, The Mountain Institute (TMI), World Agroforestry Centre (ICRAF), United Nations Environment Programme (UNEP), World Heritage Society (WHS) and World Wildlife Fund (WWF).

Besides this the celebration of International Year of Mountains (2002), successful organisation of Bishkek Summit (2002) and many other regional and national seminars and gatherings has always made the mountain voices be heard at policy making level and forced the respective governments and UN Agencies to focus on mountain issues.

Key Issues in SMD

Dr. N. S. Jodha, a renowned mountain socio-economist has defined inaccessibility, fragility and marginality as major constraints to sustainable mountain development and has proposed diversity, niche and human dimensions as key opportunities to uplift the livelihood of mountain people (ICIMOD, 1992).

Price et al. 2006, has raised many issues that needs to be addressed for sustainable developments of the mountains. Some of these may include issues like proper use of water and natural resources, surmounting hazards, desertification, implications of climate change in highlands and improving access to basic infrastructures including communication and energy. Development of legal, economic and compensation mechanism in favour of SMD could strengthen the basic fundamental rights of the mountain communities. Democratic and decentralized institutions are a must for sustainability of the mountains. Improvement in livelihood opportunities and poverty reduction can also be achieved with better exercise of mountain tourism and conservation as well as the sustainable cashing of the mountain bioresources.

Himalayan perspective

Himalaya, literally the “abode of snow” stretches over 4000 kilometres from Afghanistan in the west to China and Myanmar in the east. The Himalaya is a beacon for clouds of moisture, which generously bestow its slopes with precipitation and through rapidly growing mountain torrents create the great rivers of Asia: the Indus, the Ganges, the Yarlung Tsangpo/Brahmaputra, the Salween, the Lancang Jiang and the Yangtze. It harbours over 150 million mountain people, who directly depend on it for most of their biophysical, socio-cultural, economic, recreational and other intangible needs. Additionally over 500 million downstream people are benefited by its goods and services production. It is the only largest source of drinking water, industrial production (input), agriculture and other economic activities in the downstream as well. (ICIMOD, 2006)

Eastern Himalaya is very rich in biodiversity at different levels, such as ecosystem, species and genetics. It has also been listed as the “Biodiversity Hotspot” by the WWF Ecoregion project. Himalaya is famous as a unique habitat for many species and harbours many endemic species.

Geographic diversity in this region has enriched the ethnic diversity thereby making it richer in dialects, culture, religion and traditional knowledge. UNESCO's MAB project has also highlighted Himalayan region as one of the most important and fragile ecosystem and developed many projects to address the hardships of the mountain people for sustainable development of the region. Different forms of agricultural practices (nomadic herding, jhoom cultivation and relatively permanent practices), forest (tropical to deciduous and alpine vegetation) and rangeland are major survival bases of the mountain communities in this region. Growing mountain tourism and associated activities, changing (and expanding) market alternatives and industrial activities are additional (and optional) economic choices. Although, the mountain economy is not growing as per the expectations of the mountain people, their hardship is growing daily.

In this context major issues in the Himalayan region can be broadly classified as:-

Himalayan geology and hydro-geological issues:

Himalaya is the youngest mountain range of all and is highly prone to the hydro-geological hazards. However the scale and nature of same hazard differs from one place to another. For example Flash flood is a major threat to inhabitants of the middle hills and lowlands whereas burst of Moraine dammed lakes (GLOF) has resulted to big loss of life and property in the higher mountainous areas. At the same time many mountain people have to walk for many miles to get sufficient water to drink. Due to the steep gradient, road and farmland washouts, damages to other infrastructures etc. are highly pronounced problems in this region. Many parts of the Himalayas are regarded as soil erosion hotspots, which have turned most of fertile lands to the infertile and less fertile resulting in the decrease of total yield per acre. Climate change and global warming has further worsened this situation as the occurrence of such hazards is more intense and unpredictable.

Changing population dynamics and increasing pressure on limited natural resources:

Mushrooming population, unplanned migration, uneven population distribution and decreasing agricultural productivity have forced people to exploit limited services that are produced naturally in the fragile ecosystem. Pressure is suddenly increasing in the marginal ecosystem (turning it to the "tragedy of the commons") and the situation is worsening day by day. It has led to some irreversible damages in the Trans-Himalayan ecosystems resulting into the highland deserts. Such pressure on natural resources is dramatically increasing and is likely to continue in future as well since there are limited choices before mountain communities for their survival. It has increased the food insecurity problem and people have no choice of intensive and unsustainable farming practices adding more pressure to the limited farmlands. It has further worsened the agro-ecosystems. Climate change has altered some ecosystem and warmed the mountain valleys. Species extinction has been reported in some areas of the Himalayas (mainly in southern belt China and northern belt Nepal).

Natural ecosystems are the only means to meet most of their needs ranging from food, shelter and energy to the economic activities.

Mountain infrastructure, communication and energy:

Due to limited accessibility, marginality, fragility and vulnerability the mountain areas have always been considered as "remote" and are being ignored by the policy makers, large investors and city-oriented development practitioners. High rate of illiteracy, lack of transport and communication facilities and limited energy sources has always isolated the mountain from other regions and has increased the development complexity, thereby creating a sort of a development quandary.

Under-tourism, mass tourism, changing life style and environmental concerns:

Many areas in Himalaya have received more global attention and are characterised with the high tourism flow. In Nepalese context, Everest region, Makalu Barun, Arun valley etc. all has high tourism pressure. Major tourist activities involve trekking, mountain climbing, rafting, kayaking, rock climbing and conservation tourism. Due to uncontrolled mass tourism, environmental hygiene in these areas is degrading everyday. Energy demand has doubled in last one decade. Increasing demands for firewood consumption has forced people to clear forests; cultural erosion is at peak, sudden occupational change has resulted in the loss of Traditional Ecological Knowledge (TEK), bio-piracy is growing and the real owners are totally unfamiliar to this environmental threat. Similarly many mountain areas are contaminated with a huge amount of solid waste due to uncontrolled tourism and the locals have to pay for it in terms of their health and degrading fertile lands. Tourism business is owned by a very small group of people, who are not the mountain people in real, and majority of the mountain people are still underprivileged from thus generated economies. They are employed either as porters or as trekking guides. Exceptional cases may exist in parallel however. Furthermore, some potential areas in the Himalayas have not received sufficient attention for tourism developments at all and are waiting for future “days of hope”.

Lack of research and documentation:

Himalaya is probably the least understood, researched and documented areas in terms of scientific studies. Due to the vast geographic diversity, Himalayas are rich in many aspects (physical, biological, chemical, social, anthropological and economic) of research and can be used as a natural laboratory (and library) for research and development. This area needs to be deeply felt, thoroughly researched and properly documented.

To lessen the “Himalayan Dilemma” characterised with increasing population and poverty, degrading resource base and increasing pressure on marginal resources, prompt action should be taken on time. To solve the above problems and to improve the livelihood of mountain communities, harmony should be maintained between the national and international policies and their development priorities. For which, the “real people” should be made to participate in all levels of development activities. Capacity building should be adopted as a key tool to empower the mountain people. To identify the resource realities and potential areas for mountain economies, research should receive second priority immediately followed by infrastructure development, thereby bridging the mountain economies with the global village. Other sectors mentioned above should also be integrated in the development plans for sustainable mountain development.

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