



## MD's Corner

Dear Colleagues,

It gives me immense pleasure to introduce the second edition of post COVID-19 lock-down maha-metro CONNECT. At the outset accept my heartiest congratulations for the seventy fourth Independence Day celebrated earlier this month on 15th August. I also convey my best wishes to you and your family for the festival of Ganesh Chaturthi, Maharashtra's gift to the Nation.

Moreover, I am happy to inform that our Nagpur Metro Rail Project in recognition of its continuous pursuit towards excellence in environmental and ecological sustainability has been accorded the prestigious ISO 14001 Certification.

I am also happy to note that with the utmost dedication and perseverance of all of you in the larger Maha-Metro family (officials, employees, associates, general consultants, contractors and subcontractors) the construction activities at both Nagpur and Pune has been gathering steam. Labour force which had substantially reduced to less than 1000 each in Pune and Nagpur is back to around 3000 each and is sooner likely to reach the pre-lockdown level.

While in the lockdown period we learnt the new ways of working with the infusion of new technology tools and platforms including e-office and video conferencing that kept us ready with planning, in the post lockdown phase our construction activities are getting back to the level seen in the pre COVID-19 days.

Also, with expected nod of resuming metro train operations soon, the Nagpur team is getting ready to recommence the train operations with adequate precautions, safety measures and social distancing, the team at Pune has rededicated itself to ensure that later this year the train operations on the priority section should commence.

No doubt, due to unexpected turn of events we have lost few precious months of the project, but I am sure that with your commitment and high morale we will make up fast for the lost time.

Last but not the least, all of you and your family are in my prayers. The danger of Covid-19 is still lurking. In all that we do in professional and personal life, the safeguards against COVID including but not limited to mask, social distancing and personal hygiene is the foremost need of the hour.

Wishing you and your family Good Health and Well Being!



## In This Issue

**MD's Message :**  
We're back with more dedication!

**Special Feature :** The Launch of Aqua Line

**The Innovation Corner :**  
Bio-digesters

**Highlights of the Month**

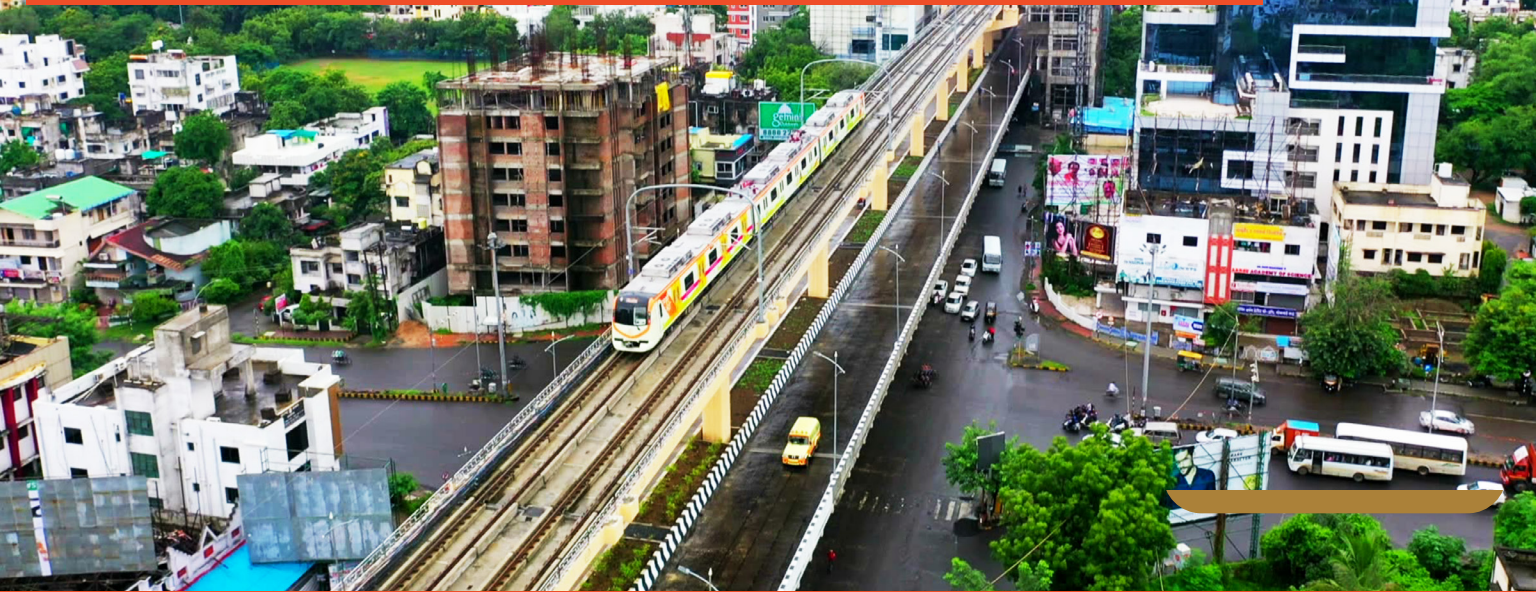
### Editorial Board :

Akhilshwar Sahay, Strategic Advisor  
Anil Kokate, Executive Director, Nagpur  
Hemant Sonawane, GM-PR, Pune

**Design :**  
Excel Studio, Nagpur

**Disclaimer :**  
The contents of this publication are not for legal purpose.

# SPECIAL FEATURE OF THE MONTH



Maha-Metro's commitment towards environmental sustainability has been further strengthened with the new feather in the cap for Nagpur Metro Rail Project with ISO 14001 Certification. This recognition will ensure that Nagpur Metro Rail Project will not only construct in an environment friendly manner, but also operate & maintain the system in environmentally sustainable manner.

Maha-Metro from the day one has committed itself to Kaizen (continuous improvement) in the entire gamut of its management practices. The improvement in Environmental Management System is integral to this philosophy and in this regard ISO 14001 Certification for Nagpur Metro Rail Project is the beginning of a new journey.

For the uninitiated, ISO 14001 is an Environmental Management System (EMS) that provides a structure and framework to follow, evaluate and improve an organization's environmental impact. ISO 14001 certification process is exacting in the sense it demands preparing environmental manual stating the standard operating procedures (SOP's) for all key project activities in sustainable manner. It also entails evaluating environmental risks & opportunities associated with each and every activity as a part of SOP. The system also tracks the sustainability objective & targets of parts and whole of the project.

Maha-Metro from day one has been inculcating environmental sustainability to its very reason for being in all the stages of project construction, operations and management. As Nagpur Metro has moved to operational phase, it has made environmentally sustainable urban transport available to public that is safe, comfortable, secured, and affordable.

To ensure the above Nagpur Metro Rail Project has developed the infrastructure which incorporates best in class inter modal commuter transport, integrated multi modal transport, energy and water efficiency and passenger comfort amenities.

Maha-metro's 11 stations on reach-1 & reach-3 are Platinum Rated Green Buildings as per IGBC's Green MRTS rating system. The theme, 'Biodiversity'- Time for Nature of this year World Environment Day has been an opportunity for Maha-metro to re-assess its journey concerning Global Sustainability Goals. Maha-Metro's NMRP has introduced various initiatives and accomplishments for sustainability-ISO 14001 Certification is one of them.

Bio-diversity from day one is the core principle in planning Environmental Management for Nagpur Metro Rail Project. Little wood & Little wood Extension are the two major initiatives for addressing all important issues of bio-diversity in urban areas. While planning the compensatory afforestation, Nagpur Metro has developed forest on a 24-hectare piece of land, near Ambazari and off Hingna Road. Apty called, 'Little Wood' it is home to a range of trees, and a variety of bird's species. Located behind the catchment area of Ambazari Lake, it can be reached from Vasudev Nagar, MIDC Hingna Road, and Forest gate number 3. Little Wood with 5500 trees is an addition to natural beauty of city and perfectly planned gift of Nagpur Metro to citizens.

Little Wood dedicated to people on July 1, 2016. Though it has been set up on 30 hectares or 75 acres of land, as much as 24 hectares has been devoted to plantation. As a part of its continued efforts to conserve the environment, Maha-Metro acquired additional 130 acre land at Kamla Nagar, on Amravati Road, in the catchment area of Ambazari Lake. About 6,000 trees have been planted here as a part of the ambitious programme. Located near Little Wood, this new venture has been rightly named as, 'Little Wood Extension'. Thus, a total of 11,500 trees of Medicinal, ornamental, fruits and flowers' plants have been planted at these two locations.



## Construction Challenges Swargate MMTH



Swargate Multi Modal Transportation Hub (MMTH) excavation comprises of Underground Metro station with multi levels of commercial development above it and MMTH building consisting of 5 levels of underground parking, concourse and upper concourse levels. The total depth of excavation is enormous 28 m approximately.

Beginning of the excavation posed insurmountable challenge as before it, sides of the excavation pit needed to be secured by wall of secant piles. These secant piles act as a retaining wall prevents surrounding earth from collapsing into the excavation pit during and after excavation.

Construction methodology of secant pile walls too was a challenge, it started with vertical boring of 1 m diameter up to rock strata with the pile rig. Secant pile walls were then formed by constructing intersecting reinforced concrete piles after vertical boring. Primary piles were installed first with secondary piles constructed in between primary piles once the primary piles gained the sufficient strength. These secant piles were further reinforced with five layers of steel-waler beams in a phased manner. After constructing the secant pile walls, excavation was started in a phased manner. Once the excavation had reached the first layer of waler beams, the waler beams were tied horizontally along the secant piles by anchoring and grouting.

Then the next phase of excavation began up to the another level and so on.

The above methodology of excavation was continued till the rock strata was reached. The excavation in rock strata was done controlled blasting method by taking necessary preventive measures. Sides of the excavation pit in the rock strata were protected with shotcreting. For removal of excavated rock from the site, 10 excavators and 20 dumpers have been deployed. Once the excavation reaches up to the ground level, construction of metro station and MMTH building will be started.

At the northern end of the Swargate MMTH, the shaft work has been completed and the construction of NATM tunnel of 22m diameter for the length of 150m for the crossover has started. This NATM tunnel is being constructed in three parts, out of which part A has been completed up to 50m tunneling. The tunnel muck from this NATM has been lifted vertically by means of muck bucket and crane of sufficient capacity. After the construction of this NATM tunnel, TBMs will be launched here for tunneling towards Mandai Underground Station.

At the southern end of Swargate MMTH, the shaft construction is under progress. After the completion of this shaft, two independent tunnels of 6.6m diameter for the length of 185m each will be constructed by NATM method as the length is small for deploying TBMs.



## COVID-19: Prevention & Precautions

From day one of outbreak of COVID-19 pandemic, Maha-Metro family has been live to the dynamic situation and it has taken numerous measures at all its offices and work sites to ensure safety and wellbeing of its employees and the workforce. Few of these are as follows:

- Multilingual "Dos & Don'ts" poster displayed at prominent spots in the offices, labour camps and all its installations.
- TBT/Briefing carried on daily basis by Medical Staff, PM, Site Engineers and Safety team.
- Temperature checking by Infrared Thermometer at Labour Camps, Sites & Office areas.
- Using face mask by all at all times.
- Maintaining social distancing at all places.
- Isolation Rooms and separate washrooms provided in labour camp.
- Sanitization/disinfection/fumigation carried out periodically.
- Temperature check and sanitizers provided to all visitors.
- Doctors have been deployed at various work sites and labour camps. They carry out regular medical checks and monitor the health of all the employees.
- Ambulance service is available 24X7 in case of any emergency.
- Close monitoring is done by Site Execution & Safety Personnel to ensure required protocol of COVID-19 is followed by one and all.

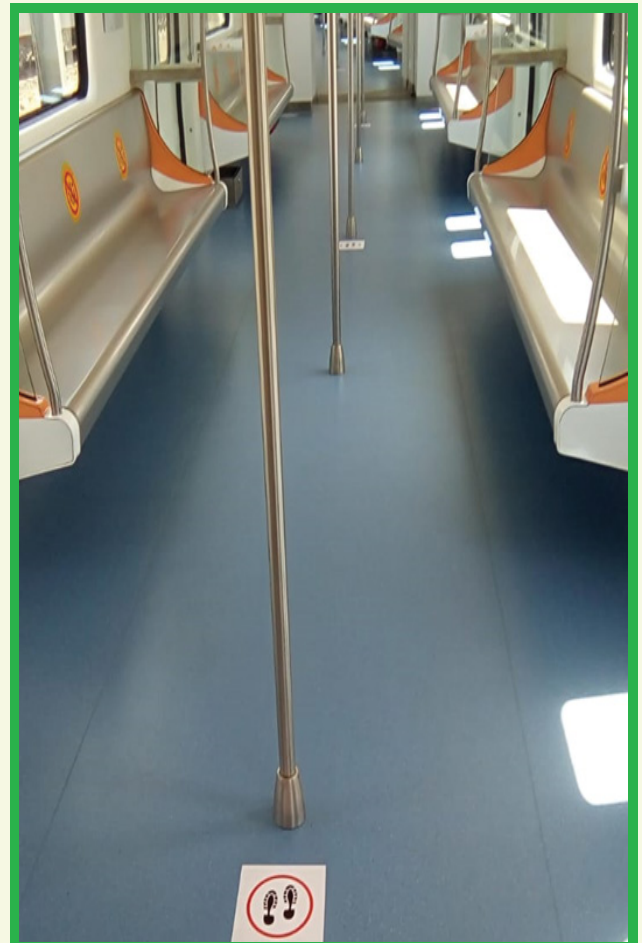


**Maha Metro Advisory** Maha Metro has also issued Advisories, listing a series of precautionary measures to be taken by its employees. Hygiene level at office premises has been enhanced in each chamber, particularly at touch points continuously. The advisory gives a list of dos and don'ts to be followed. As part of these guidelines, various steps to be taken to prevent spread of this disease have been listed. Advisories issued by Government Statutory Authorities and Maha Metro from time to time are disseminated to all employees. Screening in the form of COVID Tests of employees has been conducted in various offices of Maha-Metro both as a preventive measure as well as for early detection of cases to ensure the safety of Maha-Metro employees and their families.

## Maha-Metro gets ready for Safe Travel of Citizens

With metro rail operations now waiting for government approval for opening, Maha Metro is ready with detailed plan, SOP and other precautionary measures to ensure safe travel of citizens at Nagpur in the post-lockdown phase. Some of these measures are:

- All Metro Trains and Metro Stations to be disinfected periodically.
- All staff will use PPE.
- Only passengers with face mask will be permitted to enter the Metro Station & travel in the Metro Train.
- Only one Entry/Exit per Metro Station shall be opened.
- All passengers entering the station will be screened with Thermal Gun.
- Floor stickers and Queue managers shall be placed to ensure social distancing in the Station & Train.
- Sanitizers shall be provided to all.
- TBT/Briefing to be carried on daily basis by Medical Staff, PM, Site Engineers and Safety team.



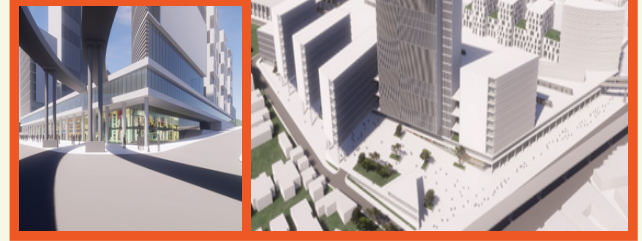
# SPECIAL FEATURE

## Pune Metro Depots will also be commercial hubs

Maha Metro Pune is constructing two world class depots for upkeep and maintenance of Metro Coaches- Hill View Park Car Depot (Vanaz) at a land measuring 12.2 Hectares and Range Hill Depot (Range Hill), measuring 13.3 Hectares along the North-South and East- West corridors. The depots would have testing tracks, inspection lines, cleaning and washing bay, wheel re-profiling and workshop repair lines amongst other operational, maintenance & repair facilities.

Fare box revenue often is unable to meet even operational and maintenance cost of metro rail systems globally. This trend is perceptible even in India. Two major reasons for the same is that while the metro construction is capital intensive the fare has to be kept affordable for the citizens.

In view of above, Maha-Metro both for its Nagpur and Pune Metro projects have ambitious plans of ensuring that more than 50% of its total revenues come from non-farebox source. This is aimed to ensure long term financial sustainability of the project. While meeting the above-mentioned objective Pune Metro has planned to exploit the land and space over and around its maintenance depots for large scale commercial development. These depots will not just be car sheds to meet the operational requirement, but the commercial opportunities will be exploited to the maximum. Not less than 35 lakh square feet with the help of private players. The planning of depots is unique in its own way, where train maintenance will be done on ground floor and the property development towers would come up in the vertical space above.



There will be zero interference of noise or vibration and there would be no disturbance of any kind to the commercial establishments. Planning of depot is also done in such manner that there is separate Entry/Exit for the depots and the commercial area. Depots will also have bio-digesters to avoid burden of domestic waste on the Municipal Corporation. Solar panels will be installed on the roof tops and boundary wall to harness maximum solar energy.

These commercial establishments and corporate ventures will be a source of substantial revenue generation for Pune Metro. These multi-storied buildings and commercial spaces would house offices, shopping arcade, banks, corporate ventures, commercial establishments and other private establishments based on the demands and as decided between Maha-Metro and Private Partners through transparent bidding process

The objective thus is that while developing world class depots they are also made a continuous source of sustaining non-fare box revenues to supplement the farebox revenues and make the project financially sustainable while keeping the fare affordable for the citizens.

## THE 74TH INDEPENDENCE DAY CELEBRATION AT MAHA METRO

The celebrations were held with enthusiasm and great fervour at the offices of Maha Metro on 15 Aug 2020 at Nagpur & Pune in their beautifully decorated campuses. The day was celebrated by hoisting of National Flag followed by singing national anthem. This day marked a sense of pride and honour. All the norms such as social distancing were followed by everyone.

Dr. Dixit hoisted the national flag at Maha Metro's Nagpur office in the presence of all the senior officials of Maha Metro. Speaking on this occasion Dr Brijesh Dixit, MD Maha Metro said that the project is progressing at a rapid pace and will soon be ready to serve the citizens. He complimented all to have achieved a niche during the trying times of COVID and for working tirelessly to achieve the goal. He made a special mention for having taken utmost care of about 5000 workers including their health, meals and well-being. With its work ethos, Maha Metro has created a distinct identity across the country. Great passenger service will further brighten the image of Maha Metro.

Independence Day was celebrated at Pune at its Phugewadi office. Mr Vinod Agarwal Director (O&M) hoisted the National Flag in the presence of officials of Pune Metro and the QRT.



ZERTIFIKAT ♦ CERTIFICATE ♦ 證書 ♦ CERTIFICADO ♦ CERTIFICAT



# CERTIFICATE

The Certification Body  
of TÜV SÜD South Asia Private Limited

certifies that



**MAHARASHTRA METRO RAIL CORPORATION  
LIMITED (NAGPUR METRO RAIL PROJECT)**  
"METRO BHAWAN", EAST HIGH COURT ROAD (VIP ROAD)  
IN FRONT OF DR. AMBEDKAR COLLEGE, NEAR DIKSHABHOOMI,  
NAGPUR - 440 010, MAHARASHTRA, INDIA

has implemented an Environmental Management System  
in accordance with ISO 14001:2015  
For Scope of

**Design, Construction & Operation of Nagpur Metro Rail Project of  
Maharashtra Metro Rail Corporation Limited**

The certificate is valid From 2020-04-15 until 2023-04-14  
Subject to successful completion of annual periodic audits  
The present status of this Certificate can be obtained on [www.tuv-sud.in](http://www.tuv-sud.in)  
Further clarifications regarding the scope of this certificate may be obtained by consulting the certification body

Certificate Registration No. 99 104 01047

Date of Initial certification : 2020-04-15

Certification Body  
of TÜV SÜD South Asia Private Limited, Mumbai  
Member of TÜV SÜD Group



TÜV SÜD South Asia Pvt. Ltd. • TÜV SÜD House • Saki Naka • Andheri (East) • Mumbai - 400072 • Maharashtra • India

TÜV®

## Social Media Engagement

### Citizens Love Maha Metro!

Social media engagement of Pune & Nagpur Metro far exceeds its other counterparts in the country. Pure testimony of 'Maazi Metro'



### NAGPUR METRO

Average acquisition of FB followers per month **11,945**

5,67,800 10,970

5,45,900 12,587



### PUNE METRO

Average acquisition of FB followers per month **8,900**

5,61,078 11,478

1,123,928 20,800

Average Reach 3,50,000