

Quaternary palaeoclimatic research in India and its relevance to the societal education

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The Quaternary Period is of critical significance in earth history due to frequent and rapid climatic changes. To understand these changes, the palaeoclimatologists have emphasized the importance of the past climate, using proxy records retrieved through the analysis of sediments from ocean, lakes and swamps, which serve as natural archives. From the Indian subcontinent, the pollen records from Himalaya have provided insight on the changing vegetation scenarios in response to glacial/interglacial events since Plio-Pleistocene. The spatial and temporal alterations in the tropical forests and monsoon trend have been reconstructed through the analysis of sediment deposits. The studies from Rajasthan have suggested that around 5000 to 3500 yr BP, this arid region might have received rainfall 500mm/yr greater than today. The inception of agricultural practice in the densely populated Ganga Plain around 7000 yr BP and its subsequent pace, depending upon monsoon trend. The investigation of coastal lake sediments has unraveled the sea-level fluctuations during past and their influence on mangroves. However, a comprehensive reconstruction of past climate change and its influence on the natural vegetation in a definite time frame is needed. This could provide information on palaeomonsoon trend during last few millennia and its impact on the vegetation dynamics in different regions. Such studies could also contribute to trace out the past geographical distribution of some prominent forest elements, their extinction and migration from one region to another in response to climatic and catastrophic changes as well as the stress of anthropogenic activities on the natural resources. The study from deep-sea cores could contribute in understanding the sea-level fluctuations due to global warming during last few millennia. The effect of such changes on the past and present distribution and extent of mangroves vegetation could also be depicted. This information could help to develop suitable measures for the management of coastal landscape. The pollen sequences could be used to simulate the climatic models for the Indian subcontinent in order to assess the future course of climate relevant to human society. The knowledge gleaned from different disciplines will also help to educate the society to undertake the appropriate measures in order to maintain the natural balance on the earth.