

lies very close to NG-R (Radhakrishna, 2005), and (4) the NG-R also falls within a narrow corridor across the intriguing 80°E, along which lie a number of significant tectonomagmatic features (eg. Jabalpur, Bhadrachalam, Ongole, Nellore, Pondicherry, Panna, etc.); it may be noted in this context that in the offshore region adjoining southern most Sri Lanka, major N-S trending fracture zones appear to enter in 80°E corridor and these have been attributed to

the traverse of the Indian plate over the Conrad hotspot.

Effect of these first order factors and other finer details need to be considered in modeling the damage along the east coast particularly near the NG-R.

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TRAINING PROGRAMME ON FLUVIAL SYSTEMS

A Training Programme on Fluvial Systems sponsored by Department of Science and Technology (DST), New-Delhi was organized by the Department of Geology, Maharaja Sayajirao University of Baroda, Vadodara from 16th November, 2004 to 25th November, 2004. Twenty participants representing various universities and research Institutions from all over the country and three local participants attended the training programme. The programme was aimed to acquaint young scientists of the country with the multifaceted nature of the fluvial depositional system so that they can take up challenging research along similar lines in the various parts of the country. Earth Science being a field oriented subject, the programme was designed to provide maximum field exposure to the participants. The first two days of the programme were devoted to lectures on various aspects of fluvial systems by eminent resource persons of the country. This was followed by eight days extensive field training in the various river valleys of Gujarat alluvial plains.

The inaugural session of the programme was presided over by Prof. A.V. Ramchandran, Dean, Faculty of

Science, M. S. University of Baroda. Prof. L. S. Chamyal, Coordinator of the programme welcomed the resource persons and the participants. Prof. S. K. Tandon stressed on the need for involvement of young geoscientists for taking up challenging research on various fluvial systems of the country. Prof. V. Rajamani in his address highlighted the importance of fluvial systems in the survival of life on earth and role of geoscientists in understanding them. Dr. K.R. Gupta, Adviser, ESS, DST, New-Delhi in his address enlightened the participants about the activities of DST, and highlighted the thrust areas identified for challenging research in earth sciences. He hoped that the participants will be benefited from the course and will take up research on crucial aspects of fluvial systems. Prof. S. K. Tandon in his two lectures emphasized the study of past climates as revealed by fluvial sediments with examples from northern and western India. Dr. S. K. Biswas gave a detailed account of the structure and neotectonics of western India with special reference to fluvial systems, basin evolution and sedimentation. Prof. V. Rajamani in his lectures highlighted the usefulness

of geochemical studies on clastic sediments and aspects of biological management of water.

Prof. A. K. Singhvi provided an elaborate description on the principles and methodology of luminescence dating and its application in fluvial sediments in varied geologic settings. Prof. R. Ramesh dealt with the stable isotopic studies and radiocarbon dating in fluvial environments. Aspects of palaeohydrology and palaeoflood geomorphology were covered in two lectures by Prof. V. S. Kale. Dr. R. Sinha in his two lectures discussed the fundamental aspects of river morphology and fluvial depositional systems. Significance of calcretes in fluvial sediments was explained by Dr. Hema Achyuthan. Dr. A. Bhattacharyya discussed the prospects of tree rings and pollen data in analysing fluvial environments. Dr. D. M. Maurya dealt with the emerging field of tectonic geomorphology and aspects of morphostratigraphy. Dr. N. Bhatt discussed the concepts of sequence stratigraphy and its application to fluvial systems.

The detailed lecture notes submitted by the resource persons were compiled and provided to the participants before the beginning of the programme. A field guide was also provided beforehand containing basic information about the knowledge available so far on the fluvial geomorphologic, stratigraphic, sedimentologic, neotectonic, palaeoenvironmental and chronologic aspects on the fluvial systems of Mainland Gujarat. All the lectures were delivered on the 16th-17th November, 2004, which was followed by vigorous field training for the remaining eight days in the river valleys of Mahi, Narmada and Sabarmati in Gujarat alluvial plains. The field training was imparted by well known workers on fluvial systems viz. Prof. L. S. Chamyal, Dr. D. M. Maurya, Dr. Navin Juyal, Dr. N. P. Bhatt, Prof. V. S. Kale, Dr. Hema Achyuthan, Dr. A. Bhattacharyya and Dr. S. I. Vaid who shared their expertise with the participants. Dr. M. Prithviraj, Director, DST spent two days in the field and closely interacted

with the participants. In his address, he exhorted the youngsters attending the programme to take advantage of the opportunity of training provided in the field and hoped that their future research on these lines will contribute effectively to the developmental activities and ensure that the planners are provided with geoscientific data that will permit sustainable development and economic prosperity.

The participants were familiarised in various field techniques of fluvial geomorphic mapping and reconstructing morphostratigraphy based on field relationship of landforms, delineating vertical and lateral facies variations, mapping of fluvial sediments, field study of fluvial sedimentary structures, delineation of fluvial microenvironments, reconstruction of stratigraphy, identification and characterisation of channel aggradation cycles, effects of autogenic and allogenic factors on fluvial sedimentation, identification of palaeoflood deposits, various types of calcretes and soils. One full day was devoted in demonstrating the working and application of Ground Penetrating Radar, a state-of-art geophysical technique to study fluvial sediments in the shallow subsurface. On the last day of the programme the participants spent half day in independent mapping and observing the fluvial sediments. The programme ended with the distribution of certificates to the participants during the concluding/feedback session in the evening of 25th November, 2004. The participants lauded the academic inputs and logistic arrangements provided to them during the programme. The feedback from participants appreciated the field component and stressed the utility of conducting such field-oriented short-term courses on focussed themes.

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NATURAL HAZARDS: A CHANGE OF APPROACH CALLED FOR

Are our natural hazards always more severe than we can cope with or we always react less than adequately and a bit too late? Predictions apart, the initiation of any hazard affords adequate management opportunity. The avalanches in J&K are no exception nor was the 26th December quake now rated as second most severe (9.3 not 9) and the deadliest quake of last 500 years by the US Geological Survey. Fourth ice age may be 18000 years

behind us but heavy snowfall and avalanches happen frequently even in this era of global warming. In 1979, massive avalanches as late as April and May, left remnants on the Kulu-Kaza road between Gramphoo and Chhetru. Chandra River got filled up by glacier beyond its capacity above the bridge, which was deformed and could be negotiated, only by light vehicles as late as August. In entire Lahaul, several villages were partially or completely erased.