

MOVING THE MASSES

The Metro Way

Metro systems have grabbed the imagination of urban planners in India, and several cities are pushing ahead with ambitious projects to ensure an inexpensive and efficient system for transportation of commuters. **Aradhana** focuses on the proliferation of metro networks.

THE success of the Delhi Metro – an urban miracle – has triggered off a rush for setting up similar networks across urban India. Metros and major cities are opting for mass rapid transit systems (MRTS) as an efficient mode to help ease transportation problems.

Over half a dozen cities, including Mumbai, Bangalore, Chennai, Hyderabad, Kochi and Chandigarh are likely to get metro systems over the next few years. About \$12.5 billion is expected to be invested in these systems across the country over the next few years. Says G.R. Madan, director, Mumbai Metropolitan Region Development Authority (MMRDA): “For cities plagued with traffic problems the Delhi Metro has come as a saviour. Its success is responsible for the revival of people’s interest in metros.”

MRTS projects are also environment friendly, and metro operators can expect a lot of benefits. According to M. Ramachandran, urban development secretary, the government is already identifying and promoting plans for undertaking projects capable of availing of carbon finance.

Delhi Metro has already registered for carbon credits, while Bangalore Metro will soon be following suit. The Urban Development Ministry plans to regularly monitor the clean development mecha-

nism programme and has also urged the World Bank to help it in this regard.

Interestingly the metro in Kolkata - it was the first city in India to get a metro – is now being expanded, 24 years after



AN URBAN MIRACLE: Delhi Metro chief E. Sreedharan is all set to repeat the metro success story in other cities



A PANACEA FOR URBAN WOES: The Delhi Metro has emerged as a viable and popular transportation system

it was set up. The Delhi Metro Rail Corporation (DMRC), which implemented the city's metro network ahead of schedule and on budget, is the consultant for many such projects.

The corporation has also been a consultant to Jakarta Mass Rapid Transit System in Indonesia. Officials from Pakistan, Ireland, Syria, Sri Lanka and Vietnam have also interacted with the DMRC.

With a growing number of cars being sold in India, traffic problems in major cities are becoming difficult to manage. Says a transport expert: "Buses and trains in most cities are over-crowded and sorely lacking in passenger comfort and convenience. There is therefore a need for the country to upgrade its mass transit system."

The success of the Delhi Metro has convinced urban planners that this is a panacea for the urban transportation woes of millions of commuters. "The Delhi Metro with its 280 carriages transports 650,000 passengers daily and siphons 1.5 million commuter trips each day off the roads," says Anuj Dayal, DMRC spokesperson. "The result is 1,650 fewer buses

The metro is a cost-effective solution for urban transportation. We have been making profits even with low fares and will be able to payback our loans.

on the roads, annual fuel savings of \$110 million and 30 per cent less air pollution."

The second phase of the Delhi Metro, which will cost about \$4.25 billion, will require about 500 carriages that will carry 2.2 million additional passengers a day. The metro is a cost-effective solution for urban transportation. The cost of construction

of Delhi Metro worked out to about \$45 million a km. In contrast the upcoming Dubai metro is estimated to cost over \$60 million a km.

Says E. Sreedharan, managing director, DMRC: "We have been making profits even with low fares and will be able to pay back our loans." Similarly, the company has established a successful model for commercially exploiting land along the stations, ensuring a steady stream of revenue.

It is these factors that have made the metro a viable and popular system, encouraging other cities to opt for it.

Various models for funding the construction of metros have been proposed. The central government has agreed to partly fund some of the projects through viability gap funding (VGF). State governments are also pitching in with a part of the funds.

At present, the central government provides 20 per cent as VGF through soft loans. The remaining 80 per cent is to be borne by the private partner and the state government. The centre is toying with the idea of raising the VGF to 30 per cent.



STEAMING AHEAD: Mass rapid transit systems will change the transportation landscape in urban India

The first phase of the Mumbai Metro, which is being executed as a public private partnership (PPP), is the first project with a VGF component. The centre has also approved a VGF for the Bangalore Metro.

Mumbai Metro One Pvt Ltd, the special purpose vehicle (SPV) that is executing the first phase of the Mumbai Metro – linking Versova-Andheri-Ghatkopar – is a joint venture company formed between Reliance Energy of the Anil Dhirubhai Ambani Group, Veolia Transport of France and MMRDA, a state government agency. Work on the first phase of the Mumbai Metro – at a total cost of about \$600 million – started recently. The first corridor is expected to be completed within three years. Says Madan of MMRDA: “The \$4.3 billion, 1,460-km metro system is eventually expected to carry nearly five million passengers daily. We expect that it will change the transportation scenario of Mumbai altogether.”

In Bangalore, the country's IT hub, the metro is expected to be operational by 2011. Says B.S. Sudhir Chandra, director of planning, Bangalore Metro: “We should

The \$4.3 billion, 1,460-km Mumbai metro system, the first phase of which is being executed, is eventually expected to carry nearly five million passengers daily.

have got a metro years ago.” Adds Jayesh Desai, head, infrastructure group, Ernst & Young: “In cities like Bangalore, it is impossible to have anything other than the Metro. Roads cannot take the load.”

According to J. P. Chalsani, director, business development, Reliance Energy,

the company has been short-listed for projects worth nearly \$2.7 billion, including the 56-km-long Hyderabad Metro and the 22-km-long Kochi Metro. It has also bid for the second phase of the Mumbai Metro.

DMRC's Anuj Dayal points out that the company has been appointed the prime consultant for Hyderabad and Kochi Metros and is the in-house consultant for Mumbai Metro. DMRC has also submitted Detailed Project Reports (DPRs) for Metro systems in Bangalore, Kolkata (East-West Line), Ahmedabad, Chennai and high-speed links from the new airports coming up at Hyderabad and Bangalore to the respective city centres.

“In fact, work has already started on the Bangalore and Hyderabad Metros,” says Anuj Dayal. “A DPR is also under preparation for Pune and work on a DPR for Ludhiana is likely to start shortly. Amritsar and Agra have also shown interest for similar systems.”

But DMRC's focus currently is on the construction of Phase-II of the Delhi Metro, which has to be completed before the Commonwealth Games are held in

New Delhi in October 2010. "This means that while Phase I comprising 65.1 km was completed in seven years and three months, Phase II comprising about 120 km has to be constructed in just three-and-a-half years," says Dayal. "This is a most challenging task, which has rarely been attempted anywhere in the world. Therefore, we can ill afford to divert our attention by taking up actual construction in other cities though we are providing full support to them by way of consultancy."

About 70 per cent of DMRC's revenues come from operational sources (ticket sales) and the rest from non-operational ones such as advertising and property development. Dayal says this appears to be a good ratio, "Because non-operational revenues have not only raised funds for the project but also ensured that fares are affordable for the common man."

DMRC's fares are among the lowest in the world, with the exception of the Kolkata Metro. It has also been earning operational profits since the first year of its operations (2002-03). In fact, it is one of only five Metro systems in the world which earn operational profits, the others being Hong Kong, Taipei, Singapore and Tokyo. In 2006-07, DMRC's operational profit stood at a record \$100 million, up 15



OPPORTUNITIES FOR ADVERTISERS: Non-operational revenues from commercial deals help ensure affordable fares

per cent over the previous fiscal.

Feeder buses are also an essential part of an MRTS network, so that metro stations are easily accessible for commuters. Last November, DMRC introduced its own fleet of feeder buses equipped with Global Positioning System (GPS) so that their movement could be tracked at all times.

Based on the 2001 census, the Planning Commission had suggested that

35 cities with a population of over one million should have MRTS networks. But considering the huge cost of setting up such a system, the DMRC felt that initially only cities with a population of over three million should have metro systems.

Many other smaller cities are also likely to replicate the MRTS model in the future, considering the success of the projects currently being executed in cities like Mumbai, Bangalore and Hyderabad. 🌿

