'Rapid transit will transform lives'

Vinay Kumar Singh, Managing Director NCRTC (National Capital Region Transport Corporation), is incharge of RRTS (Regional Rapid Transit System), India's first next-generation, high-speed regional rail project. India's ambitious ongoing state-of-the-art Delhi-Ghaziabad-Meerut RRTS project being developed under the leadership of Singh is set to open a new chapter in the country's goal towards having high-speed, world class regional rail corridors.

In an interview recently with Dipankar Chakraborty at the 'GatiShakti Bhawan', NCRTC headquarters in New Delhi, Singh, who had also played an important role in the development of the Delhi Metro rail system, said there could be no comparison between the metro and the ongoing RRTS. In fact, the two systems will complement each other. In terms of technology demonstration and passenger comfort and safety, the RRTS will have many firsts to boast of.

Excerpts:

Q. Shall we say what DMRC (Delhi Metro Rail Corporation) did to the public transport ecosystem, first in Delhi and then the rest of India, RRTS is set to achieve the same for regional transit?

A: Regional Rapid Transit System is a high-speed regional railway system where you will have commuter trains connecting the national capital to key urban and sub-urban nodes around it. Normally, metro trains are intra-city trains which move within a city. Delhi is an exception because at that time we had no other option (of regional transportation) when it spread to nearby cities. Given the urban expanse of the region and concentration of economic activity in few central pockets, what has been missing is a fast, reliable, and comfortable mobility solution for regional commute between urban and sub-urban nodes. This is the gap that the RRTS is going to plug in.

So, we are starting in the NCR but very soon you may see the model being replicated in other states also. There are a large number of regions in this country which require similar systems. The way NCRTC is implementing the project right from the planning stage, we have ensured in-depth documentation of the systems, processes, and protocols. We have created a model which can be replicated for implementation of similar high-speed regional rail projects across the country.

Q. Do you think the manner in which the metro rail system has been instrumental in changing the lifestyle of the people, RRTS is going to do the same in areas it will pass through after the regional rail services become operational?

A: Absolutely. Metro rail systems have done that, in fact. RRTS trains will go deeper into the neighbouring states, 100 to 150 km, connecting nearby towns and cities. It will eventually change the way people work and live, not just travel. People can live in the suburbs and travel to the city centres in Delhi, Gurugram, Noida for work, leisure, healthcare, education etc. It is going to bring about a change in the quality of life of people in more than one way.

Q. Just as the metro rail project was a technology demonstrator for the city-based mass transport system, what does the RRTS project seek to demonstrate to the country and the world?

A: It's a very good question. Sometimes people wonder how RRTS will be different from metro rail systems. RRTS is a regional rail with a design speed of 180 kmph. The whole system has been designed for longer travel lengths, say 50 km, 100 km. Inter-station distances are 5-7 kms unlike the metro's 800 meters to 1 km. So, it is an entirely different kind of product for different requirements of regional commute. Technologically also, it is the same case. Like there are four main sub-systems of railway. These are basically civil engineering structures, track, traction- the power through which trains run - the train itself, and the control and command system, or what we call signalling and tele-communication. All the four sub-systems being implemented in RRTS are entirely different from the metro rail systems. So, this will also be the benchmark for future projects of regional rail.

NCRTC is bringing all the core technologies which are new to the country. It will not only help organisations which will work on similar regional rail projects but will also bring a lot of new technologies for Indian Railways and metro rail systems also, setting new benchmarks.

Q. Can this system also be used for running such high-speed trains beyond 100 km?

A: Certainly, many of the systems which we are using in RRTS can be used for higher speeds. But the factor to consider is: what is the objective of that particular transit? In my view regional connectivity with average speed of 100-130 Kmph will be instrumental for sustained economic and

urban development of mega-regions, and this can easily be achieved with the technologies we have adopted for RRTS depending on the inter-station distances.

Q. You have in different interviews spoken about upcoming technologies like common data environment, 3D models, virtual reality, continuous operating reference stations, etc. Can you elaborate on some of them for our readers and also their application in RRTS?

A: We look at these technologies in two different phases. One is the project implementation stage and the next is the operations stage. At the project implementation stage if you start with a common data environment that is an electronic platform, on which all the documentation is done in NCRTC. This is the single source of truth on which every document moves ensuring smooth collaboration. This has paid high dividends to us during the Covid period by enabling remote working from day one.

We also use a building information model or BIM which uses 3D models of all structures, whether it is civil engineering structures such as track, rolling stock, signalling, tele-communication and buildings. So, first we make 3D models then we take out 2D drawings for construction purposes from that model. So, it is a very comprehensive way of executing the project and creating high synergies among the teams.

You have asked about Virtual Reality Models. Once you are ready with your 3D models, these can be viewed. You can walk in a station virtually using VR technology. This gives a very good idea of what is being constructed and how these stations or any building will look like. So, the people involved in construction will know from day one what they are building and how the building will look. It makes so many things simpler and easier to implement.

CORS or continuous operating reference stations is a network of serving stations which are used very accurately for determining location of a point, on ground, which you have planned on a drawing. So, there will be no difference on an absolute level between what you have planned and what you are executing. The accuracy of the system is 10 millimetres. These are satellite-based technologies which we are using for the first time in the country for a rail-based project.

Q. What are the technologies and systems which are going to be used for the first time in the RRTS project?

A: We are using advanced technology in the operation and maintenance stage of RRTS as well. The track, rolling stock, signalling and telecommunication – the technologies being used for RRTS on all these four aspects - are new to the country. The signalling and telecommunication systems which we are using will be used for the first time in the entire world. ETCS-Level 2 along with Level-3 Hybrid on LTE (long term evolution) telecom backbone is being used. This is something happening for the first time for which even European railway systems will be looking at us when we do it successfully.

Q. In what manner will the use of modern technologies manifest in the RRTS project?

A: Extensive use of a simple technique like pre-casting helps in so many ways. The quality of concrete is very good. You don't have to carry the building material to the project sites. The track being used for RRTS is a high-performance track fit for high-speed trains. If you construct these Ballastless tracks well, then it will require very low maintenance in the long run. The capital cost is a little higher but in terms of life cycle it is very competitive. ETCS-Level 2 rules out possibilities of any collision between trains. Trains can run one after another at very close intervals. We can go up to a frequency of having one train every 3 minutes which will not be required in the next 15-20 years. But we can go to that extent.

Q. How will RRTS operations be different from DMRC operations?

A: We have to understand that these are two different kinds of systems. There can be no comparison between the two. One is for regional commuting and the other for inter-city travel. Both systems will complement each other to provide a seamless travel experience for the com-

muters. Wherever possible, RRTS stations are being integrated with one or more lines of metro rail. So, someone coming out of RRTS will be able to board a metro seamlessly. Both RRTS and DMRC systems will be using NCMC (National Common Mobility Card) for automatic fare collection and seamless entry and exit for commuters.

Q. Is the RRTS going to keep in mind passengers' affordability while deciding on the prices of passenger tickets?

A: Two things are to be kept in mind while deciding on ticket prices for such a large-scale public transport system. First is affordability for the users of the system. Secondly, it should be sustainable in the long run. There is a term called 'willingness to pay'. We have to see what is the 'willingness to pay' for this kind of service. This will play a key role in determining the tariffs for such safe, comfortable, reliable, and punctual services. Ultimately, the system has to be sustainable in terms of revenue as well. If you don't get your revenue then what will happen after 10 years if you are not able to maintain your trains, your stations? So, it is a fine balance between various requirements. We are currently engaged in deciding on the tariff. We will have standard and premium (one coach per train) classes in the RRTS trains.

Q. Where does the RRTS stand as compared to similar systems currently in operation in Europe in terms of technology and passenger comfort?

A: There are two to three parameters to measure that. Number one is convenience for the commuters. That is our first priority. Commuters have interaction with the system at stations or the train. Stations should be easy to access. Our stations would provide ease of access for all sections of the society. We are also going to have last mile connectivity modes to our stations. We are working with DMRC, last mile connectivity organisations including those from private sector like Ola, Uber and even simple E-Rickshaws. To make it easier to reach platforms we have lifts, escalators, staircases. There are platform safety doors or PSDs for the safety of people, something not very normal for many systems even in Europe. The ultra-modern RRTS trains will provide several amenities customized for commuters' needs during regional travel. Many of the regional rails in Asia and Europe are much older. When they had started, technology was not as developed as it is today.