

METRO CUBE

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ADDING NEW DIMENSIONS

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FIRST TBM GETTING READY



MD SPEAKS

Ms. Ashwini Bhide, IAS

I am happy to announce that the first TBM is on its way and our team recently completed the Factory Acceptance Test (FAT) on the TBM manufactured by Herrenknecht AG. This is an important project milestone and with successful completion of this FAT, our team is confident about timely delivery of the TBM machines, ready to start tunnelling activities as per schedule. Piling for TBM launching shafts at Naya Nagar, Pali Ground and Azad Maidan is completed and is in progress at other locations.



MD SPEAKS



Continued From Page 1

Mumbai monsoon poses a challenge to all Government machineries. For MMRC, it is first monsoon since we have started picking up construction activities. We are aware that the construction activity does pose problems in smooth and safe movement of traffic and people around the project sites.

Necessary arrangements are made including special instructions to contractors for taking care of construction safety, traffic management and proper drainage of rainwater from the construction sites. We have recently established control room at MMRDA office to address citizens grievances regarding monsoon inconveniences. Another major accomplishment is completing the process of appointment of civil contractor for Metro car depot at Aarey. The process for change of land use on 33Ha of land at village Parjapur to Metro car depot/workshop facilities and commercial development is nearing completion.

In order to address heritage related apprehensions raised, we have recently held extensive discussions with the trustees of J N Petit Library and members of Heritage Mile association. These engagements helped to quell some anxiety and avoidable concerns regarding project construction activities in heritage areas. We have taken possession of lands where R&R of PAPs is completed at Mahalakshmi and Marol Naka required for station construction. Pre-Qualification applications for one of the most important of the system components - the Rolling Stock were received in the 3rd week of June. With 6 proposals received from Indian and international companies we are quite encouraged. The selected bidder after detailed tender process has to design and supply rolling stock totalling to 238 metro cars for Metro-3.

BACKGROUND NOTE ON ENVIRONMENTAL CLEARANCES

The Bombay Environment Action Group and others had filed a PIL seeking orders to protect mangroves in Mumbai. By order issued on 27th January 2010, the Hon'ble High Court directed that no non-forest activity should be permitted by the State in the mangrove area without permission from competent authorities under The Forest (Conservation) Act 1980 and Environment Protection Act. Hon'ble High Court further directed that even if permissions are granted by the competent authorities, the concerned party should obtain approval from High Court before implementing projects in mangrove area.

Accordingly, MMRC followed the necessary procedure and notice of Motion 319 of 2017 was presented before Hon'ble High Court to seek permission for construction of proposed BKC and Dharavi metro stations (located in the mangrove areas). MMRC received in-principal approval vide letter dated 17th May 2017 for the construction of BKC and Dharavi Metro stations under Section 2 of the Forest Conservation Act 1980. On June 13, 2017, Bombay High Court division bench of justices M S Sonak and V M Kanade granted permission to cut 108 mangroves in BKC to facilitate station construction (BKC and Dharavi) on the Metro-3.

TBM FACTORY ACCEPTANCE TEST

Metro-3 project reached another milestone this week with the successful completion of Factory Acceptance Tests on its first TBM, manufactured by German company Herrenknecht AG for CEC-ITD Cem-TPL JV Contractor (UGC04) at its manufacturing facility in Guangzhou, China. The TBM will be used to excavate 6.10 km long tunnels between Dharavi and Sidhivinayak Stations.

The tests involved a suite of physical inspections and functionality tests which are conducted to determine if the requirements of specifications and manufacturing contract are satisfied, to ensure safety, design, geotechnical, operational and performance requirements. Testing included over 85 different visual inspections and 44 functional tests. Following some minor alterations, the TBM will be dismantled and shipped to Mumbai where it will arrive by August 2017.

Similar procedure was followed to seek approvals for cutting the trees infringing in the station locations. MMRC submitted an undertaking that permissions from all relevant authorities including CRZ are obtained and the conditions imposed by respective authorities will be duly fulfilled.

Later, Bombay Environment Action Group also submitted their no objection for the work to be carried out and for the removal of trees subject to the undertaking given by MMRC to replant the trees and permissions obtained from the concerned authorities.

MANGROVE ECOSYSTEM

Mangroves play a crucial role in coastal area ecosystem as they are salt tolerant species and absorb salinity and prevent ingress of saline sea water into sweet river water, which further helps protecting the drinking water sources.

Mangroves are a particular type of plant species that grow in conditions of saline or brackish water and adapt to survive in coastal regions especially in tropical and subtropical climate.

Benefits of mangroves :

- Mangrove forests and estuaries are the nursery grounds for a number of marine organisms including the commercially important shrimp, crab and fish species.
- The roots of mangroves acts like sponges and absorbs large quantities of water and ease up flood control by slowing down the runoff velocity of water.
- Mangroves play a crucial role in shielding against cyclones, ecological disasters and protects shorelines.
- They purify water by absorbing impurities, harmful heavy metals and pollutants in the air.

About *Avicennia marina*

Avicennia marina is 2-5m tall shrub to medium sized plant, found in estuarine habitats. In India, they are found in mouths of rivers, tidal creeks along east and west coast and in bays. This is a predominant mangrove species found in Mumbai coastline.

Unlike terrestrial plant and tree species, mangroves exhibit intricate coping mechanisms that include:

- salt filters and roots that subsist on salt water with constant waves
- adaptation to mud saturated with water
- capacity to limit fresh water loss through leaves
- absorption of gas directly from atmosphere
- offspring survival through internal seed development

MANGROVE REPLANTATION

BKC and Dharavi stations



MMRCL has obtained 1st stage forest clearance under Forest Conservation Act, 1980 and CRZ clearance under CRZ notification 2011 for BKC and Dharavi Metro station.

Restoration Area 0.3Ha
Koparkhairane village

Mangroves at Dharavi and
BKC stations.

Metro-3 underground stations at BKC and Dharavi are located partly in mangrove area on Mithi River bank.

Approximately 0.9Ha of mangrove area is impacted at BKC station and 108 no. of mangrove plants of *Avicennia Marina* species will be cleared for construction of BKC metro station.

These mangroves will be restored at an alternative location in Koparkhairane village in scientific manner.

At Dharavi station, although 0.34Ha area is under mangrove forest, there are no existing mangrove plants found at this station location.

Though, clearance of mangroves for BKC metro station is essential, adequate steps have been taken in consultation with Mangroves Cell of Maharashtra Forest Department for compensatory afforestation of mangroves.

Forest and Mangrove cover in Mumbai region
Source : www.godrejthetrees.org.in

Plantation will be done at Survey no. 312 at Koparkhairne Village in 1Ha land area each in lieu of diversion of forest land for BKC and Dharavi Metro Stations. In addition to this, in-situ mangroves plantation will also be done in consultation with Mangrove Cell, State Forest Department at BKC in area of 0.7 Ha and Dharavi in 0.28 Ha.



KNOW YOUR STATION - GRANT ROAD



Frere Bridge as seen from Grant Road skywalk



Babulnath Temple



One of many 'talkies' in Grant Road- Super Plaza Cinemas



Streetscape of Lamington Road



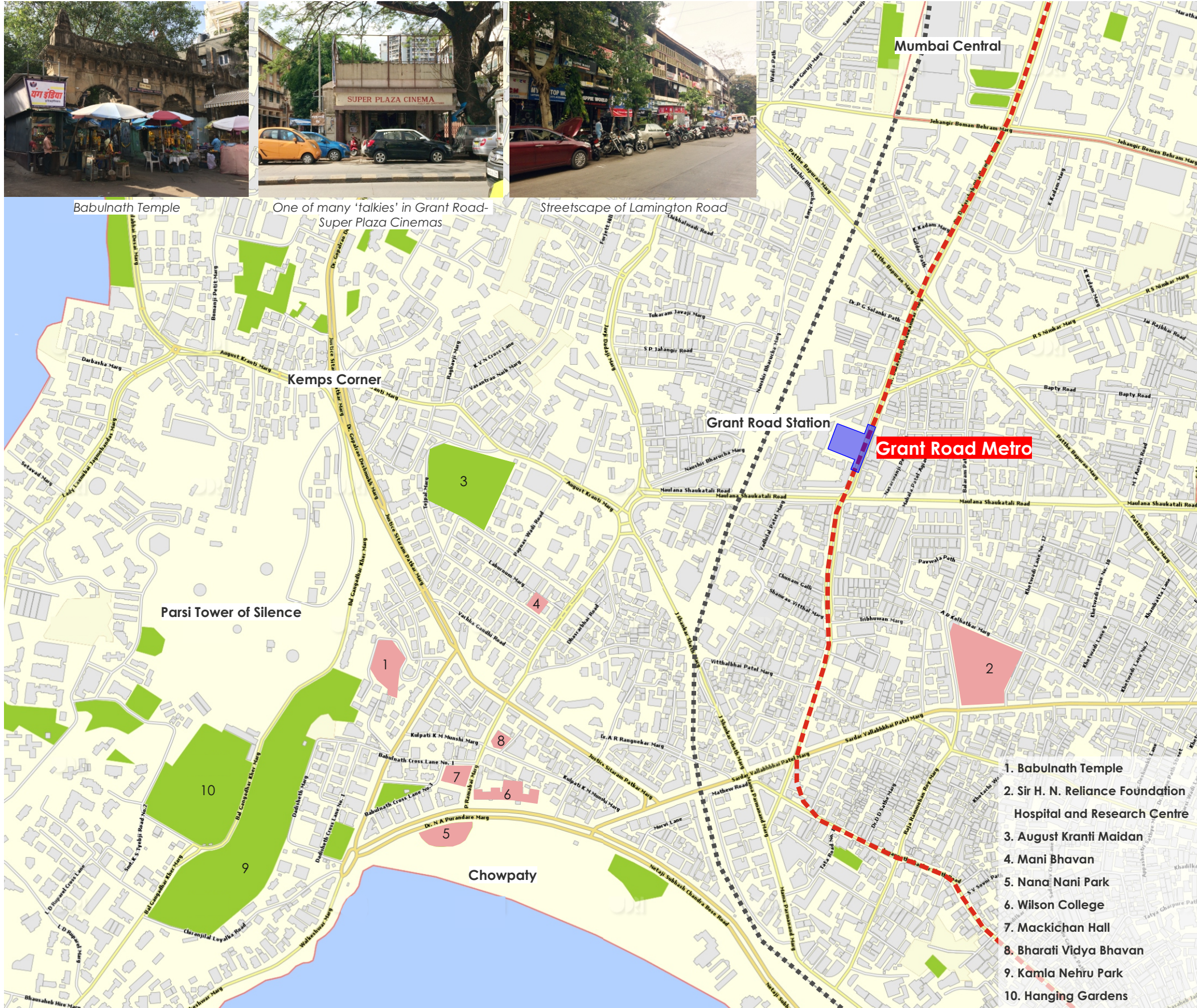
Sir H. N. Reliance Foundation Hospital and Research Centre



Mani Bhavan - Gandhiji's Residence (1917 to 1934)



Cama Baug - Famous location for Parsi ceremonies



- 1. Babulnath Temple
- 2. Sir H. N. Reliance Foundation Hospital and Research Centre
- 3. August Kranti Maidan
- 4. Mani Bhavan
- 5. Nana Nani Park
- 6. Wilson College
- 7. Mackichan Hall
- 8. Bharati Vidya Bhavan
- 9. Kamla Nehru Park
- 10. Hanging Gardens

Grant Road precinct is located near Tardeo and Mumbai Central. It gets its name from then Governor of Bombay, Sir Robert Grant from whom the oldest medical college in Bombay, Grant Medical College also gets its name. Like any other neighborhoods in South Mumbai, Grant Road is a local - brew of Jains, Muslims and the location of original commune of early Parsi and Irani Zoroastrians in the city. Grant Road is also famous for its Irani Cafes like the B'Merwan and the Persian Bakery & Store.

August Kranti Maidan (earlier known as Gowalia Tank Maidan) is a park in the locality where Mahatma Gandhi issued the Quit India speech on 8 August 1942. Grant Road accommodates Lamington Road (Dr. Dadasaheb Bhadkamkar Marg) also known as the electronic hub of Mumbai. Grant Road had a fair share of old cinemas, like Novelty Cinema, Super Cinema, Apsara, Jamuna, Minerva, Royal Talkies, New Roshan Talkies, Nishat Cinema, Imperial Cinema, Alfred Theatre and Shalimar Cinema.

Grant Road station is the 8th from south in the Metro-3 route and will have a direct connectivity to Grant Road suburban station on Western Railway. The station is designed in a highly restrictive land condition and will be constructed with both cut and cover and NATM (New Austrian Tunneling Method) technology. The station will cater to important landmarks like Sir H.N Reliance Foundation Hospital, Tower of Silence, August Kranti Maidan, Hanging garden, Kamla Nehru Park etc.



WORLD ENVIRONMENT DAY CELEBRATION

Metro 3 celebrated world Environment Day on June 5th throughout the seven packages with the promising theme of "Connecting People to Nature – in the city and on the Land from the Poles to Equator" Various activities like sapling plantation, competition events, skit etc. were conducted with inclusive participation from both staff and workers.



Different expressions of environmental resolution made by project staff including construction workers, site engineers, project managers at L&T STEC JV UGC01



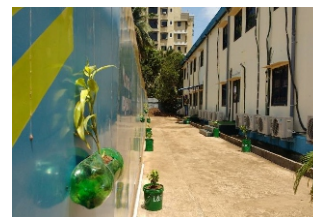
L&T STEC JV UGC02 organized activities on behalf of World Environment Day



CEC-ITD CEM-TPL JV UGC04 celebrating Environment Day



Different activities conducted by JKCRTG - JV at UGC05 and UGC06



Different activities conducted by L&T STEC JV UGC-07

METRO AND ENVIRONMENT

Metro-3 pledges to minimize environmental impacts in the transport sector and contributes towards sustainable city development in turn benefitting its users as well.

REDUCE TRAFFIC INDUCED POLLUTION
9907 tonnes/year



REDUCE TRAVEL TIME
40mins - 2 hours



SAVES FOSSIL FUEL
3.54lac litres/day



GREENER ENVIRONMENT

Environmental impact worth planting 3.5lac trees



WORLD ENVIRONMENT DAY

World Environment Day was established by the United Nations General Assembly in 1972 to be celebrated every year on 5th June. This year's host country Canada chose the theme as "Connecting People to Nature" to stimulate awareness about the environment. The intention is to enhance political attention and public action by encouraging people to get outdoors, and sensitise them to appreciate its relevance in creating sustainable ecosystems.



EXPERT SPEAKS

Achieving environmental balance while promotion and development of mega infrastructure project in cities is a continuing debate between the environmental activists, developers and authorities. Our article in 'expert speaks' gives a different perspective to see the situation which can help arrive at a rational approach.

Can we stop infrastructure projects because they need to cut trees or build projects while protecting the trees? This is becoming quite an issue in Mumbai for construction of new metro lines as well as other road projects. Let us clearly identify issues and see whether we can have sensible guidelines to address this vicious circle.

First, we must identify which projects are in broad public interests. We can say that those projects which would be primarily used for public transportation where more than 60% of users would use public transport. It covers all rail projects but not all road projects as most of the road projects built in Mumbai such as Sea Link, Eastern Freeway, Santacruz Chembur Link Road, Jogeshwari Vikroli Link Roads, almost all flyovers and Coastal Road are used by private transport. If it is a project with priority given to bus transit, even a road based project can be of advantage to public transport.

Now, let's understand what is the meaning of "trees". It is useful to add a qualitative aspect to this. Trees which are older than a certain age and with a diameter or height of a certain level should be classified under this category.

Third element is, how we can replenish tree cover more than what we destroy, must also have specific definitions and controls. For example, we should specify what kind of trees should be planted and protected. This should be further supervised by an independent agency for a period of at least ten years and it should be placed in public domain for assessment of annual progress in replanting and protection of newly planted trees. One needs to ensure that there is actually an increase in tree cover over a period of ten years and beyond. This needs to be assessed in an accountable manner.

In fact, beyond the trees, land acquisition for such transport projects must also be governed by our overall objectives which should be people and environment oriented and well defined. Public land should not be sold in a city like Mumbai where there is already excess of high end housing and acute shortage of affordable housing (to be defined as affordable to the people below top 20% income slabs and sizeable. If not, most of the public land must be available at a negotiable cost – not more than construction cost per sq ft only then we can ensure that housing is truly affordable). It is important to promote use of public transport and people to use non motorized modes for commuting.

With a serious and focussed approach, inclusive and sustainable development interest can be nurtured.

Mr. Ashok Datar is founder trustee of Mumbai Environmental Social Network – a think tank for analysis and sustainable solutions in urban public transportation, mapping. He has an M.A in Economics from Stanford University and has worked with Several private sector companies in finance & projects in companies such as Reliance, Garware, Coca Cola export.



ROLLING STOCK

Pre-qualification bids

MMRC has received an overwhelming response from international and Indian companies for design and supply of Metro Trains.

The pre-qualification (PQ) bids were invited following procurement guidelines of JICA who is funding 57% of project cost. The PQ applications were received and opened on June 20, 2017. The companies which submitted their PQ applications from India, Europe, Japan and China are:

- Alstom Transport India Ltd India & Alstom Transport S.A France (Consortium),
- CAF S.A, Spain
- CRRC Nanjing, CRRC Changchun & CRRC International Corporation Ltd China (Consortium)
- Hitachi Ltd, Japan
- Kawasaki Heavy Industries Japan & BHEL ((Consortium) India,
- Mitsubishi Corporation, Japan

MMRC will expeditiously complete the PQ evaluation process followed by inviting tenders (RFP) from short-listed firms, after JICA concurrence. To cater to heavy passenger loads, the state-of-art rolling stock will be procured, which will also be equipped with the features of driver-less train operations.

The contract will include design, manufacture, supply, installation, testing and commissioning of Metro Trains/Rolling Stock. The train cars will be 22.6-metre-long and 3.2-metre-wide with 4 gates per train.



JICA'S ENGAGEMENT IN METRO 3

Japan International Cooperation Agency (JICA), as a sole Japanese government agency in charge of ODA (Official Development Assistance) implementation, aims to contribute to the promotion of international cooperation in forms of loan, grant, technical cooperation etc. JICA has about half century long history of cooperation with India. Now India is JICA's largest partner in the world who has the biggest outstanding amount of loan (JPY 1,852 billion [approximately over INR 1 Lakh Crore] as of the end of FY2016, about 15% of the world total) as well as the biggest new commitment of loan (JPY 308 billion [approximately over INR 18,000 Crore] in FY 2016, about 20% of the world total).

So far JICA has offered assistance for projects in sectors such as Health and Medical Care, Transportation, Power, Energy, Agricultural-Rural Development, Conservation of Natural Resources, Environment, Urban and Regional Development etc.

In the metro sector in India, JICA is providing the ODA loans for projects in 6 major cities including Delhi, Kolkata, Chennai, Bengaluru, Ahmedabad and Mumbai. So far, JICA has extended JPY 947 billions (approximately over INR 55,000 Crore) of concessional ODA loans for the metro sector in India. Our cooperation via ODA loan aims not only to provide financial support but also to achieve the development of quality infrastructure through close collaboration with project owners, such as MMRC, from planning stage to implementation stage in light of safety, management, social and environmental consideration, fair and transparent public procurement and so on.

It is an honour for JICA to be engaged in Metro-3 project which will pass through the heart of Mumbai metropolitan area and is expected to boost the mobility in the highly populated area and business centres. Metro-3 is expected to contribute to environmental improvement through mitigating traffic congestion and emission of pollutants via promotion of modal shift from private transportation to mass rapid transit. While there are usually many challenges for any project of this magnitude, we are confident that MMRC, as the project owner, is capable of undertaking this project and building good relationships with all the stakeholders. Metro-3 will be an iconic infrastructure contributing to the future prosperity of Mumbai.

JICA believes that reliable and punctual operation of Metro-3 also has the potential to transform minds and behaviors of the people, who tend to rush into trains with less consideration for others including vulnerables, elders, women and physically challenged, into considerate citizenships capable of waiting for the next train which would be easily predicted due to the punctuality. The ultimate goal of our cooperation is to achieve such transformation of people's lifestyle through the sound development of Metro-3.

With this view, JICA would like to congratulate and continue the cooperation with Government of India, Government of Maharashtra, MMRC and other stakeholders of the project.

Authored by Mr. Takema Sakamoto,
JICA India Chief Representative



Artistic expression by a project staff on World Environment Day

MMRC Control Room

Contact us @ 8291751545 to report monsoon related grievances pertaining to Metro-3 construction work.

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