

North Aravali Region will Soon Run Out of Water; 'Extremely High' Water Crisis Level

***Dr. R.N. Sharma**

****Ram Nivas Sharma**

Abstract

Rajasthan is among the driest states of India. The North Aravali Region (Alwar and some parts of Jaipur, Sikar and Jhujhunu districts) which is situated in north eastern part of Rajasthan and is home to a high dense population in Rajasthan, is facing "extremely high" Water Stress, close to "Day Zero Conditions" when the taps run dry. There were perennial rivers in this area, these rivers used to flow in the subsidiary rivers in those days, but now the scenario changed and this area become low rain fall area and no rivers at all even there is no regularity in the monthly rates of rainfall, so nowadays there were totally barren like area. This is hilly area, most of the area has hills, though this area get more rain fall than the remaining parts of west Rajasthan. In the monsoon season this area becomes greener than other seasons because these hills gets some rainfall that results the hills to turn in green. In this area there were less possibility to bring water from other area because other sources are whether they are far or the surface is not so good so that the canal can be made there, this thing makes this area more sensitive to water crisis. The changing rainfall pattern in North Aravali region is a concern, because this area's water and food security is at a risk. This area is already water stressed. Almost 50% to 60% of its cropped area remains without irrigation and some areas are chronically water stressed.

Severe Groundwater Depletion/water scenario in North Aravali Region

Before 50 years this area was full of water, there is no scarcity of water because the water was less exploited during those days. There were traditional ways of water irrigation. People use the method of Moat which is also called the pulley system, it involves pulling up water from a well or other such source to irrigate the land. This is a time consuming and labour intensive process, but it is very cost-efficient and this method avoids wastage of water. The other method was Chain pump in this method chain pump consists of two large wheels connected by a chain and buckets attached to the chain. When one part of the chain dips into the water source and the wheel turns the water was picked up and the chain after this lifts them to the upper wheel where the water tanks or other sources were present. And the same time the empty bucket gets carried back down. Dhekli- In this process of drawing water from a well and underground other sources. Here a rope is tied up along with bucket to a pole. At the other end, a heavy stick or any other object as a counterbalance is tied up. this pole is used to

North Aravali Region will Soon Run Out of Water; 'Extremely High' Water Crisis Level

Dr. R.N. Sharma & Ram Nivas Sharma

draw up water. Rahat- In this process animal labour is used. On outside of well, a large wheel is tied which is turned by ox or cow to draw the water from the well. During these times many small ponds which were called Johads in all four districts were present, In this area Sabi, Rugarail dhandh, and Banganga were perennial rivers. There is no water scarcity in this area in ancient times

There are many reasons why this area became water scarce some of them are as causing water stress around is the growing human population at the same time as the water supply has remained the same, currently we have global population growth and then later we will have climate change affecting water availability. But at this very moment, however, the problem for water suppliers and for political leaders is the demographic crisis we are facing – not the climate. Water use has grown at more than twice the rate of the human population over the last century in part due to industries, such as agriculture, which account for 70 per cent of global freshwater use.

If we reduce all kind of food waste which represents around 30-40 per cent of all agricultural production that automatically reduces water consumption. We have to change the consumption patterns, takes about 100 litres of water to produce while one litre of milk takes about 1,000 litres of water. Another example is that one cup of coffee takes 150 litres of water – just one cup of coffee – that's because there is not only the water you are drinking but the water needed to prepare the coffee beans and the water used in the materials that make the coffee cup and so on.

No water left for agriculture- The water for agriculture is no more in the North Aravali Region, This changed the cropping pattern in this area, water in this area is gone. The cropping patterns have been changed which results in loss of money for farmers. This can be explained by examples that in Thanagazi tehsil, there is huge crop of wheat and barley before 30 years but now these crops have been vanished. Actually what happened to them, this is the total result of Water crisis, this thing made people unemployed, Actually these crops need more water for irrigation and all the water has been extracted from the Ground, Now no one can do the same crop, this pattern not directly changed, this is slowly changed from 30 years to mustard agriculture. In those farms where the farmers used to grow wheat and barley there they started to grow mustard.

This crisis didn't stop there, now there are barren land left, no agriculture at all. This made people unemployed and even for their survival. Daily Household uses – the water in this area people used to use for farms for bath and other daily routines, but now this pattern changed because they are not more habituated with these patterns, People wash cloths in a lot of water that results in water scarcity. In even villages people are totally dependent on water tanker supplier for them daily, if he is not able to reach then they have to suffer for the same. Drinking water Scarcity- Earlier there was full fresh water for drinking, now this water is either not available or not in better quality, water quality is worsening day by day.

Many towns in this area are not reachable for water –There is no more ground water in this area nor can't this area get water from other areas easily. People of this area do not have access to safe drinking water. The water should be used many times means recycling system should be done, this will decrease the pressure on the water demand. National and local efforts are stronger than around

North Aravali Region will Soon Run Out of Water; 'Extremely High' Water Crisis Level

Dr. R.N. Sharma & Ram Nivas Sharma

global goals where there is no authority to oversee the progress they are making. Only the population of a country or of a city can see if their leaders have done their job regarding providing access to safe and clean water. If we discuss broad sense of Rainwater harvesting, it is a technology used for collecting and storing rainwater for human use from rooftops, land surfaces or rock catchments using simple techniques such as jars and pots as well as engineered techniques. Rainwater harvesting is a technique from centuries ago and these techniques should be supported, it as a solution to water scarcity, For these techniques we have been known for long. These areas can save surface runoff water in urban areas, rainwater flows away as surface runoff this water should reach to the ground. Rooftop Rainwater Harvesting, It is a system of catching rainwater where it falls. Groundwater Harvesting- Groundwater harvesting which is a rather new term and it refers to cover traditional as well as unconventional ways of ground water extraction. We can discuss Qanat systems, underground dams and special types of wells are a few examples of the groundwater harvesting techniques. 'Subsurface Dams' and 'Sand Storage Dams' are good way of groundwater harvesting which obstruct the flow of ephemeral streams in a river bed, the water is stored in the sediment below ground surface and can be used for aquifer recharge. Improvement in the quality of ground water, rise in the water levels in wells and bore wells that are drying up, mitigation of the effects of drought and attainment of drought proofing, Water collected from roof tops, courtyards and similar compacted or treated surfaces is used for domestic purpose or garden crops. Mansoon heavy rain water harvesting -There are no Floods in North Aravali Region, this water harvesting can be defined as the collection and storage of creek flow for irrigation use. Heavy rain water harvesting, also known as 'large catchment water harvesting' or 'Spate Irrigation', may be classified into following two forms. How to use waste water efficiently and live with very less water is not that much realistic, so this issue should be discussed and the water should be saved, this is the need of the day. Personally, I do not think that global goals to provide everyone with safe and clean drinking water are the best solution. I am more in favour of national and local commitments rather than global commitments. North Aravali Region faces severe groundwater depletion, visualised after discussions with the different peoples of this area.

The ground water depletion rate is 8 cm per year and in underground there is no water left in the ground which can be used it's a serious issue. Conditions by 2030 there will not be domestic usable ground water as well as drinking water in this area. These facts are mentioned report of NITI AYOJ, The situation is alarming, given the fact that year 2030 is not very far many rivers, most of the water bodies, all wetlands and 2-3 forests have completely dried in North Aravali Region despite having better water resources and rains than any other part of Rajasthan.

The North Aravali Region is totally dependent on rain water and ground water, however due to less rainfall in last 20 years and increased exploitation made this region water scarce. The ground water of this area is about to disappear. Even for drinking water both in urban and rural areas, this region will suffer a great shortage in future. 50 years back this area had sufficient ground water as well as surface water resources. Many perennial rivers were present here at that time, but now these are barren lands.

North Aravali Region will Soon Run Out of Water; 'Extremely High' Water Crisis Level

Dr. R.N. Sharma & Ram Nivas Sharma

The North Aravali Region is a hilly area where rain water flows away soon. Rain water of houses, roads and paths should be stored or should be made underground through recharge wells and other modern techniques of recharge. If a village stores water from terrace and roads this can fulfil around 70 percent domestic water requirement. Same practice may be done in agriculture lands.

Conclusion

To pay attention towards the conservation of water resources is the need of the day. Its necessary to pay attention towards water resources before the situation worsen.

Keywords:-

1. Water Stress – Water stress occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use.
2. Day Zero Conditions – When water supply would largely be switched off.
3. Groundwater depletion - Groundwater depletion, a term often defined as long-term water-level declines caused by sustained groundwater pumping, is a key issue associated with groundwater use.

***Associate Professor
Department of Geography
University of Rajasthan
**Research Scholar
Department of Geography
University of Rajasthan**

References

1. K.C. Kathuriya in Watershed planning for optimum utilization of water 1978 Gopal, R. et al. (1987): Fouride and nitrate levels in ground water.
2. Gupta et.al (1993) Nitrate Value in Ground Water tin Churu and Barmer.
3. Mahajan, G. (1989) Evaluation and Development of Groundwater, Ashish Publication House, New Delhi.
4. Mall, R. K., R. Singh, A. Gupta, G. Srinivasan and L. S. Rathore (2006) Impact of Climate Change on Indian Agriculture: A Review. Climate Change.
5. Malone, E. L. and A. Brenkert (2010) Uncertainty in resilience to Climate Change in India and Indian States. Climatic Change. 91, 451-476.
6. Rathore et al (2012): Observation of changes in surface temperature rainfall evaporation and esteem events.
7. Rao, A. S. (1992) Climate, Climatic Changes and Paleo-Climatic Aspects of Rajasthan. Geological Facets of Rajasthan.
8. Reddy, V.R. (1996) Urban Water Crisis-Rationale for Pricing, Rawat Publications, Jaipur.

North Aravali Region will Soon Run Out of Water; 'Extremely High' Water Crisis Level

Dr. R.N. Sharma & Ram Nivas Sharma