

## Preface

Seismic Microzonation involves the assessing of seismic hazards at local scales to enable incorporating the local site effects with more rigorous inputs such as site-specific geology, geophysical, geotechnical and seismotectonic details. Compiling all this information in the proper format for the use of planners, developers, decision makers and insurance companies, etc., is another important aspect of microzonation. Knowledge of past earthquakes, geometry and the characteristics of faults in the region, attenuation relationships, site characterization, site response, ground amplification, liquefaction susceptibility, landslide possibilities, etc., is essential for carrying out the microzonation exercise. Considering the social and economic implications of seismic microzonation, it is imperative that each of these parameters is carefully represented and the maps are presented in the appropriate scales, in user-friendly formats and with clarity.

With the objective of working towards effective procedures for microzonation of urban centers, the Programme Advisory and Monitoring Committee (PAMC) of Seismology Division, Department of Science and Technology, Govt. of India under the leadership of Dr Harsh K Gupta mooted the idea of conducting a workshop on seismic microzonation. A two-day workshop was therefore, held on 26<sup>th</sup> and 27<sup>th</sup> June 2007 in the Department of Civil Engineering, Indian Institute of Science, Bangalore. We are grateful to Dr B K Bansal, Director, Seismology Division, Ministry of Earth Science, Govt. of India, for his constant encouragement and support for such activities, and in particular, for his special interest in the workshop.

This special issue of the *Journal of Earth System Science* published by the **Indian Academy of**

**Sciences** originated from this workshop and comprises articles addressing concerns related to different components of **Seismic Microzonation** along with some case studies. Seismic hazard assessment by deterministic approach; important parameters of maximum magnitude ( $M_{\max}$ ) estimation for different regions with case studies and parameters affecting the uncertainties on the estimation of  $M_{\max}$ ; modeling acceleration time histories and synthetic ground models, their importance for ground response analysis and microzonation; site response studies using equivalent-linear one-dimensional model, numerical models and experimental studies are all discussed in these papers. Case studies on seismic hazard mapping and seismic microzonation of cities have also been included. This special issue also contains recent research in the area of seismic hazard assessment, site response studies, and evaluation of dynamic properties, liquefaction and microzonation.

I thank Dr S R Shetye, Editor, *Journal of Earth System Science* (JESS) and Dr D Shankar, Associate Editor, JESS for their interest and helpful suggestions. I also thank the authors for their contributions, and the reviewers for their timely help. Special thanks to Dr P Anbazhagan, Lecturer, Department of Civil Engineering, Indian Institute of Science, Bangalore for his invaluable help. The panel of referees who helped in reviewing the papers of this special issue has been included overleaf.

**T G Sitharam**

Guest Editor.

## List of Reviewers

- S K Agrawal, *CBRI - Structural Engineering Division, Shantinagar, Roorkee, India*  
 P Anbazhagan, *Indian Institute of Science, Bangalore, India*  
 Subhamoy Bhattacharya, *University of Oxford, United Kingdom*  
 A Boominathan, *Indian Institute of Technology, Chennai, India*  
 L S Chamyal, *M.S. University of Baroda, Vadodara, India*  
 S Dasgupta, *Geological Survey of India, Kolkata, India*  
 Deepankar Choudhury, *Indian Institute of Technology, Powai, Mumbai, India*  
 Mohsen Kamalian, *International Institute of Earthquake Engineering and Seismology (IIEES)  
 Tehran, Iran*  
 Takaji Kokusho, *Chuo University, Tokyo, Japan*  
 Madhavi Latha, *Indian Institute of Science, Bangalore, India*  
 D Barbara Luke, *University of Nevada, Las Vegas, United States*  
 B K Maheshwari, *Indian Institute of Technology, Roorkee, India*  
 Prantik Mandal, *NGRI, Seismology, Hyderabad, India*  
 J P Narayan, *Indian Institute of Technology, Roorkee, India*  
 S K Nath, *Indian Institute of Technology, Kharagpur, India*  
 S T G Raghu Kanth, *Indian Institute of Technology, Guwahati, India*  
 K Ganesh Raj, *ISRO Headquarters, Antariksh Bhavan, Bangalore, India*  
 G V Ramana, *Indian Institute of Technology, Delhi, India*  
 Ali Shafiee, *International Institute of Earthquake Engineering and Seismology, Tehran, Iran*  
 Daya Shankar, *Indian Institute of Technology Roorkee, Roorkee, India*  
 M L Sharma, *Indian Institute of Technology, Roorkee, India*  
 Ravi Sinha, *Indian Institute of Technology, Powai, Mumbai, India*  
 D Srinagesh, *National Geophysical Research Institute, Hyderabad, India*  
 S S Teotia, *Kurukshetra University, Geophysics Department, India*  
 Zhenming Wang, *Kentucky Geological Survey, University of Kentucky, Lexington, KY*  
 Freidemann Wenzel, *University of Karlsruhe, Geophysical Institute, Germany*