

Building Mumbai



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provides some solutions on how to make Mumbai a world class city

Presently, Mumbai with a population of about 14.5 million receives about 3,300 Million liters per day (Mld) for distribution. The estimated gap between supply and demand today is about 1700 Mld. However, we need to make best use of the available water. Foremost among the options available, is tackling the problem of leakages, particularly in the city, assessed to be between 25% to 35%, which is a huge wastage. This is cheaper than the cost of a new scheme.

The reuse and recycle concept will be the need of the hour and non-potable use of water can be through tertiary treatment plants. Industrial use of water, cooling systems, gardening, water for the toilet, etc. are most likely areas for reuse. We have to educate people to reuse this water. Considering the substantial quantity of treated water going in the non-potable use, this reuse will save about one sixth of the total water supplied today (considering a supply of 3,300 Mld, reused water could be as much as 500 Mld). Making recycling mandatory for water intensive industries, decentralized sewage treatment, etc. would be other options.

As for the drainage system, Mumbai requires a major renovation in the wastewater disposal system but the makeover will be incomplete without the much talked about Mithi river project. Mithi river system functions as one of the major drainage channels during the rainy season, apart from carrying wastewater let into it by the Brihan Mumbai Municipal Corporation (BMC) and serves a significant area of the city. When fully completed by 2009, Mithi river improvements will no doubt be the high point of Mumbai make over. Not only the flooding as experienced recently is expected to be reduced, the proposed beautified promenade area can become a landmark.

Telecom Sector

Mumbai's existing telecom infrastructure lacks the capacity to

effectively serve wireless (cellphone) and broadband based services. Hence, to increase the quality and capacity, citywide network with Wi-Max technology, with a frequency band of 2-11 GHz for Metropolitan Area Network (MAN) or a Wide Area Network (WAN) operating in 10-66 GHz band, can be implemented in Mumbai. It is much cheaper than a wired network. With speeds upto 75 Mbps and a range of 50 Kms, Wi-Max can also be used for creating a Wireless Mesh Network to replace the existing cables as well as the backbone network.

A futuristic alternative is the Fiber to the Home services, for implementing Triple Play services (Voice, Video and Data). A Passive Optical Network or Metro Ethernet Solution, with speeds up to 30 Mbps and 1 Gbps respectively, can also be used once the economics justify its use.

Power Sector

The power demand for Mumbai has increased substantially over the last decade. Mumbai therefore needs many approaches such as increasing power generation, improving reliability, reducing losses, providing automatic control and monitoring of transmission and distribution systems, etc.

Use of underground cables in place of the existing EHV/ HV transmission lines will not only improve reliability but also reduce problems associated with "Right of Way". In addition, it will remove "eye sore" and improve aesthetics. Unitised Distribution substations with the gas insulated switchgear, transformers and LV distribution boards in a single enclosure will save space and enhance aesthetics. Demand Side Management (DMS) and automation down to feeder pillar level can be implemented providing a "Smart Grid".

Solid Waste Management

An efficient system of solid waste management is essential to

maintain the cleanliness and hygiene of Mumbai. This will enhance city's aesthetic appeal, make drains free of litter. The primary need is to reduce the land requirement for disposal by minimizing the amount of waste generated and then to process waste for reuse. To achieve this objective, Mumbai residents should be made aware of the concepts of Waste Reduction at Source, Reuse and Recycle through awareness campaigns, seminars and training. Composting of organic waste generated from markets, restaurants, residential and food processing industries should be encouraged nearest to the source of generation, if feasible. Waste with high calorific value can be used directly or after pelletization as fuel for incineration.

Sustainable/ Green Design

The exponentially rising population and skyscrapers in Mumbai have put tremendous pressure on the limited natural resources and infrastructure. Working within the constraints, the ideal solution will be to make each building sustainable, including environmental issues. That is, each building can have its own resources without the need to depend on the local authorities to supply water, electricity, or even transportation. These issues can be addressed at least to some extent through reuse, local generation such as wind or solar power; and mass transit arrangements for the building occupants, respectively. The key areas of green design include sustainable site use, water efficiency, energy efficiency, materials and resources, indoor air quality and innovation in design. One of the problems in Mumbai and other cities is the increasing trend of buildings with glass facades. This should be discouraged since it can consume more energy and will not be eco-friendly.