



Once complete, the Project is poised to boost economic growth and attract investments, jobs and talent into Hyderabad



Greater Hyderabad is a mega city that is fast emerging as the hub of IT/ITES, Biotech, Pharma and Tourism sectors. Its population stands at 8 million and is projected to touch 13.6 million by 2021. Currently, over 5 million personalised vehicles ply on Hyderabad roads, with an addition of 0.50 million vehicles every year. The increasing pressure of the burgeoning population is putting Hyderabad's Transportation System under constant pressure. The answer lies in Mass Rapid Transit System (MRTS), accordingly, the development of Metro Rail was approved for 72 km., covering three high density traffic corridors of Hyderabad. It is the world's largest Metro rail project being implemented in PPP mode. **NVS REDDY, MD, HYDERABAD METRO RAIL LTD** spoke to **CONSTRUCTION OPPORTUNITIES** on the current status of the project, challenges and opportunities going forward.

Current status of Metro Rail Project:

The Project works started in June 2012 and entire Project is scheduled to be completed in five years by June 2017. Two stretches of 8 km between Nagole and Mettuguda in Corridor-3 and 11 km between Miyapur and S.R.Nagar in Corridor-1 have been completed and test runs are successfully going on in these stretches. These two stretches have received safety certification by Commissioner of Metro Rail Safety (CMRS) for opening for commercial operations. Both the major Depots at Uppal and Miyapur have been completed. So far, 63 km (88 per cent) of foundations; 60 km of pillars (83 per cent) and 52 km of

viaduct (72 per cent) have been completed out of 72 km. Over all, 78 per cent of the Metro project has been completed and all the 57 trains have arrived. Project works are progressing as per schedule and the Project Milestones have been achieved within time.

Expected long term impacts and opportunities from the Project:

Once complete, the Project is poised to boost economic growth and attract investments, jobs and talent. Hyderabad, especially with its strategic geographical location, multilingual and cosmopolitan culture has tremendous growth potential.

Once Metro Rail is operational, the city becomes an attractive destination for corporates, entrepreneurs, academicians and homemakers alike. Metro Rail system will help in reduction of traffic congestion and maintain air quality. Thus making Hyderabad a people-friendly green city and one of the most attractive global destinations.

Impact of Metro Rail project to the community:

Hyderabad Metro Rail project has been designed to ensure the daily commute of city residents is speedy and comfortable; and pollutions are brought down. The existing



public transport in the city is mainly the buses run by the State Road Transport Corporation, a public sector undertaking of the state government. The rapid growth of the city, rising income levels and lack of a good public transportation system are resulting in phenomenal increase in private vehicles, causing frequent traffic jams and high pollution levels in the city. Presently there are over 5 million vehicles and about 0.5 million vehicles are getting added every year. The Project is the world's largest Metro project in PPP mode and it will effectively address traffic congestion issues.

Hyderabad Metro Rail is designed in a robust way to provide socio-economic benefits and equal opportunities in public spaces to all citizens, thereby facilitating equitable and sustainable improvements to the overall living standards of the citizens. The ticket pricing will be affordable and easy on one's pocket. While reduction of journey time would be the main aspect of Hyderabad Metro Rail, the Project is also designed to address pollution issues by having eco friendly features.

Hyderabad Metro Rail project focus is on people, incorporating ease and convenience for commuters along with appealing aesthetics. First mile/last mile connectivity with feeder buses, electric vehicles, non-motorised transport, and pedestrian facilities will ensure seamless travel facility for the commuters. Metro stations are being connected to main rail stations, local MMTS train stations, bus depots and bus stops seamlessly.

Cost of the Project and disbursement of funds till date:

Total cost of the project is ₹14,132 crore out of which Government of India has sanctioned ₹1,458 crore (10 per cent) as VGF on the basis of competitive bidding. The remaining ₹12,674 crore is being invested by the Concessionaire L&T Metro Rail Hyderabad Ltd., a special purpose company of the Indian Infrastructure and Manufacturing giant L&T. The Concessionaire L&T has till date invested ₹11,970 cr in the project.

How the Metro Rail project differs from the other Metro Rail projects:

Hyderabad Metro is not being built as a simple mass transit system but is being viewed as an urban redesign opportunity to transform an Indian city into a people friendly green global city. Hyderabad Metro's focus is on people, ease and convenience for commuters and aesthetics. First mile/last mile connectivity with feeder buses, electric vehicles, non-motorised transport, and pedestrian facilities will ensure seamless travel facility for the commuters. Metro stations are being connected to main rail stations, local MMTS train stations, bus depots and bus stops seamlessly. The project attempts to cater to the special needs of children, women, senior citizens and differently abled people by providing facilities and amenities for a safe, secure and comfortable travel. Skywalks below elevated viaduct will give direct landing into schools, colleges, hospitals, offices

and other public and private buildings for added safety. 'Merry-go-round' dedicated feeder buses, bicycles and non-motorised transport (NMT) are planned at Metro stations to provide last mile connectivity. Pedestrian facilities, aesthetic Metro station surroundings with lot of greenery, street furniture, public art, etc., will be the project's contribution to facilitate qualitative family lifestyles, and in making Hyderabad Metro Rail project unique as compared to other Metro projects.

Challenges specific to the Metro Rail project:

While 35 per cent of challenges are engineering related, 65 per cent are non-engineering challenges. Several engineering and financial innovations and out of box solutions have been adopted during the deployment of the project.

Land acquisition and Right of Way were a major challenge as it involved acquisition of about 3000 properties in the city's busy and commercial areas; and permissions from various Ministries like Defence, Railways, and National Highways etc. Tackling religious and other sensitive structures and heritage structures require patience, tact and painstaking negotiations. Many religious structures were either avoided or relocated to the satisfaction of the heads of different religions/denominations/sects. Narrow roads and high density of traffic posed another challenge that was well tackled by innovative design and engineering techniques. Roads were widened



to ensure smooth flow of traffic during the construction phase. Utility shifting was done by coordinating with various departments and along with the project construction. HMRL also took up various tasks like utility shifting, re-laying of roads, improvement of junctions, beautification of sidewalks, etc.

Innumerable court cases were filed against the project in the High Court. With well reasoned arguments, HMRL won 310 out of about 330 court cases so far. HMRL adopted a very effective communication strategy and the MD addressed live TV question & answer sessions to clear doubts of the people about the project and counter false propaganda against the project.

Felling of trees:

Felling of trees to create RoW at different locations was another major challenge, as it results in environmental depletion. This was successfully handled by relocating those trees to other locations and more than adequate plantations were planted as a part of various compensatory afforestation programmes taken up by HMRL.

By obtaining clearance from forest department under the WALTA Act, HMRL had to remove trees for creating Right of Way (RoW) for Metro rail project, and to compensate this removal of trees, HMRL has translocated more than 2015 trees and planted 5.03 lakhs saplings at a ratio of 120 saplings planted against each one of the tree removed. These 120 saplings for removal of each tree are against 5 saplings as prescribed by Forest Department i.e., more than 24 times of the prescribed plantation.

Green initiatives of Metro Rail project:

With a strong commitment to afforestation, Hyderabad Metro Rail has taken up Mass Tree Plantation programme 'Vana Deeksha'. Under the programme HMR involved the denizens of Hyderabad. Individuals, Residential Colony Associations, schools, colleges and offices within the jurisdiction of GHMC area were identified for the programme. To name a few, the programme was conducted with great enthusiasm and participation from the students of Hyderabad Public School, BITS Pilani campus in Hyderabad, The Hyderabad Central University, Osmania University, etc. HMR had provided the required number of plants to the participating groups and successfully completed the plantation programme.

Similarly, Hyderabad Metro Rail also initiated another green initiative called 'Vana Prasadam'. Plants, mostly native varieties were distributed to enthusiastic individuals, organisations, and associations free of cost by HMR to increase green cover in Hyderabad. Senior citizens, students, house wives, and members of resident welfare associations have collected saplings. Under the programme, HMR distributed varieties like Deva ganneru, Neem, Neredu, Spethodia, Techoma, and Pomegranate.

Latest technologies used in Metro Rail project:

While Metro projects normally concentrate on structural stability and other engineering aspects, Hyderabad Metro Rail focussed on several engineering, financial and technological innovations and out of box

solutions. Global coordinates and DGPS were used to plan the alignment and execution of work meticulously. 85 per cent of the project activities are converted to a pre-cast mode thus reducing inconvenience to the road users.

The innovation of constructing Metro stations in pre-cast format and erecting them on central piers as balanced cantilever structure has set a new bench mark. Pier width confined to about 2 m at road level enabled accommodating 2 rail tracks on the viaduct with each track equivalent to 7 bus lanes or 24 car lanes.

For the first time in the country, advanced signalling and Train Control technology Communication Based Train Control (CBTC), is being brought in by Hyderabad Metro Rail. Supervisory Control and Data Acquisition system (SCADA) is utilised to provide highest level of Monitoring, controlling and command. A centralised OCC (Operation Control Centre) is located at Uppal Depot to Control entire Power Supply and Traction system Equipments through SCADA.

Trains running will be continuously monitored from state-of-the-art Operation Control Centre (OCC). The trains shall run on Automatic Train Operation (ATO) mode. The Automatic Train Protection (ATP) system continuously monitors safe train operation.

Together with the state-of-art systems and technologies, advanced braking system to regenerate 35 per cent power and state of the art Metro Rail coaches, Hyderabad Metro Rail stands unique & apart from the other Metro Rail systems in the country. ◆