A slice of Bangalore in the world’s largest telescope

Bangalore: Questions ranging from the existence of extraterrestrial life to the birth and fate of the universe may be answered by the Giant Segmented Mirror Telescopes (GSMTs), with diameters of over 20 metres.

Teams from Bangalore’s Indian Institute of Astrophysics in collaboration with Inter-University Centre for Astronomy and Astrophysics, Pune and ARIES, Nainital, along with several international agencies are currently working on a Thirty Meter Telescope (TMT), the first of its kind under the GSMTs slated to be operational by 2020. It’ll be located at Mauna Kea, Hawaii. TMT will also identify and reveal the nature of the first stars and the earliest galaxies as well as the nature and composition of the universe. It’ll be the largest telescope in the world as the 39-metre diameter Extremely Large Telescope—an European Southern Observatory project supported by 15 EU nations—will be online only by 2022.

“Technology demonstration and manufacture of prototype of some critical systems are being done at participating institutes and industries in the country, and may be completed by mid-2013. The design was ready in 2010. Telescope construction will commence in 2014,” B Eswar Reddy, programme director, India TMT Coordination Centre (ITCC), told TOI. Experts close to TMT say the project took a while to take off as there was a delay in funding by National Sciences Foundation of the US and agencies of other countries. “Building such a telescope requires huge capital, high-end technology, and exceptional sites to obtain high-quality data. That’s why most 10-metre large telescopes (currently largest in the world) were built through international collaboration. All are located either in the Andes Mountains (Chile), Mauna Kea, Hawaii or Tenerife (Spain),” a scientist associated with the project said.

TMT is an excellent opportunity for India as future generations can pursue varied interests ranging from solar system studies to the formation of the first stars. The country’s motivation to join the TMT project stems from three factors—opportunity for frontline research, technology transfer and sharing the huge cost.

B Eswar Reddy | PROGRAMME DIRECTOR, INDIA TMT COORDINATION CENTRE