

## The Brant's Oak in rural areas of West Kameng, Arunachal Pradesh

The Eastern Lesser Himalaya of Arunachal Pradesh is endowed with numerous species of oak (genus *Quercus*). Amongst these, Brant's Oak (*Quercus brantii*) is one of the most important and widely found trees (Figure 1). It is a sacred tree for the Monpas (a tribe of Arunachal Pradesh) residing in the rural areas of West Kameng District. Brant's Oak is



**Figure 1.** Sparsely found Brant's Oak sapling (photograph: J. Riba).

one of the most priced trees for the Monpa agricultural community. Despite the rugged Himalayan topography and thin topsoil mostly covered with cobbles and other rock fragments, the people in this rural area depend on primitive subsistence agriculture, which is technically and economically underdeveloped. They neither have access to fertilizers, nor can they afford to purchase them from the far-flung market. So instead of using chemical fertilizers, they enhance the soil fertility by mulching the agricultural fields with shaded leaves of Brant's Oak. Simultaneously it also increases the humus content of the soil and improves the production of the crops like tomatoes, chillies, maize, cabbage and soybean grown by them.

Due to the cold weather condition almost throughout the year, firewood consumption is high. Oak wood has a density of about  $0.75 \text{ cm}^{-2}$ , exhibiting great strength and hardness. So oak wood is a good source of firewood. Comparatively

oak wood is used more than the other woods as constructing material for local homes and furniture. Thus the Monpas practice selective felling of Brant's Oak to meet their needs. There is no doubt that people of this area consider oak as a sacred tree and even perform rituals for the small oak groves. But such conservation practices are meagre when compared to its rapid depletion. This is a threat to the ecology, agriculture and economy of the Monpas. Therefore, the unscientific mass exploitation of *Quercus* is a matter of concern and a proper conservation plan is the need of the hour to protect these trees.

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## Challenges in earth science

This refers to the article published in *Current Science*<sup>1</sup> about the challenges in earth sciences. The author has rightly pointed out the many challenges 21st century poses for global sustainability. The anthropogenic pressure on resources has already started causing strain on the fragile environment. The impact is going to be tremendous on natural resources, climate and human health, if indiscriminate and unscientific exploitation of the earth continues at the same pace. With the dwindling natural resources due to overexploitation as a result of industrial revolution, the approach to the field of geology has to undergo a paradigm shift.

India cannot remain indifferent to the challenges as it is already being threatened by environmental crisis due to unplanned development and uneven urban growth. Earth scientists need to address these issues by providing scientific inputs to the policy makers and this is possible only if they tune themselves to these challenges. This may require a change in the programmes and shift in the priorities. Earth sciences still remains

the least preferred subject in the universities.

Geology in India is primarily applied and also viewed as a subject to understand and exploit natural resources. The largest geological organization of the country, the Geological Survey of India (GSI), since its inception continues to function with that perspective. This grand organization has served India for more than 150 years and was instrumental in supporting the mining sector of the country. GSI needs to undergo a paradigm shift in its approaches and priorities to face the challenges of the 21st century in earth sciences. There should be more interaction among institutions for multidisciplinary research. Being the largest absorber of geologists in the country, GSI needs to reorient its functions and include them in its annual field season programmes. It should not be viewed as a survey department to estimate the natural resources of the country. There are many organizations and institutions who are carrying out research in earth sciences in our country. Unfortunately there is not much interaction among them, and

sometime they duplicate the same job. This can be avoided if there is proper coordination and dissemination of information among them. GSI has already started moving in this direction. The GSI portal is a first step in this direction.

The Ministry of Earth Sciences was created with the aim to bring all the earth sciences departments under a single umbrella so that research could be better coordinated. Unfortunately the major player of earth sciences, GSI, is not a part of this agenda. Geologists of our country are capable of addressing the challenges mentioned above provided their potentials is tapped and an environment of scientific temperament is created in the country.

1. Rajendran, C. P., *Curr. Sci.*, 2010, **99**(12), 1690-1698.

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