

Historical and Future Seismicity near Jaitapur, India – R.Bilham and V.K.Gaur, Current Science, Vol 101, 25 Nov 2011. Reviewed by R.N. Iyengar, Jain University, Bangalore

This article is a review of the current state of our knowledge on the seismic status of the Jaitapur site, where a nuclear power plant is proposed to be built in the near future. Four special conditions are listed for the occurrence of earthquakes in a stable continental region like Peninsular India. With reference to the Jaitapur site the nearest rift zone is some 200 km away off the west coast with no known earthquakes. The nearest continental rift zone, namely the Kutch region is 800 km away. The site lies on the west coast, with no known earthquakes attributable to the coastal setting even though the available data is not long enough to draw strong conclusions.

The Koyna region had a strong event of $M_w=6.4$ in 1967 and continues to produce tremors frequently. Jaitapur is about 110 km away from Koyna and hence the local region may have similar potential. The most important fourth reason is due to the flexure of the Indian plate due to its northward movement and collision with the Tibetan Plateau. The main contribution of the authors is to point out that Jaitapur lies in the same compressional stress regime that has been responsible for generating both the $M_w = 6.3$ Latur and the $M_w = 6.4$ Koyna earthquakes in the recent past. Hence it can be argued that a similar sized earthquake can occur uncomfortably close to the

power plant site.

In the above scenario the power plant structure has to withstand ground vibrations rich in high frequencies and accelerations reaching 0.5g. At present the official stand appears to be that Jaitapur is in zone III of the seismic zoning map of the building code IS-1893, which is any way not applicable for nuclear power plants. As per this document the notional peak ground acceleration value for zone III is only 0.16g. It is hoped the authorities make sure that the power plant structure will safely withstand the worst case scenario of a near source event of the Koyna type.