



## Water pollution: an emerging challenge

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THE RAPID PACES of industrialisation, urbanisation and commercialisation of agricultural produces have great impact on quality and quantity of water resources. Population growth and its migrational trends are creating pockets of scarcity of fresh water resources which are further being exaggerated by lac of disciplines and obligations towards conservation, prevention, and exploitation of the water potential. Perpetuation of dwindling features forewarn towards sustainability of pollution free fresh waters.

### Water resources potential and its availability

Seas and oceans contain about 97 per cent of all waters on hemisphere. Snow glaciers and polar ice caps account for about 2.25 per cent with small percentage of water vapour. Usable resource for all functions of human race taken together in rivers, lakes and ground water represent only 0.6 per cent of total. Out of this 0.6 per cent of global water, 97 per cent is in ground water and remaining 3 per cent is available as surface water. See Table 1.

It is not that all the available potential is utilisable. The present day utilisation and exploitation levels are varying from 10 to 25 per cent depending upon geo-meteorological and socio-economic conditions. Low rain fall areas in arid zones, pollution affected regions and highly urbanised and industrialised zones are prone to water resource crunch permanently. If management quality and quantity concepts are not enforced towards its judicious use, famine and water war may be miseries of the next generations.

### Occupational and consumerism trends in water use

In order to feed growing population, agriculture profession is adopting commercial trends in developing farm

produce, oilseeds, sugar-cane, wheat and paddy crops with maximising the use of water and replacing it by traditional cultivations at the cost of artificial makeups of irrigation, fertilisers, toxic pesticides and herbicides are responsible for soil erosion, siltation of water bodies and toxicity and reduction in fish yields. Non-degradable detergents are used in washing machines by household consumers causing gross pollution of water bodies. Small scale and domestic industries exempted from pollution control norms are also becoming non-conventional sources of pollution. Ground water pollution Scenario of six districts in West Bengal is a glaring example of ground water pollution. Fast urbanisation, transportation, industrialisation and tourism are encroaching upon forest, agricultural land and water bodies. It is causing denudation of vegetation and top soil cover along with pollution of water bodies. Major water consuming industries like distilleries, thermal power plants, fertiliser industries, paper and pulp industries and tanneries are forcing the authorities to locate them near the water resources to minimise expenses on water and energy, inspite of proximity of water bodies having chances of frequent spill overs due to failure of power supply. Solid waste disposal and plastics in daily life are of growing concerns to the municipal authorities. Their leachates into water bodies being inevitable, are another environmental concerns for disposal and treatment. Prechlorination and post chlorination of organically rich waters is a great health hazard.

### Impact of legislation on environmental managements and quality of water

For effective pollution control, water, air environment conservation and public liability insurance acts have been enacted. Government of India, but the responsibilities given to the statutory pollution control boards are not being effectively maintained. The restructuring of effective constitution, their accountability towards environmental upgradation and time bound clearance of the issues are the basic requirements of commitments towards environmental legislation. For disposal of litigations, environmental courts need to be established with the time bound manner in disposal of the litigations. Quoting an example, Cess Act is applicable to all water consuming industries and local authorities but most of the local authorities are neither paying cess nor treating the sewage and thus fouling water courses. In a few stages only ground water legislation is being imple-

**Table 1.**

Countries	Average quantity in M <sup>3</sup> /Capita/Annum
Israel, Iran, Egypt	800 to 1000
Kenya, Nigeria & West African countries	1500 to 2500
India, Pakistan, Bangladesh, France, Germany, Italy, Singapore, Srilanka, Australia	4200 to 4600
China, Japan, Myanmar, Philippines, UK, Sweden	4800 to 5500
Brazil, Canada, Mexico, USA and USSR	10000 to 23,000

mented partly but other water scarce states like Gujarat, Rajasthan, Andhra and Karnataka are facing acute problems due to lowering of water table and contamination of ground water due to fluoride, nitrate and other chemicals.

The mining and acid mine drainage in coal mines is causing long term impact on water quality due to abandoning of the pits in absence of strategy of back filling and restoration.

The administrative set up for control of surface and ground water resources are different than pollution control authorities without having common issues of coordi-

nation. The withdrawal of ground water and its recharge with maintenance and water table and quality parameters have not at all taken up by state or central level enactment. The pollutions of ground water in Delhi, Madras, Bangladesh and other organised pockets are examples of negligence in harnessing the ground water reserves.

There is a great need for water education, legislation and accountable functions of the statutory authorities in preserving functions of the statutory authorities in preserving surface and ground water with adequacy of treatment and recycling methodology.