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“ We are minimising dependence on imports in every aspect of RRTS:

Mr Vinay Kumar Singh
NCRTC Managing Director

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National Capital Region Transport Corporation (NCRTC) – a joint venture company of Government of India and States of Delhi, Haryana, Rajasthan and Uttar Pradesh under-96+3 the administrative control of Ministry of Housing and Urban Affairs, is mandated for implementing the Regional Rapid Transit System (RRTS) project across the NCR of India, ensuring a balanced and sustainable urban development through better connectivity and access.

IEEMA Journal speaks to NCRTC Managing Director **Mr Vinay Kumar Singh**, an officer of the Indian Railway Service of Engineers (IRSE) 1988 batch about the upcoming routes, a roadmap for meeting the deadline and investment plans.

Mr Singh was the first officer who started construction of Delhi Metro on ground, the first chief executive officer of the High Speed Rail Corporation of India and is now the first Managing Director of NCRTC. He has been Director on the Board of various SPVs and has been involved in planning and development of public-private partnership PPP projects.

Excerpts from the Interview

How has the Pandemic impacted the ongoing projects?

The COVID-19 crisis has made every sector go through unprecedented times. But as we all know, every crisis brings along some unique opportunities. We saw COVID-19 pandemic as an apt opportunity to upscale the technologies we were already using for efficient execution of the RRTS project. It helped us minimise the impact of the pandemic on the project. We had been leveraging electronic platforms and IT tools in our day-to-day functioning since day one at NCRTC. We work on a Common Data Environment (dedicated electronic platform) for collaboration and the correspondence with the stakeholders. NCRTC is using Building Information Modelling (BIM), with 3-dimensional models of all structures and systems. Our bidding process is on the electronic platform of the Government of India. The conceptualisation of NCRTC as an IT-enabled organisation helped us to mitigate the impact due to COVID-19 and helped us sustain the project momentum fairly well.

The field activity had come to a halt during lockdown 1.0 but the lockdown period was utilised to complete pre-construction activities including tender processes, activities related to the finalisation of detailed design and drawings of civil structures etc. NCRTC pioneered by holding pre-bid meetings through video conferencing and received accolades from the industry. Once the relaxations were announced, civil construction was resumed with strict adherence to standard operating procedures.

When will the Delhi-Meerut portion be commissioned? Please share the progress of this project?

Government of India sanctioned the project in March 2019 with a very tough timeline for implementing India's first rail-based RRTS Corridor i.e. Delhi-Ghaziabad-Meerut. The Government has prioritized the implementation of the 17-km long priority section between Sahibabad to Duhai with an ambitious commissioning target of March 2023. The full 82km of the RRTS corridor is targeted to be opened for the public by the end of 2025. We have already awarded major contracts of this corridor including civil, rolling stock and signalling. The civil construction has been going on the full corridor. I am confident that we will be able to commission it well in time.

The external borrowing of around \$2 billion has already been secured from multilateral agencies, namely Asian Development Bank, New Development Bank and Asian Infrastructure Investment Bank.

Request to share the list of projects being undertaken by NCRTC?

See, given the congestion, pollution and rapid urbanisation in the National Capital Region, the Functional Plan on Transport (FTP) for NCR 2032 was prepared by NCR Planning Board (NCRPB). This plan recommended the implementation of eight RRTS corridor of which three were prioritized for Phase-I. I have already shared detailed the Delhi-Ghaziabad-Meerut corridor. The first stage of the second corridor connecting Delhi to SNB (Shahjahanpur-Neemrana-Behror) has already been sanctioned by the concerned Governments of Delhi, Haryana and Rajasthan. It is under active consideration of the Government of India. Pre-construction activities like detailed design, stakeholder approvals, utility diversions, tree cutting, shifting of electric lines, widening roads etc. have already been in progress. Like the Delhi-Meerut corridor, this will help us in providing contractors with encumbrance free sites paving the way for hindrance free civil construction. Detailed planning for the corridor linking Delhi to Panipat is in progress. For further details on the project official website of NCRTC may be referred. (www.ncrtc.in)

What challenges do you see in implementing India's first RRTS corridor?

Well, any rail-based infrastructure project of this size and complexity which is being implemented for the first time in the country has to face a large number of challenges. Challenges like design philosophy at the system level, deciding the basic technical parameters, approvals from regulatory and statutory authorities, realistic assessment of traffic, stakeholder management, land acquisition, bringing all participating state partners on board, timely identification and diversion of utilities, environmental issues and tree

cutting permissions, tying-up of funding for the project, establishing the procurement system in line with the requirement of funding agencies, setting up of organisation, actual commencement of construction and interface management are some of them. Then there is the technology aspect of it, being first of its kind project in India, there aren't any prior benchmarks available for RRTS, unlike metro systems. RRTS is a rail-based greenfield project being implemented as a common integrated solution for seamless mobility in four states of NCR i.e. Delhi, Uttar Pradesh, Haryana, and Rajasthan. So, the challenge is multi-pronged, firstly the number of stakeholders being a multi-state implementation and secondly the technology aspect of it as most of the technology being adopted for RRTS are new to the country. However, from the very beginning, we have adopted a very consultative approach in dealing with stakeholders and as a result, we have been getting support from all the state governments, officers, authorities, and agencies. Some initial resistance like land sharing by land-owning agencies and doubts will always be there whenever you come up with a new idea or a project like this to change the status quo but once we are able to communicate the advantages the project will give to the public and as they understood the intent of our request, it becomes easier. Wherever we work in congested areas, we also talk to people in advance and tell them what we are going to do and how much time it is going to take. We make them as our partner rather than somebody who is opposing the project. These measures are helping us in implementing the project without creating any inconvenience to the public. This project is an ideal example of cooperative federalism incorporated to meet the lone objective of delivering a commuter-centric public transit project. The way all the stakeholders have shattered barriers to come together for this project is not only commendable but can also be an apt case study for civil services and management trainees.





Sir, kindly share about New technologies adopted for Signalling & Telecom for the project Electronic Interlocking etc.

The RRTS will be using many state-of-the-art systems that will mark many firsts in India. One of them is its signalling system. We will be using modern European Train Control System Level 2 (ETCS L2) signalling over LTE. The signalling ecosystem will be enabled even for the adoption of Level 3, making it one of the most advanced signalling and train control system of the world. It will be integrated with platform screen doors to enhance passenger safety.

ETCS will not only facilitate efficient high-speed operations but will also allow interoperability among phase-I corridors. It will make the system vendor agnostic and will reduce the costs. Use of LTE as a communication backbone in ETCS Level-2 will make India one of the very few countries in the world to shift to this technology. RRTS will also have Automatic Train Operations (ATO) functionality that controls the train's traction system, acceleration, braking and stopping of trains, which will facilitate efficient and reliable operations.

LTE communication backbone will also cater to Mission Critical Voice and On-Board CCTV streaming. Once Mission Critical LTE is deployed in RRTS, the country will be able to create know-how on deploying reliable Mission Critical networks, which can be utilised by other rail-based systems.

Sir, How NCRTC is preparing to curb Imported technology how are we geared up on upgrading ours?

NCRTC has been promoting Make-in-India in every aspect of the implementation of RRTS. It has been our integral strategy since inception. We are minimising

dependence on imports in every aspect of RRTS. The selection of contract packages in the multilateral and domestic funding in such a way to maximise the local content in the project. As a result, the domestic manufacturing industry will be benefitted from RRTS implementation.

Bombardier India is manufacturing 100% trainsets at its factory at Savli in Gujarat. The trainsets are being designed at their Global Engineering and Technology Centre at Hyderabad. The Propulsion System for the trains is being manufactured at their facility in Maneja, Vadodara.

In a significant development towards realising Hon'ble Prime Minister's vision of an 'Atmanirbhar Bharat', we

have joined hands with M/s Bharat Electronics Limited (BEL) for indigenous development of Platform Screen Doors, earlier these were imported. The indigenously developed PSDs will be used for the upcoming projects of India and abroad.

High performance, low maintenance precast slab tracks are prerequisite for RRTS. Presently, ballastless track technology capable of supporting high-speed RRTS trains is not available in the country. However, to ensure that not only domestic contractors get to participate in the implementation of track structure but also to ensure that the advanced technology implemented gets transferred to Indian industry for use in future projects, we selected the most suitable ballastless track technology for RRTS and purchased their IPR for RRTS corridors. Thereby, we have created the indigenous capability to design similar ballastless tracks for other rail-based systems.

Sir, is NCRTC planning to venture into Solar Projects to Reduce the Carbon Footprint and Operational Costs? Whether Distributed Roof-top Solar Projects will be used in each Station like Delhi Metro or Centralized Ground Mounted Solar Projects?

NCRTC is driven by its vision to provide a green and clean public transport system to the people of NCR. To mitigate carbon footprints, we have planned to maximize the use of renewable energy. NCRTC will be utilizing all possible rooftops for harnessing solar energy. Given the limited availability of rooftops area, unavailability of land and inflating prices of electricity, we have planned to meet 30-40% of its energy consumption from the open market with the cheap renewable energy through open access corridors. This way, it would be a quantum jump in the use of renewable energy for operating



RRTS trains. Use of renewable power will help reduce carbon footprints by cutting green-house gas emission and mitigate climate change as well.

Which country do you look as an ideal example of a large scale multimodal transport system?

See, as far as last-mile connectivity powered by multi-modal integration is concerned, I don't think there exists any perfect example. However, there are regions which have done exceptionally good work in this direction. Some of the examples of large-scale multimodal transport are Paris, Tokyo, Hong Kong, Madrid, Berlin, and Seoul. These all have their specific constraints as well as advantages. These public transit networks are tailor-made, keeping in mind the local situation, demography and their demand. These systems form a network of networks by integrating long-haul national rails, high-speed regional/commuter trains and metro supported by an extensive network of other city public transport modes like buses etc. These are very successful. At the time of the growth of the city, they introduced these trains and that ultimately helped them sustain the growth. Multimodal integration is key to make public transport successful and sustainable. If you are able to provide good public transport, only then you can push people to move towards it. We have

kept MMI as an integral part of the RRTS project. RRTS stations will be seamlessly integrated with nearby metro stations, Indian railways stations, bus stands, ISBTs and airports wherever possible. Seamless connectivity across Delhi-Ghaziabad-Meerut corridor is expected to increase public transport's share to 63 percent from the current 37 percent.

Anything else you want to share about project implementation?

We are committed to giving the citizens of NCR a world-class public transit system without compromising on the safety of the passengers, reliability, and performance of the system. In line with our vision of providing a green project, we are strictly abiding by the guidelines issued by CPCB even during the construction of RRTS. With over 90 percent local content, this project is a testimony for Hon'ble PM's vision of Aatmanirbhar Bharat. I am thankful to IEEMA for sharing this crucial information about RRTS which is a huge and complex project. I am looking forward to support from industry through IEEMA in indigenising the technologies which are not available in the country, through local manufacturing NCRTC will be happy to discuss and support any such opportunity. ■

- Shalini Singh, IEEMA