



## Italian technology for two bridges among 16 coming up on J&K rail link



A network of 16 big and small bridges, including two with Italian technology -- with a total length of 2.3 kms -- are coming up at a quick pace on the upcoming Udhampur-Srinagar-Baramulla Rail Link (USBRL), officials here on Monday.

The bridges are being constructed by engineering giant Afcons Infrastructure Ltd. Mumbai for the USBRL on the 66-km long alignment being executed by Konkan Railway Corporation Ltd. (KRCL) to transform the lives of the people of the valley and link Jammu & Kashmir with the rest of the country.

For the first time in India, a series of 16 Pre-loaded Spring Dampers (PSDs) are being installed on Bridges No. 39 and 43 to counter seismic load and enhance safety, ushering a new era in bridge building in such geologically complex terrain, said Alimilla Sagar, Afcons Project Manager for the 16 bridges.

Imported from Italy, the PSDs installation will start in October and be completed by December, on these bridges coming in the Reasi, Bakka, Kouri and Sangaldan sector with 90 percent works completed, he added.

The PSDs shall be installed in the main span and two platform spans of the two bridges, and the Italian carpentry teams for implementing them have reached the site.

"Additionally, a tie-down mechanism is being used on Bridge 39 which is facing the Chenab Valley, to counter the high wind velocity that will hit the structure and ensure its safety," Sagar said.

The PSDs are particularly necessary for bridges 39 & 43 because they are continuous composite steel girders with spans of 490m and 777m respectively, and could be vulnerable to any seismic wave might as they are located in the Reasi district, which falls under most-active seismic region of Zone-V, and the Reasi fault lines pass through the region, he said.

The PSDs are designed to counter the seismic load in the structures, limiting and damping the movements that arise between parts of a structure during earthquakes, help resist the seismic forces and enhance the bridge's strength and are installed directly between the bridge and piers, according to Sagar.

For the 16 bridges, so far nearly 17-lakh cubic metres' excavation has been done, 25,000 tons of structural steel and 27,500 tons of reinforcement steel and over 63,000 tons of cement have been consumed, he said.

Afcons' Vice President for Core Methods & Engineer Group Mandar Karnik said that Bridge 39 has seven piers, three higher than 70 metres, the tallest is 103 metres or 30 metres higher than Qutb Minar.

"The bridge foundations are located at almost inaccessible locations, the entire superstructure of 490-metre length was fabricated in structural steel, assembled behind abutment and incrementally launched," said Karnik.

Discussing the major hurdles, Senior Manager, Quantity Survey Ladli Prashad said that these include adverse weather conditions, complex geology, extreme engineering, unexpected rain, narrow and landslide prone roads with hairpin bends to transport heavy materials, steep slopes and frequent landslides that made the difficult work all the more challenging.

Despite these obstacles, Senior Manager, HSE, Subash C. Satpathy said that the project achieved 17.50 million Safe Man Hours due to strict implementation of safety protocols.

Once completed, these 16 bridges shall be connected to the mega-marvel Chenab Railway Bridge arched superstructure, which was executed in August for the railway line on the USBRL project to enable passengers to reach their destination safely by trains.