

3

Water

STRUCTURE

3.1 Introduction

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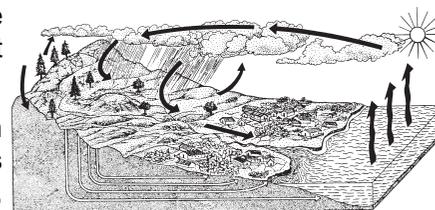
3.6 Unit End Exercise



3.1

With three-fourth of the earth's surface occupied by water, it is one of the most important components to sustain life on earth. Although this abundance of water in the context of human use is very limited as most of this is salt water, with a very less percentage available for human use.

With even such meager quantity of water available, humans have been misusing, exploiting and polluting water to great extents. Some of the problems related to water and its use in India are overexploitation, scarcity, pollution, subsidies, inequity, etc. Mentioned below are some examples which bring out one or more than one of these issues:



3.2

On completion of this unit, you should be able to:

- Explain concerns with regard to availability and use of freshwater.

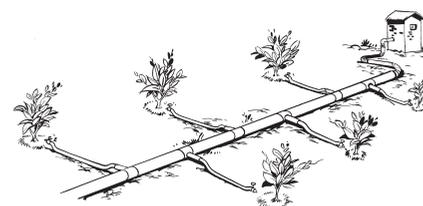
3.3 ISSUES IN WATER AVAILABILITY AND USE

Agriculture sector is the largest water user in the country, accounting for over 80 per cent of total water use. Irrigational practices in India in the latter half of the 20th century have changed drastically. Relying on huge subsidies on water, farmers indiscriminately use groundwater and grow water-intensive crops even in water scarce regions. Subsidies on electricity, as well as tools such as irrigation pump sets etc. have resulted in injudicious use of underground water resources in the agricultural zones. Further such provisions have resulted in cultivation of water intensive crops in water scarce regions. These have resulted in alarming depletion of water resources, especially the ground water. The following examples would help illustrate the seriousness of the problem.

In states like Punjab, Haryana, Gujarat and Uttar Pradesh, over 85 per cent of irrigation is done through groundwater sources.

In Junagadh, a district in Gujarat, the indiscriminate water pumping has resulted in the water table going down at an alarming level. Anyone who can afford digs a borewell and there is no limit to the depth of bore. People connect motors to their handpumps and draw as much water as possible. Every year the amount of water obtained from handpumps falls by almost 20 per cent every summer. The women have to travel upto 4 km to fetch potable water. Ingress of saline sea water is another problem the villagers are facing, in both the groundwater as well as soil salinity. The occurrence of bone related diseases is increasing in the region as the hardness of water is well beyond the permissible limits.

The 563 km long river Damodar flows through six districts of Jharkhand, before entering West Bengal and joining river Hooghly. Water supply from the Damodar river to Dhanbad was cut off for the fourth time in less than a month during



December, 1997 due to excess of pollution in the river. There are more than 183 coal mines, 28 iron ore mines, 33 limestone mines, 84 mica mines which draw water from the river. A total of about 6,000 million litres per day of mostly untreated industrial wastewater flows into the river everyday. This does not include wastewater discharged from the mine-based activities and untreated sewage from towns and cities along the course of the river. Mining and industrial effluents generally carry high suspended solids in form of fine coal particles and fly ash. Highly toxic substances like phenol, cyanides and heavy metals are found in these effluents.

Domestic use of water which includes water for drinking, bathing, washing and other household purposes have several issues connected to it. If we consider access and use, for example in Delhi, a person can use upto 400 litres of water everyday whereas in areas where close to Delhi like Najafgarh, it is less than 20 litres. In metros like Delhi, nearly 15-20 litres of potable water is used to wash one car. Less than 15 per cent of piped water is used for drinking and cooking purposes. The rest goes down the drain, including much from non-judicious use in toilets and bathrooms. Delhi alone has more than 2,000 swimming pools. The domestic water supply in urban areas is hugely subsidized. The consumers however, are charged typically around Rs. 1.5 per cubic meter, only about a tenth of the operating and maintenance costs. . This subsidy has also not really helped the poor. More than 70 per cent of those benefiting from subsidies channeled towards private connections are not poor. About 40 per cent of the urban poor in India do not use either private or public taps, and hence do not get the benefit from the subsidy.



In rural areas, millions still travel considerable distances to collect drinking water. More than 70 per cent of rural population does not have a water source within the house. The situation in drought-affected areas is much worse. Picture this scene from Dahod district, Gujarat—women walk at least 3-4 km away to a dry river bed to get a pot full of water. The process is to dig more than-a-metre deep holes inside the river bed and either a child or another woman is lowered down in the hole. There is a long-wait before enough water seeps out to fill a small vessel which is then collected and passed onto the women above. She filters it with a fine cloth before pouring it into a pot. Scenes like this, long queues in front of wells or water tankers and women making day-long trips to collect are everyday stories in many states of the country.

Is overexploitation, scarcity and quality of water an issue in your school, locality or City? Explain how?

3.4 CONSERVING WATER

It may also seem to us that India is poor in water resources and supply and that is why there are problems of water scarcity and distribution. The country receives 400 million hectare- metres (mham) of rain and snowfall. Another 20 mham flow in as surface water, coming from outside the country. These 420 mham provide the country with river flows of 180 mham- of which as much as 75 percent occurs place during the rainy season and another 67 mham is

available as ground water. Thus, total river flows and groundwater add up to 247 mham. These are more than sufficient to provide water for different uses in the country. This brings to notice two issues—one is of overexploitation as enumerated in examples above and another lack of planning and structures for rainwater harvesting. Efforts related to water conservation in both urban and rural areas stress on water harvesting as the key to solve scarcity problems at the local level.

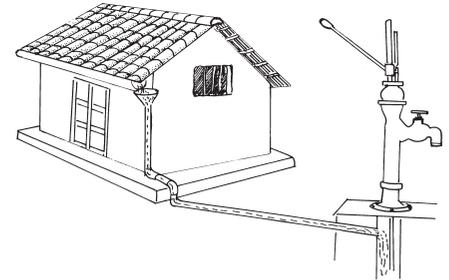
3.5 BRINGING BACK THE WATER

The Alwar district in Rajasthan is classified under the semi-arid region. It has a meager 620 mm average annual rainfall and droughts are a recurrent feature. In the early '80s, with pressures of population, increase in consumption and overall environmental degradation, the water situation became worse and the district was officially declared by the Government of Rajasthan as a 'dark zone' - an area where the ground-water table has receded below recoupable level.

In 1985-86, a severe drought hit the region, adding to the already bleak situation of scarce livelihoods and mass migration. Into this grim scenario entered a team of dedicated volunteers from the Tarun Bharat Sangh (TBS), a voluntary non-government organization. TBS volunteers were convinced that one of the ways to improve the situation would be to revive traditional practices, especially *Johad*, that had sustained Alwar and its populace in the past. But initiating a dialogue with the villagers and convincing them to take part in the revival was not an easy task. They decided that the best way to do this was to practice rather than preach. They themselves started digging to revive an already existing *Johad* in one village, Gopalpura. This hard work and patience paid off. Villagers started taking part in discussions and gradually getting involved in the process. TBS was able to instill a sense of commitment and involvement from the community. The villagers started contributing in every possible way to build the *Johads*.

To spread the movement in the entire area, TBS has been organized Pani Yatras (Water Tours). Every year this tour of about one and half months was taken around, to share the experiences of water harvesting. The goal was to involve at least 100 more villages in this work. The march carries the message of harvesting rainwater and saving forests, by using the traditional systems and knowledge. Today, there are more than 4,000 *Johads*, which are totally managed by the community and have come to be regarded as community or village property. In many cases villagers have contributed around 90 per cent of the total cost. The role of TBS has been that of a catalyst and motivator.

The perceptible changes brought about by building *Johads* have been no less than a miracle. The wells have been recharged and water supply could be ensured for the entire year to meet the needs of the people and livestock. The effect of this has been evident in many areas in increased food production, in conserving soil, increased bio-mass productivity. It has even converted two rivers Aravari and Ruparel, that were once perennial, but had nearly disappeared during the drought in the eighties, into perennial ones again.



Wastelands that were sparsely cultivated earlier are now cultivated with higher cropping intensity. The transformation brought about by these efforts have turned an officially 'dark zone' into a 'water surplus zone'.

What do you think were important components of making this effort successful—technology, participation, motivation, etc.?

As an individual what are the few steps you would like to take to conserve and save water?

3.6

- The amount of water on earth is the same as it ever was or ever will be. Is this statement true? If yes, then why are we facing water scarcity everywhere?
- Write a brief information note on 'water supply, water uses in your town/city.'

