

Dr. R. Venugopalarao
Vice President – Civil Design
Energy Infratech Private Limited



PROFILE

Developed design methodology for underground excavations under low stress conditions. Normal design principle uses failure envelopes to estimate the length of rock bolts. Under low stress regime, rock mass do not fail, but the excavations are unstable due to opening and sliding of joints. *Developed optical deformation monitoring system for three dimensional rock mass movements in underground excavations first time in India.* Successfully designed the support system for Tala Powerhouse, taking into account of roof failure and subsequent rock bolt failure in walls. The support system suggested working satisfactorily and the performance matched with those of instrumentation observations. Optimization of support systems based on excavation sequence

PROFESSIONAL HIGHLIGHTS

Scientist & Head (1996-2005)

Numerical Modeling Section, National Institute of Rock Mechanics, Kolar Gold Fields

Heading a key project consultancy division of numerical modeling and instrumentation of UG workings. Handling projects worth Rs. 20.0 million and Rs. 10.0 million in individual capacity. Improved the department annual cash flow from 1.5 million to 13 million per annum. Involved in laboratory and insitu investigation programs for UG excavations for hydropower development. Stress Analysis and Support Design for tunnels, caverns for Hydro electric power projects using state of the art software like UDEC, 3DEC, BEFE, FLAC. Performance evaluation of support systems of underground excavation using advanced instrumentation like 3D optical deformation monitoring, extensometers, peizometers, Loadcells etc. First to introduce Optical deformation monitoring using Industrial grade total station for UG excavations in India. Introduced concepts like joint deformations, force induced in support systems to design support system for UG excavations. Stability analysis of natural rock slopes and dams using 3D modeling including earthquake effects. Stability and subsidence problems associated with coal mining. Developing Boundary Element Software for Underground Space Structures funded by National Committee of Central water commission of Government of India.

Research Associate (1990 - 1995)

Civil Engineering Department, Indian Institute of Technology, Kanpur

Lecturer & Head Geotechnical Division (1986 - 1989)

Civil Engineering Department, Bapatla Engineering College, Bapatla, AP

EDUCATIONAL BACKGROUND

Ph. D. (Civil Engineering)

Indian Institute of Technology, Geotechnical Engineering

M. Tech. (Civil Engineering)
Indian Institute of Technology

B. Tech. (Civil Engineering)
JNTU College of Engineering, Andhra Pradesh.

MEMBERSHIPS

Indian Geotechnical Society (LM-874)
International Society for Rock Mechanics Member
International Tunneling Association