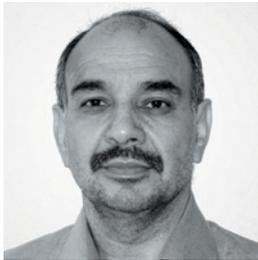


NEIL PANDIT



The Himalayas must be protected

Climate change and human activities are pushing the fragile ecosystem ever closer to instability, warns Maharaj K. Pandit.

As the Intergovernmental Panel on Climate Change (IPCC) gets ready to publish the first instalment of its latest report, many critics of the reports have been harking back to the previous effort — and the glaring mistake it made in stating that the Himalayan glaciers would disappear by 2035.

The situation in the Himalayas is not as dire as that, but it is certainly perilous. And although the IPCC overstated the timescale, the threat to the mountains from global warming and other pressures is genuine and must be addressed. Just this summer, the Indian Himalayan state of Uttarakhand witnessed what many described as the most horrific devastation in human memory. Cloudbursts, flash floods, landslides, human deaths and destruction were unleashed within a day. Human casualties were put in the thousands, and estimates of economic loss range from US\$500 million to around \$2 billion. Similarly, a monsoon flood hit Pakistan in 2010, killing more than 2,000 people, displacing millions and costing \$40 billion.

Policy-makers in India and elsewhere are reluctant to accept a glaring and dangerous truth: combined human activities have stressed the Himalayas close to their limit. We need positive action, not least a restriction on the number of tourists who visit during the monsoon season from June to September. Too many of them are unaware of the risks they run. Thousands of visitors perished in the Uttarakhand disaster. Policy-makers must actively engage with scientists and experts on the problems facing the Himalayas and their people to make sustainable development work.

Global warming can grab the headlines, but many of the other pressures on the fragile mountain region are more mundane. The human population is increasing fast in the Himalayas, and so is the speed of the landscape changes needed to support it. Cattle grazing and rampant deforestation — on current trends, one-third of the total Indian Himalayan forest cover could be gone by 2100 — will drive nearly one-quarter of endemic species to extinction and disrupt the natural flow of water. A changed Himalayan landscape caused by human activities and warming means transformed natural ecosystems through biological invasions and reduced native biodiversity.

People need energy, and in the Himalayas that means hydropower and dams. Nearly 400 new dams are proposed for the Indian and Tibetan Himalayas in the next decade or so. With them will come more change to ecosystems and more people displaced from submerged settlements. Such rampant dam-building in a region with high seismic activity and fragile geology shows that the policy-makers who approve these schemes either do not understand the scientific evidence or choose to ignore it.

The Himalayas are just 45 million years (Myr) old — mere striplings compared with the

Aravallis in India (around 4,000 Myr old) and the North American Appalachians (440–480 Myr). Young, folded and still rising, the Himalayas are more tectonically active than most mountains.

Rising temperatures add to the problems. Melting ice and snow form new glacial lakes, as well as increasing the volumes of existing ones. This could raise the threat of glacial-lake outburst floods. Some 8,800 glacial lakes in the Himalayas are spread across nations, and more than 200 of these have been classified as dangerous. Recent scientific evidence suggests that floods originating in the Himalayas are caused largely by landslides that temporarily block mountain rivers.

The Himalayas are warming faster than other mountain ranges, and the increased use of reinforced concrete in building construction, replacing the traditional wood and stone masonry there, is likely to create a heat-island effect and thus add to regional warming.

What is the way forward in the Himalayas? Clearly, the social and economic development of the Himalayan population cannot be undermined — literacy levels and school enrolment are up and infant mortality is down. Still, these are the same people who will suffer from the region's growing ecological degradation and environmental instability. Numerous regulations that should protect them, on mining and flood-plain development, for example, are poorly or rarely enforced. Indeed, many in India blame environmental regulations for the current economic downturn. An environmental tax on tourists to restrict numbers and raise funds would be equally unpopular, but the idea deserves proper discussion.

Most urgently, Himalayan countries need to build an international network that will monitor risks such as those from glacial lakes, and give early warning of hazards — similar to the tsunami warning systems installed around the Indian Ocean over the past decade. Scientists and engineers must make the case more forcefully that rampant building construction cannot be permitted on riverbanks or flood plains that are constantly swept by monsoon floods.

If the people of the Himalayas were more aware of the geological vulnerability and ecological fragility of their mountain home, they would surely force more compliance of laws and regulations to protect it. India and other affected countries should include in their school curricula basic knowledge of the geology and ecology of the Himalayas. If students are taught about their environment, they will feel more connected to the land and be more aware of its pulse. ■

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