

## Groundwater: Wake up before it is too late\*

*B. P. Radhakrishna*

I have again and again emphasized that groundwater is a precious resource which should be conserved and kept in reserve as an insurance against periods of low rainfall when surface water resources fail and even perennial rivers go dry. In our zeal to produce more food, governments as well as individuals have indulged in an indiscriminate programme of drilling bore-wells, withdrawing excessive quantities of water for crops like sugarcane. Mushrooming industries have also been permitted to sink any number of bore-wells within their factory premises and to withdraw enormous quantities of water. The result of such reckless and unplanned exploitation of a precious resource like groundwater has resulted in exhaustion of this resource in many parts of the country, depriving a large section of the people access to water even for drinking purposes.

Groundwater organizations, both at the Central and State levels, financial institutions, political leaders and bureaucrats in charge of administration have based their calculations of water availability on the quantum of possible annual recharge and replenishment. These assumptions are valid only as far as shallow groundwater is concerned which gets annually recharged through infiltration of rain-water and discharged through utilization. What is now being exploited, especially in the hard rock terrain which constitutes a third part of India, is not the shallow water but water held at depths of 50 m and beyond. Water held in this zone has taken decades or even centuries to accumulate and current rainfall has no immediate effect on this resource. Recent isotopic studies carried out in Rajasthan have in fact indicated that such waters can be as old as 6000 to 10,000 years. It is not the annually replenishable resource we are tapping but a resource which has taken centuries to accumulate. It is necessary to stress this point again and again.

It is a great pity that no correct record is being kept of the number of reliable information as to the extent of utilization of groundwater for agriculture, bore-wells that are in operation and the quantity of water being pumped. No serious attempt is

being made to collect industry and domestic use. Indiscriminate drilling of wells is being permitted without any sort of control, on the assumption that the resource is inexhaustible – an assumption which has no basis. The quarrying of a road metal requires a license, utilization of clay for making bricks and tiles requires a license, collection of sand in stream beds requires a license, but not the tapping of a precious resource like water stored in the ground. At present anybody can drill a well anywhere he chooses, install pumps of whatever capacity according to his fancy and pump as much quantity of water as he pleases without any check or hindrance. Such wells extract water not only from its immediate neighbourhood but from considerable distances away. The result of such action has resulted, as expected, in a steep lowering of the water table. Shallow open wells have become dry and are getting choked with debris and garbage and most of the bore-wells within a depth range of 50–60 m have also become dry. In spite of these danger signals and warnings indicated by the declining water table, more money is being diverted for drilling deeper and deeper wells. The time is not far off when, in a city like Bangalore which once boasted of a large number of tanks and innumerable wells brimming with water, even deep bore-wells drilled at considerable cost will fail to provide adequate water.

In order to check further deterioration, the implementation of certain measures are considered essential.

1. Create an agency or strengthen existing agencies and collect reliable information on the number and type of groundwater pump installations in operation at village, taluk and district levels and ascertain the quantity of water pumped each day and the purpose for which it is being utilized.

2. Introduce a licensing system for drilling wells and prescribe limits to the quantity of water to be pumped from each well based on availability of groundwater.

3. Ban industries, especially in cities, from withdrawing large quantities of groundwater.

4. Ban the use of groundwater for growing crops like sugarcane.

5. Notify that in any region drinking water needs must first be satisfied before

groundwater can be permitted to be utilized for agriculture or industries.

6. Restore tanks and take all measures to intercept rain-water, prevent rapid surface flow by digging contour trenches and contour bunds, and take every step to conserve rain-water and allow it to recharge the groundwater reservoir.

7. In cities, encourage rain-water harvesting and promote practices designed to collect rain-water falling on roof tops and storing it in tanks.

8. Take steps for storing rain-water in large underground cisterns at vantage points.

There is stagnation everywhere and a callous indifference towards measures aimed at public welfare. In spite of enormous amounts of money being spent, there is deterioration in the availability of water even for drinking purposes.

There is no hope of government agencies taking any interest. Voluntary agencies (village level land and water users associations) have to play important role in future. Much can be achieved through cooperative endeavour as is clearly demonstrated at Neemkheda in Devas district of Madhya Pradesh or Ralegan Siddhi in Maharashtra where farmers have constructed bunds, dug farm ponds, and planted saplings, checking erosion. Groundwater levels have picked up through watershed management, and what is more important, villagers have become self-reliant and are able to manage their resources through cooperative effort without looking to Governments and corrupt officials for help.

By combining technology with social action, rain-water can be made to provide maximum benefit to dry land farmers both through surface water storage and through aquifer recharge. The message of scientific harvesting and recycling of water must be spread among the rural community and how this is to be done should engage the attention of right-thinking men. More than 90% of self-supplied water for domestic use is provided by groundwater which is therefore critical for our future well being. The abuse of groundwater that is taking place must be prevented as further delay in this regard will spell disaster. Educating the public and making it aware of the real issues involved is the need of the hour.

*B. P. Radhakrishna is in the Geological Society of India, P.B. 1922, Gavipuram PO, Bangalore 560 019, India.*

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