



# Civil society and water conservation

Dr Arvind Kumar

Accommodating about 16 percent of the world's population, India is endowed with only four percent of its water resources. With the present population of more than 1.20 billion, the per capita water availability in India is around 1,170 cum/person/year. According to World Bank estimates, India has presently the capacity to store about 200 BCM of water and irrigated area of about 90 Mha. However, due to rapid development, increasing population and iniquitous distribution of water, the demand for this natural resource far outweighs its supply.

The water sector in India is faced with some crucial issues, which *inter alia* include (i) erratic distribution of rainfall, frequently leading to floods and droughts in various areas (ii) water use inefficiency (iii) unregulated groundwater extraction (iv) water pollution and (v) decreasing water quality due to poor waste management laws, inter-state river disputes, growing financial crunch for development of resources and scarce safe drinking water. Besides, inadequate institutional reforms and ineffective implementation of existing provisions also impact on the performance level for water service delivery.

Water is both an important input for many different manufacturing and industrial sectors and used as a coolant for machines, such as textile machines.

Cheap water that can be rapidly pumped from underground aquifers has been a major factor in the success of India's economic growth. Despite the many benefits from a thriving economy, industrial waste is largely responsible for the high levels of pollutants found in India's rivers and groundwater. Many corporations end up polluting the very water they later need as an input.

According to broad estimates, industrial water use in India stands at over 55 billion cum or nearly six percent of total freshwater abstraction. This demand is expected to increase dramatically in the next decade, given the enormous forecasts of over 10 percent growth for 2020 alone.

## Water Conservation

Water conservation entails the policies, strategies and activities to manage water as a sustainable resource to protect the water environment and to meet current and future human demand. In view of fast depleting ground water resources and adverse impact of the ongoing process of climate change, water conservation has assumed immense significance. Like individuals, water conservation is a *sine qua non* for the corporate sector in India as well.

A steadfast commitment to water conservation is essential. The companies engaged in extensive use of water are

called upon to set a water conservation goal. These goals will illustrate the effectiveness of company's water conservation programme. Involvement of employees of the company in the water conservation is essential to have fruitful results. Employees can be imparted proper training in water conservation through water literacy programmes with the help of a civil society.

Another effective water conservation measure is to install low flow devices within the premises of the company. Encouragement should be given to use toilet tank displacement devices or install vacuum flush toilets. Also, all showering facilities should be equipped with low-flow showerheads. Showerheads with on-off valves provide the opportunity to conserve more water than those without. Similar measures should be taken for all faucet fixtures.

It is equally important to monitor results of water conservation measures adhered to in the company. Each water bill of the company includes its consumption history. It is possible to follow this history and use charts, graphs, and other records can be adhered to keep track of water conservation progress.

## Water Use & Conservation Audit

Performing a water audit of company's facility is the first step in designing an effective water conservation plan. A

water audit serves as the starting point for identifying losses and implementing useful water efficiency practices. An audit for a large facility that uses vast quantities of water is a significant undertaking. The following steps are generic suggestions, and are suggested as a general guide to the water audit process:

#### Identifying Water Sources

Where does company get water from? Is it from an offsite municipal supplier, an onsite community water supply, an onsite private water supply, a surface water body or a combination? Gathering all existing information including:

- Water and sewer bills
- Maps, schematics, and floor plans of the distribution system, plumbing and equipment
- Number of employees/occupants and their schedules. Does water facility have shifts covering the entire 24 hours? These factors make a difference in the magnitude of water use
- Capacities, storage and water use of all appliances, fixtures, pumps, hoses, rinse tanks, cooling towers, recycling ponds and other water-using equipment and structures

#### Quantifying Water Use From Source

If company's water facility is metered, this task is easy. Water use can be calculated on the basis of a 24-hour period. Record the meter readings at the beginning and end of the 24 hours. Subtract the initial reading from the final one. This is how much water you used on that day. Do this several times and average the daily readings. If company's water facility is not metered, there will be need to estimate water use based on the use type and equipment possessed by the company, employees/occupant numbers, and information gathered earlier. Use of a portable, non-invasive, ultrasonic water meter to measure flows at various points in the facility can be made. This is a device that clamps onto the outside of pipes and, using ultrasound, measures water flow through the pipe.

#### Performing The Audit

- Catalog all water-using devices and measure daily use of each.
- Identify and quantify water losses due to leaks for each device. This can be as

simple as comparing manufacturing specifications with meter readings. If the device uses more water than the manufacturer recommends, then it is possible there is a leak.

- Determine water consumption for each device. Consumption = water in (-) leaks (-) (waste) water out. For instance, consumption can be blow down, or the water used to make your product, such as concrete or bottled beverages, or the water left in linens after washing that is subsequently lost in the drying process.
- Identify and quantify water conservation devices and practices already in place. Quantify their water use and savings over conventional devices and methods.

**It is important to monitor results of water conservation measures adhered to in the company**

#### Analyzing The Audit Results

- Water in from the source should equal wastewater out + consumption + losses
- Compare measured water consumption of devices to the manufacturer's claims
- Calculate the amount of 'lost' water for each device. This includes consumptive use plus leaks
- Identify ways to locate and repair leaks

In order to work out long term water conservation plans for the company, historical water demand, future expansion, employee/occupant increases or decreases, planned water conservation practices, retrofits and upgrades, and weather conditions and trends etc should be taken into consideration. Forecast and benefit/cost analysis can be used to formulate such plan. Much attention needs to be focused on determining how water efficiency practices should be implemented.


#### Role Of Civil Society

The corporate sector is well equipped with financial resources to buy water

conservation related technology. However, mere availability of financial resources and technological means are insufficient to effectively implement water conservation measures unless human capital is harnessed to attain desired results in the field of water conservation. Besides, the corporate sector lacks resource-persons who can generate awareness among other employees about water conservation, water audit and keeping water resources free from pollution. Here lies the role of the civil society.

Civil society can help the corporate sector in imparting training to its employees in water literacy, with specific emphasis on water conservation. Also, capacity building of the employees in water sector is facilitated through sensitizing the people about the worth of water conservation, incentivizing them to adhere to water conservation means and further galvanizing them to elicit their involvement in water conservation. The civil society is well placed to impart training to the corporate personnel in water conservation and water audit with the help of its volunteers and technical experts.

#### Conclusion

Civil society is a potent catalyst for change. It serves as a link between the general public and corporate sector. A corporate-civil society nexus can play a crucial role in the effective implementation of water conservation measures. Resources available with the corporate sector in tandem with trained human capital of the civil society can facilitate capacity building of the corporate personnel, which can be instrumental in attaining desired results of water conservation and water audit. The civil society can also help in eliciting technical expertise from public sector and international agencies, which is otherwise cumbersome for the corporate sector. Thus, civil society-corporate nexus can help in alleviating water related woes of the corporate sector in an effective manner. 

*(The author is President, India Water Foundation, and Member of the Meghalaya State Water Resources Council headed by the Hon'ble Chief Minister Meghalaya. Views expressed are personal)*

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