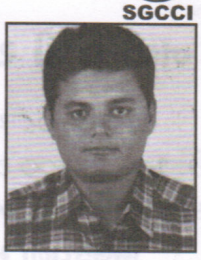
WATER CRISIS : PROBLEMS & SOLUTIONS



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1.0 OVERALL SCENARIO :

Global studies by WHO, CWc study for India, Recent lecture of Dr. Alag; Economist for Gujarat and my report of 07/03/2003 Gujarat Mitra have warned crisis/scarcity of drindkable water by next decade or two. Our children may abuse us of not providing them with water inspite of better housing and living.

Logically World, India & City of Surat (Urbanization) will have double population by two decades. The rain water source for surface and ground water will be decreasing due to (a) Environmental Chang - Global rming, (b) Changed rain pattern and, (c) Large scale ground water use, creating salinity ingress and 30 - 50 m depth of water table in areas where it was at 10 - 20 m. Peduced water both' ground & surface, more than double demand due to population growth for drinking water and more needs of water to cater food & clothing obviously, by thumb rule, will leave 30 % of present supply i.e. 20 -30 L / head / day, total against 100 L / head / day. This is less than minimum needed per capita for survival & growth.

2.0 SURAT :

- Source : River Tapti 600 MLD maximum; from riparian rights Ukai dam has to give.
- Ground water source has been invaded by salinity and available limited source for industry is 50 - 60 m deep.
- Water is not nature's gift, now, it is commodity available at price almost equal to milk (Rs. 15/ Liter). This will rapidly grow. Industrial raw water could cost almost double.
- City limits extends 3 times in 2007 with projected poulation 45 lakh of more after 2015 requires minimum source of 1600 MLD against available 600 MLD.
- Any planning for source, water plant & network requires 15 years.
- Thus growth must be controlled or new source has to be searched is challenge of the decade.

3.0 solutions :

Long term :

- Multipurpose Project of 2000 crores or so consisting of Detention reservoir 10 to 20 km long x 0.5 to 1 km wide 4 to 5 m deep with Balloon spill along coastal belt of Hajira, Bhimpore.
- The costal high way linked outer ringroad for city (Hajira - Hansot - NH 8 - Umbharat - Dumas) to protect city from coastal erosion, provide escap route for desaster management of Hajira industrial belt.
- Recharge alluvial Tapti banks by detained flood water - salinity control, creating sweet water source over decades.
- Provide bypass of 0.7 to 1.0 L cusecs spilled flood from river & reduce flood level by I m at Adajan, Vesu, Magadalla, Umra, Dumas & Hajira.
- Flood water spills collected by drains to fill flood pond till tide recedes.
- Provide river drive low level road with spill on top & drain underneath to divert to sea, Dumas - Hajira. This will permit Balloon dam at Magadalla to conserve surplus water of weir. Gaviar water works of 80 MLD can cater Vesu, Magadalla, Umra, Dumas & Hajira.
- Coastal green belt, parks & protection against sea level rise due to global warming.
- 50 or more coastal village ponds can be linked for post monsoon water from flood detenion pond by network.
- All new units low & high rise will have to store minimum 5000 liters per family / flat / house in for each person. Capital invested will payback by free water for decades when cost of water 5000 L will be Rs. 20 to 30, 000/- per year.
- Recharge bores one per building can 6000 liters of good water with every shower of 25 mm / day. Thus 30 days rainfall / year can conserve 1, 80, 000 Liters of water per house. This is source after decade if I lakh units recharge ground water.
- Use water twice before disposal to drain. It will save consumption up to 50%. Also sewage pumping cost will reduce considerably. ■