

ENGINEERING GEOSCIENCES, Prof. R. S. Mittal Commemorative Volume.
B. B. S. Singhal (Editor), 1982 Saritha Prakashan, Meerut, India. pp. 226.

This is a commemorative volume brought out in honour of Prof. R. S. Mittal on his retiring from service in the University of Roorkee, U.P., in 1979. Thirty-six authors have responded to Prof. Singhal's invitation and have contributed twenty papers. The book includes a brief life sketch of Prof. Mittal written by Prof. Singhal, and provides information on his work, achievements and contributions to the development of engineering geosciences.

Professor Shamsheer Prakash highlights the inseparable bondage between Geology and Civil Engineering. A. K. Roy and A. Bhattacharya have brought out the salient features and importance of aerial and satellite photos supported by their relevant field studies in Madhya Pradesh, Tripura, Farakka Barrage, Rajmahal Basalts, alluvial plains of Orissa, West Bengal and Uttar Pradesh and desertic plains of Haryana. K. B. Powar and D. N. Patil have made use of satellite and aerial photographs in addition to topographic sheets for their work around Pen and Kolaba district, Konkan coastal plains and Deccan plateau revealing the Panvel flexure. Besides, they have furnished data on the limits of present day sedimentation in Srivardhan coast and the tectonic framework of Peninsular India, with special reference to Koyna area. They have interpreted the faults along the west coast and in the Arabian Sea, parallel to the coast. The authors have also discussed the trend of the lineaments observed on the Deccan trap terrain and their association with subcontinental movement.

B. C. Raymahashay has furnished results of his studies on weathering of Deccan basalts around Sagar Hills (M.P.). The soil types – Lateritic soils at the top and black cotton soil at the foot hills – are studied to compare their engineering properties. He has attempted to bring out the relationship between plasticity indices and fraction of clay minerals and degree of decomposition. He has also dealt with the thick belt of slates and phyllites near Rajpur (Dehradun) which are prone to landslides. Dinesh Mohan and R. K. Bhandari have conducted laboratory experiments of Rock Mechanics on the Kasauli sandstone, which showed a very high degree of fracturing and poor Rock Quality Designation (RQD).

Surindra K. Gupta and V. K. S. Dave have brought out the causes for frequent landslips in the Kumulti-Debrani area along Bhagirati river and thrown much light on the flash floods due to destruction of dams formed by landslips at three places. It would have been better if they had suggested remedial measures to prevent the landslips in the region. R. J. Garde has studied the longitudinal profile Kosi and other major Indian rivers.

P. C. Mohan, B. Prakash and N. Puri have explained the laboratory and field tests on dune sands from six locations. N. Bhattacharya and A. K. Sinha, have utilized the Scanning Electron Microscope and X-Ray diffraction data for fractioning clay minerals.

V. D. Choubey and B. S. Tanwar have presented groundwater development for irrigation in the alluvial plains of seven states of North India. The study includes groundwater conditions and quality. The authors have suggested the planning of well-fields, spacing of wells and depths. Further, they have discussed the ways of exploiting deep confined aquifers and conjunctive use of surface and subsurface water in alluvial regions. B. D. Pathak has discussed in detail the work carried out

by the CGWB on groundwater exploration and resource evaluation, monitoring of water levels, study of special problems like salinity, water logging, pollution, over-draft, thermal springs etc. Estimation of groundwater recharge and scope for further groundwater development are discussed. Districtwise water-balance of 54 districts of Uttar Pradesh is tabulated. The methodology adopted by the author will serve as a useful tool for engineers in planning similar work. In his paper on 'Calcium Carbonate Saturation Studies of Groundwaters of Karnataka', J. C. V. Sastry has furnished the results of his work on 1465 water samples on the saturation of calcium carbonate in eleven rock types of Karnataka.

Syed E. Hasan has dealt with the data processing systems for automatic evaluation of the suitability of a site for a given land use in USA. The computer scans the data content and evaluates it for its land use capability. B. K. Baweja has furnished details of decline in groundwater quality and quantity in Kanpur, due to urbanisation and increase of domestic, industrial and other types of wastes.

Bhawani Singh and P. K. Goel have detailed the relationship between static mass modulus and frequency of joints in rocks. A relationship has been developed between dynamic and elastic moduli of jointed rocks, based on their intensive study. The paper is based on the tests carried out on rocks of Tehri dam site. C. V. Ramakrishna and Harsh K. Gupta have utilized the data on 81 earthquakes from Seismological Observatory, NGRI and developed an empirical relation to estimate the earthquake magnitude in Peninsular India. P. N. Agarwal and A. Kumar have investigated Koyna-Chiplun region, Kalawar near Dehradun, Tehri region and Navagam dam site in Gujarat with micro-earthquake recording and the influence of reservoir filling on seismic activity. They have also utilized micro-earthquake recording in the exploration of geothermal potential of Puga valley of Ladakh, Manikaran and Sohna geothermal fields.

K. N. Khattri and others have selected Lakhwar dam site for study and used the multi-channel seismograph to determine the ground acceleration due to subsurface blasting of basalts in the neighbourhood, to assess the possibility of any damage to construction work. Srinivas and others have made use of Simulation Technique to generate one hundred and twenty models having variable sand/shale ratio values. Utilizing forty selected representative samples out of them, they have determined the values of resistivity transform, auto-correlation function etc. The authors emphasize the need for improving the results through further analysis. S. K. Upadhyay has used seismic method to explore oil-bearing structures; drilling and logging techniques to detect the presence of hydrocarbons and to estimate the production value, using the amplitude and velocity analysis of seismic reflections.

The Volume serves as a useful reference for teaching. It has an attractive get-up. Printers errors are minimal. The price of the volume is not mentioned. The volume can be procured from the Printers and Publishers – Saritha Prakashan, 175, Nauchandi Gardens, Meerut City 250 002 or, 36, Netaji Subhas Marg, Daryaganj, New Delhi 110 002.

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