Study of the Structure of the Indian Subcontinent – T.S. Balakrishnan Director(Geophysics), Retd., ONGC (*Email: ts.balakrishnan@yahoo.com*)

Current geology of the Indian sub-continent is based on the Geological Map of India prepared by the Geological Survey of India. It covers all the rock outcrops observed in the country. However, large parts (that are covered by alluvium) are left uncovered – particularly the Indo-Gangetic plains, the coastal areas, the Bay of Bengal and the Arabian Sea. This wide gap in knowledge has been filled by the geophysical surveys of the ONGC, OIL and NGRI.

Geophysics is the application of measurement to geology and is, therefore, an extension of geological knowledge. This aspect has been widely ignored in the teaching of geology in universities and has to be remedied. As an initial contribution a series of docket is being posted on the website of the Geological Society of

India, each docket describing a particular part of the country. The accompanying maps form an integral part of the description.

For a full understanding of the crust, intensive, extensive and uniform coverage of the concerned data is required. This condition is satisfied in the topographic and gravity anomaly maps of the country and partly in the Geological Map of India. The first attempt to produce a tectonic map based on composite data was made in a collaboration project of ONGC and the Indian Institute of Geomagnetism. This was published in 1997 as a Memoir of the Geological Society of India entitled “Tectonic Elements of the Indian Subcontinent and Contiguous Areas: A Geophysical View”. It included a coloured tectonic map on a scale of 1:4000000.

As it was the first attempt at an integrated study, there were some drawbacks and a subsequent attempt was made to remedy these in collaboration Shri Unnikrishnan and Shri A.V. Sastry (both of ONGC). Infrastructural support was given by ONGC. The new map was finalized in 2009. A new write up along with the new map was published in the Journal of the Geological Society of India (v.74, 2009, pp.158-170)

There is, however, no end to science. Fresh data, fresh interpretations and fresh ideas keep cropping up. As a consequence periodic updating of maps and reports are inevitable. This has been done and post 2009 maps have been prepared for different parts of the country. The Geological Society has kindly agreed to post these on their website (www.geosocindia.com).