Subodh Kumar  
Municipal Commissioner  
Municipal Corporation of Greater Mumbai  
MCGM Headquarters  
Mahapalika Marg  
Mumbai 400 001

12th September 2011

Dear Sir,


In continuation of our correspondence with you on our deliberations on the Development Plan, we are setting out below the suggestions and recommendations of the stakeholder group on water and sanitation.

1.0 BACKGROUND

1.1 Availability and Distribution of Water
Mumbai receives a supply of 3400 MLD. If one estimates that a population of 14 million receives a supply of 150MLD then the domestic requirements of water is 2100 MLD. Add to this the requirement for industrial and commercial requirement of 600 MLD and one realises that the quantity of water supply should be very adequate for its needs. However the city continues to suffer from inequity in the distribution of water. Old distribution infrastructure results in leakages and cross contamination between sewer and water lines. It is estimated by NGO’s working in poor urban neighbourhoods that 2,000,000 (20 lakhs) persons in Mumbai have no access to BMC water and have to rely on tanker water and other private sources. These are generally the poorest urban population who have to pay much higher rates than the rest of Mumbai population; a direct result of MCGM policy to deprive post 1995 slums of water.

1.2 Quantity of Water Supply per Capita
Since Nov 2002, MCGM grants water connections only at 90 Liters per day (LPCD) instead of the earlier 135 LPCD. It is expected that citizens have to generate water for secondary requirements through rain water harvesting. (Environmental status report of Brihanmumbai 08-09)
1.3 Co-ordination with Planning Department
It seems that building permits are issued without checking the adequacy of water infrastructure. A case in point is the rehabilitation projects carried out in M west ward where large scale building development has been done with very little provision for water supply.

1.4 Infrastructure Planning
Though there has been attention given to the main water supply to Mumbai, the distribution system suffers from neglect which is apparent in the loss of quality in the water once it leaves the purification plant (contamination ranges from 8.5% to 25.5% of samples in the wards), water leakages estimated as 600 MLD (20% of supply) as well as the poor distribution in some areas. Intermittent supply of water is identified as the cause of contamination due to ingress of foul water during non supply hours through joints, disused connections, tampered mains, faulty fittings etc (Environmental status report of Brihanmumbai report)

1.5 Failure of Rainfall
For the occasions when Mumbai suffers from shortfall of supply due to lack of rainfall and supply from the reservoirs, it is necessary to provide for other sources of water to tide over the shortfall.

1.6 Metering of water connections
In south Mumbai, Old buildings pay a flat rate for water as these buildings are un-metered. About 60% of suburban buildings are metered; however, 80% of these are estimated to have non-functioning meters.

1.7 Sewage Treatment Plant
The land reservation for a sewage treatment plant (STP) in Worli – Jijamata Nagar – was proposed in the last DP but has not been achieved.

1.8 Requirement for Sanitation facilities
There is a huge unmet need for toilet and bathing and washing facilities in slums. The number of functioning toilets for women in particular is very low. Even where toilets are built, except for those maintained by a few organisations, they are unmaintained, dirty, clogged, unlit or in disrepair. Non-notified slums in particular face problems as land owners will not issue NOC’s for building public toilets. In general the huge demand for public toilets has lead to the immensely poor maintenance of the few such facilities that exist. The MCGM policy is not sympathetic for the provision of toilets in post 1995 slums.
2.0 BASIC PREMISE

2.1 Standard for Water Supply quantity
The National Building Code (NBC) standard for water supply is 150-200 LPCD and the UDPFI standard is 135-150 LPCD. Based on the NBC minimum 150 LPCD may be taken as the standard for water supply in Mumbai. All dwelling units (formal and informal) should receive piped water supply and the same to be metered. Even standpipes can be metered and charged to the slum society. It is essential that a minimum basic need of 50 Litres per day per person, as prescribed by WHO, is provided to all people living/working in Mumbai irrespective of status of residence. This may be metered and paid for by the user.

2.2 City to achieve sustainability by harvesting and conserving water
The Water Supply to Mumbai has to be limited to the current consumption (approx 3400MLD) and future needs to be met by harvesting/conservation so as to minimize deprivation of the hinterland that is leading to urban rural conflict.

2.3 City to achieve sustainability by recycling sewage
The City to work towards a goal of maximum self sustainability in water and sewage recycling.

2.4 24/7 water supply for safe water
Aim for a 24 by 7 water supply for each tap with sufficient pressure (1-1.5 bar) and fix existing leaks in the supply network to minimize losses and contamination due to transmission.

2.5 Equity of water distribution with proper metering
Curb wasteful consumption and create an environment for equity in water distribution.

2.6 Sewage cannot be pumped directly into our water bodies and oceans.
All sewage needs to be treated in STP’s before being disposed in city water systems. A plan needs to be prepared for provisioning of STP’s for sewage treatment and recycling of water in all of the major outfall locations in Colaba, Worli, Bandra, Versova, Malao, Ghatkopar and Bhandup.

3.0 STRATEGY

3.1 Infrastructure needs to be engineered and planned in-sync with the Development Plan.
The water supply network has to keep pace with the planning permissions that are issued. This has to be systematized into the working of the Hydraulic Engineers Department.
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3.7 Supply of public water taps for travelling and homeless population
Provide drinking water taps for Mumbai’s commuters and homeless population on humanitarian grounds.

3.8 To alleviate water supply during drought
For tiding over period of low rainfall it is suggested that a system of ground water recharge wells in the form of shallow bawdis be encouraged. These would act as natural and cost effective storage tank for rainwater which can be utilised for non-potable needs during times of inadequate rainfall. (A bawdi can be dug and lined for about 5000 Rupees) In addition, housing societies may opt for a bore well that is recharged with rain water run-off. Existing lakes and ponds, water channels and rivers must be kept free of contamination as well as encroachments and maintained in their natural condition.

3.9 Staffing and Training for the HE’s Department
It is necessary to provide engineering and technical training and equip staff at all levels and appoint vacancies in technical and engineering positions.

3.10 Recycling of Water and Sewage
In the light of the massive deprivation caused to the hinterland by Mumbai’s demand of 3400 MLD of water a day, it is necessary to look at strategies for recycling and conservation of water to meet the ever increasing demand. Sewage Recycling Plants can act not only as waste to energy facilities but also provide potable water that can be recycled into Mumbai’s central reservoirs and supplied back to the city after passing through the water purification plant. Conversely, this water can be used to supply the non-potable needs of large institutions such as the railways, MbPT, airports and other industries.

3.11 Treatment of Sewage by Housing Society
New Cooperative Commercial and Residential buildings having Sewage Treatment Plants must utilize the grey water on site and not mix it back into the sewage/storm water network as this then becomes a completely futile exercise.

3.12 Ensure adequate toilet facilities
The city has to work towards ensuring adequate toilet facilities so as to remove open defecation. Open defecation needs to cease thru the provision of public toilet facilities. This will require the provision of connection of sewer lines either to the city’s sewer network or to underground septic tanks. The sanitation requirement as per the NBC code is 1 WC, 1 Bath and 1 Washing place between 3 families and exclusive to them. UDPFI specifies 1 toilet per 4 to 5 families. In determining the sanitation requirements in slums it is recommended that the NBC code is followed as the maintenance of the toilets is likely to be better when the toilet is the responsibility of a few families and exclusive to them.
3.13 The sewerage network is to be extended and increased in-sync with the DP. The DP must also provide adequate land for sewerage treatment facilities for each zone.

3.14 Classify settlements in Existing Land Use plan and map services
The current slum settlements are notified if they existed prior to 1995. When preparing the existing land-use plans in respect to slums, locations of common facilities such as toilets, water stand pipes and other amenities such as wells, tanks if any must also be mapped. The settlement should be classified according to the age. These could be classified as pre 1975, Pre 1985 Pre 1995, Pre 2005 and later. This classification is important as the education and income levels increase the longer the settlement has been in existence. The newest settlers generally belong to the lowest socio-economic group. Settlements also need to be classified as TENABLE and NON-TENABLE land. The DP needs to consider the provision of toilets in slums on tenable land until a permanent re-location can be provided to the settlers irrespective of date of settlement.

3.15 DP to coordinate with all of the Engineering Heads
The Chief Engineers of each of the departments of Water Supply and Sewerage (WSSD) consisting of: Hydraulic Engineer (HE); Mumbai Sewage Disposal Project (MSDP); Water Supply Project (WSP); Sewerage Project (SP) and Sewerage Operations (SO) needs to be consulted in order to obtain a full brief from each of these Chief Engineers at the very outset. There needs to be coordination between each of these departments in creating the new DP. Currently there is no cross-structure communication system in place and these departments do not talk to each other.

These are our initial suggestions for your considerations. We will be looking at how we can build on these strategies in the future deliberations of the group and will follow up on these suggestions in greater detail. In the meantime we would be happy to have feedback or comments from the consultants in order to engage with them on this process.

Thanking You,

Yours Sincerely

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