CHAPTER VI

SUSTAINABLE DRINKING WATER MANAGEMENT STRATEGY

Analysis of data and information collected in the course of the present study and observations done in the field have made it clear that drinking water supply is grossly inadequate and irregular in a large number of municipal wards of Guwahati city. The present schemes of urban water supply are in a dilapidated state with improperly designed, old and ill-maintained infrastructure, inefficient service facilities and poor regulatory mechanisms. Faced with a bourgeoning civic population and an expanding urban sprawl, the existing infrastructure for supplying drinking water to the city dwellers appears to be exceedingly over-stressed almost bursting at the seams. Overdependence on groundwater for meeting drinking water needs of a larger section of the city population constitutes a major problem for Guwahati where rapid depletion of water table due to overexploitation of groundwater in recent years with its attendant water quality and health-related consequences has become a cause of great public concern. The situation is rather paradoxical because, unlike many other urban centres in the country, the Guwahati city is located right on the bank of one of the world’s largest rivers—the Brahmaputra which is a perennial source of abundant water resource. Besides, the city with its rolling topography marked by several hills and hillocks provides good number of potential sites for locating large-size storage reservoirs to serve different parts of the city with networks of well-designed distribution system.

A long-term sustainable drinking water management strategy for Guwahati can be conceived centering around multiple, large-scale, centralized, modern technology based water supply schemes based on the Brahmaputra that will cater to the need of different service districts or blocks identified in the city. These schemes should be
supplemented with time-tested, small scale, decentralized, location-specific practices of water conservation and harvesting such as groundwater recharge, injection wells, percolation tanks, rainwater (rooftop and land surface water) harvesting etc. Such decentralization of water management will provide the necessary framework for ordinary people to participate in the vital sector of water management, especially in case of those who are socio-economically disadvantaged and/or those living in geoenvironmentally sensitive locations.

Considering the need for improvement in water supply and the future growth of population in the city, a long-term strategy with following broad features has been conceptualised. The objectives of the scheme will be: (i) to meet the required demand for potable water of a large projected population in different parts of the city on long-term basis, (ii) to provide safe and economical source of supply and (iii) to shift the emphasis to surface water (Brahmaputra river water) which is plentifully available all the year round.

Based on the surface topography and density of population of the city area, it has been proposed to divide the city into several service sectors (areas). Based on a preliminary estimate, the tentative number of such sectors may be restricted to three, namely eastern, southern and western to be served by multiple storage reservoirs a top selected hills in different parts of the city area.

The eastern sector covers 28 nos. of wards, namely 14, 18, 19, 20, 21, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 45, 46, 47 and 48. The southern sector covers 19 nos. of wards, namely 15, 16, 17, 22, 23, 24, 44, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59 and 60. The western sector covers 13 nos. of wards namely 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13. The surface water from river Brahmaputra will be used as raw water sources. Each of the sectors will have at least
one intake arrangement for drawing raw water from river Brahmaputra using floating barge. The raw water will be pumped to the treatment plant located in each of the sectors. For the northern sector there will be two treatment plants, while for the southern and western sectors there will be three in each sector. The areas (wards) to be covered by different service sectors are tentatively shown in fig. 94. All treatment plants should be set up on the basis of topography. After treating the water it will be pumped to service reservoirs which will be located on the top of different hillocks in each the service sectors. The lay out and technical specifications of the mains will be decided keeping in view the ultimate demand conditions upto year 2050.

Distribution mains will be laid from different service reservoirs to the areas of water demand. Detailed technical parameters for the distribution pipe network and their alignments should be selected with the help of sophisticated modern technologies like computer simulation, remote sensing and GIS.

Besides, there should be some small surface water treatment plants set up to fulfill the requirement of small localities where spring water is available, like Basistha, Matgharia hills etc.

Proper monitoring, maintenance and management of the created infrastructure, introduction of effective regulatory mechanisms, necessary institutional arrangements and policy guidelines are some of the important factors that may ensure sustainability and efficacy of the proposed strategy.
Fig. 94: Proposed Water Supply Sectors (service areas) in Guwahati City