

Urgent need to develop manpower for glaciological research

Following the alarmist approach of the Intergovernmental Panel on Climate Change (IPCC)¹, an unnecessary hype has suddenly been created in the minds of common people, bureaucrats and political decision-makers regarding the melting and vanishing of Himalayan glaciers due to anthropogenic activity in a short span of time^{2,3}. The future of the Himalayan glaciers was based on unpublished and speculative glacial data and it overlooked the available published field-based records. Science is not done by mere speculations; on the contrary, it is carried out by accurate observations.

The geoscientists at the Geological Survey of India (GSI) were the only torch-bearers of glaciological studies in our country until the later part of the last century. Along with some basic parameters, they collected long-time data especially related to the snout monitoring of about 50 selected glaciers⁴⁻⁷. On understanding the relevance and importance of glaciological research, the Department of Science and Technology (DST), Government of India, New Delhi formulated a multi-institutional programme for the study of Indian glaciers in 1986. Scientists from various research institutions and universities have been trained and subsequently awarded research projects on few selected glaciers.

Although detailed and high-resolution studies have been carried out in several other disciplines of earth sciences in our country, glaciological research of the Indian Himalaya is still in its state of infancy. Till date, the level of data generated and publications resulting from studies on the Indian Himalayan glaciers are not at par with the glaciological studies carried out in other parts of the world by international scientific groups (with some exceptions).

It should thus be appreciated that glaciological research, if required to be carried out in the vast chain of the Indian Himalaya, needs a regular input/influx of field glaciologists. In spite of the

efforts that have been made so far, the number of field glaciologists with an average age of 45–50 years is small. Although the relevance of glaciological studies has become well-known, we have failed miserably in inspiring, promoting, generating and attracting the younger generation into this discipline of foremost national importance, on a regular basis. The time has come to think about what has gone wrong and what needs to be done. How are we going to attract youngsters and what policy has to be adopted to generate glaciological research manpower?

If the policy and decision-makers realize the importance of glaciological research and also the above-mentioned shortcomings, there is an immediate need to develop scientific manpower. Developing research institutions, sanctioning projects by different ministries, and putting the climate change programme directly under the purview of the Prime Minister seem to be the right steps to be taken. However, there is still no motivation for the younger generation to adopt glaciology as a career. The subject of glaciology should be introduced to the students at the undergraduate (UG) level and a separate paper on the subject needs to be introduced at the postgraduate (PG) level as well. Both UG and PG students from universities in the northern states of India should be exposed to the glacial terrain as part of the field training programme at least once during their course of study. At present, even after obtaining a Master's degree in earth sciences, students do not have any idea as to what the glaciers, glacial and periglacial geomorphology and terrain look like, or what is their relevance in the present scenario.

Several DST sponsored training programmes have been conducted by GSI on a few selected glaciers. However, due to several hurdles, this could not become a permanent exercise.

The responsibility of training the younger generation should not only fall

on GSI alone, but should also be given to glaciologists from other various institutions and universities. A comprehensive plan involving the funding agencies, universities, research institutions and GSI should be immediately formulated. Separate funds will have to be allocated or a small fraction of the glaciological research or climate change programmes will have to be earmarked for this purpose.

Efforts are being made to provide a platform by reviving the 'Indian Society for Glaciological Studies' formed about five years ago. The setting up of the National Centre for Himalayan Glaciology by DST, not only to coordinate the glaciological studies, but also streamline the activities and promote research in different centres may provide a proper direction to glaciological research in India.

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