

HOME / NEWS / CITIES / BENGALURU

Metro a misplaced mobility option to suburbs, try Regional Rapid Transit System, say experts

The RRTS system unlike the Metro, caters to commuters travelling relatively longer distances with fewer stops and at higher speed. It also differs from conventional trains by providing reliable, high-frequency, point-to-point regional travel along a dedicated pathway

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RASHEED KAPPAN



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The 6.29-km elevated line, an extension of the green line in the south of Bengaluru city on Kanakapura Road has five stations – Konanakunte Cross, Doddakallasandra, Vajrahalli, Thalaghattapura and Silk Institute. | Photo Credit: Bhagya Prakash K

Should the low-capacity, low-speed, hugely expensive Metro rail system be extended to the far-flung suburbs and the adjacent districts of Bengaluru? Vast swathes of the city's core are yet to get a decent Metro network, but the urge to extend its reach comes at the cost of a very viable alternative: The much-delayed suburban rail system with a clearly established potential for high capacity, high speed and much lower construction cost.

Are the State and the Bangalore Metro Rail Corporation Limited (BMRCL) serious about the extension? For the record, a feasibility study has been proposed by Namma Metro for a potential 129-km of Phase 4. The plan is to extend the Purple and Green lines to Bidadi via Mysuru Road; Harohalli through Kanakapura Road, Attibele along Hosur Road and to Kunigal Cross, taking the Tumakuru Road route.

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Delhi-Meerut Regional Rapid Transit System (RRTS), in Ghaziabad. | Photo Credit: SHASHI SHEKHAR KASHYAP

Suburban rail or RRTS

By all accounts, taking the Metro to such long distances away from the city centre could be prohibitively expensive. "Instead, they should either go for the suburban rail or the high-speed Regional Rapid Transit System (RRTS) like the one you see between Delhi and Meerut. Metro as an option, I feel, is misplaced," notes Dr. Ashish Verma, Convener of the Sustainable Transportation Lab at the Indian Institute of Science (IISc).

The priority, he says, should be on decongesting the city's core part by completing all the pending three Metro phases, and the four-corridor suburban network planned and being implemented under K-RIDE (Rail Infrastructure Development Company (Karnataka) Limited).

Designed for speeds of up to 160kmph, the RRTS is a dedicated, high-speed, high-capacity commuter service linking the regional nodes in the National Capital Region (NCR). Unlike the Metro, it caters to commuters travelling relatively longer distances with fewer stops and at higher speed. It also differs from conventional trains by providing reliable, high frequency, point-to-point regional travel along a dedicated pathway.

The Delhi-Meerut RRTS (RapidX) project's Priority Corridor commenced its commercial operations on October 21, 2023. The 17-km section links Sahibabad and Duhai via four elevated stations. RRTS is three times faster than the Metro, taking about one hour to cover 100 kms compared to the Metro's estimated three hours. Can this be an option to connect Bengaluru to its neighbouring towns?

To Tumakuru

Now, a closer look at the Metro option proposed to Tumakuru. As seasoned suburban rail analyst and campaigner Rajkumar Dugar points out, once the currently operational Green Line up to Nagasandra is extended till Tumakuru Railway Station, the entire corridor length would go up to 86 kms. "Metro is meant for short distances within the city, not for such long distances," says he.

The construction cost too would be enormous. "Presently, the elevated Metro costs about ₹300 Crore per kilometer. Underground Metro costs much more. Adding an elevated stretch of 52 km will cost about ₹15,600 Crores – or more, by the time it is commissioned," Rajkumar explains.

Longer commute time

Commute time would be another issue. It is estimated that a Metro ride from Majestic to Tumakuru will take about two hours. "The average speed of a Metro is 34kmph. To cover 70kms, it will take 124 minutes," he says. "However, due to various reasons, we can assume that the average speed of the Metro will be higher between Nagasandra and Tumakuru (e.g., with greater inter-station gaps). Even then it will take about 110 minutes. This does not compare well even with present trains."

The long-distance routes proposed under Metro Phase 4 run counter to the Comprehensive Mobility Plan (CMP) prepared by the BMRCL in 2020 as mandated for Phase 2A and 2B approvals. The Plan prioritized further densification of Metro within the city, by adding three new lines along Old Airport Road, Old Madras Road and Sarjapur Road.

"Barring the Airport line with limited stops, North Bengaluru is left out from the Metro network. The Airport line will take another three years. Without a mass public transport option, all roads are choked. If they had prioritised Metro or suburban rail there, the Hebbal flyover expansion wouldn't have been required," contends urban rail analyst Sanjeev Dyamannavar.

He attributes the planning gaps and shift in priorities to the slow progress in activating the Bengaluru Metropolitan Land Transport Authority (BMLTA).

The 'most practical' option

RRTS should be an ideal option to link Bengaluru with its adjoining towns. But the Bengaluru Suburban Rail Project (BSRP), being built by K-RIDE remains a low-hanging fruit, as Rajkumar indicates. The four-corridor project, covering a total distance of 148kms at a total cost of Rs 15,767 crore, is designed to take an estimated 10 lakh people off the roads.

Work is now underway on the Mallige corridor between Baiyappanahalli and Chikka Banavara and is expected to be completed by the end of 2025. As he elaborates, "Chikka Banavara is 56 kms from Tumakuru Railway Station. Already the proposal to extend the Suburban Rail Corridor to Tumakuru is under consideration. Extending the BSRP Corridor is easier, more economical and can be done expeditiously. The Mallige corridor itself will cost about Rs. 115 crore per kilometer."

The message is clear: BSRP is the most practical option for all surrounding towns. "BSRP is economical, safe, comfortable, inclusive, fast and an eco-friendly option. The eight ends of the four Corridors can be relatively easily, quickly and economically extended to the nearby towns."

Rail and regional development

In terms of high-speed connectivity, a 2022 IISc study by Dr. Ashish and Saransh Sahu should be contextual here. "IISc was given a campus in Challakere in Chitradurga district. But growth and development has been slow due to connectivity issues. Scientists could not get there quickly. We did a study based on a hypothetical introduction of a high-speed train between Bengaluru and Challakere," Dr. Ashish recalls.

The study clearly indicated that with such a connectivity, IISc's productivity could be increased in terms of publications and research. Extending this finding to the entire region, the paper noted: "The short term and long-term impacts of high-speed accessibility and connectivity help policymakers to think wisely about the planned introduction of HSR for inter-regional connectivity."

Such connectivity, he says, can induce growth for different sectors. It could be industries or institutions. The study reiterates this: "Due to the absence of well-established facilities, organizations may not wish to establish in under-developed regions. For example, most of the SEZs of Karnataka are located in Bengaluru. This study shows that with high-speed connectivity, uniform development can be encouraged, and the government may not need to provide heavy subsidies for industries to grow in under-developed regions."