

Groundwater Depletion in India

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BRITTNEE: Many people believe that groundwater depletion is not a big deal until it happens around them. Since not everyone is an environmentalist, you may not know what groundwater depletion even is. That's why I am here, to help inform you on the background knowledge of groundwater depletion, mainly in the area of India.

Groundwater depletion is defined as long-term water level declines caused by sustained groundwater pumping.¹ This means that by pumping out the water that lays beneath the surface, the water level has a high chance of declining. Groundwater depletion has occurred in many places around the world, including Australia, the Middle East and different places throughout the United States. In this podcast, I will be focusing on the depletion of water in India and the places surrounding India. About a third of the Earth's largest groundwater basins are being rapidly depleted by human consumption.² The world's largest groundwater basins, including the Indus Basin aquifer in India as well as Pakistan, provides a source of fresh water for millions of people.³ This aquifer is considered to be the second-most overstressed because there is no natural replenishment of offset usage.⁴ According to NASA's Gravity Recovery and Climate Experience (GRACE), groundwater is disappearing fast from the world and of course, India is among the worst hit.⁵ Because groundwater aquifers are located in deep rock layers in between soils, they are placed in the driest areas. Because of this, the population relies heavily on underground water. The depletion also proposed a growing threat to food security throughout India. The top four irrigators in the world, China, India, Pakistan, and the United States, presently pump groundwater faster than the replenishment it receives in crop-producing areas.⁶ Out of these four irrigators; India creates the most serious issue. 60% of the farming irrigation depends on groundwater; therefore, 15% of India's food is being produced by the groundwater being mined.⁷ Because groundwater depletion provides many different risks to hurting the environment, it also gives off different aspects as to why depletion occurs everywhere around the world. Wetlands and rivers are at a potential risk of drying up because the underground water levels are continuing to drop.⁸ Nobody knows the real reason as to why there is always a depletion occurring somewhere around the world; however, scientists believe that an increased urbanization is what led to this severe depletion of aquifers. Presently, groundwater supports more than 80% of rural water supplies, and about 60% of irrigated agriculture. The groundwater supplies in India have been threatened by an ongoing drought. This drought has caused the groundwater to deplete tremendously not allowing the supplies to be refurnished. Next I am going to talk to you about why the residents of India believe Coca-Cola is at fault for all of the groundwater depletion. Although it isn't understood, many villagers are blaming Coca-Cola for the depletion issue. Most of them are blaming Coca-Cola because it had originally operated over fifty-two water-intensive bottling plants in India.⁹ After the residents of India portrayed several protests, the local government revoked Coca-Colas license to operate, causing them to shut down their plant worth \$25 million.¹⁰ Several thousand residents took part in a 10-day march beginning in 2004. The point of this march was to travel between the two Coca-Cola plants, because they were the ones causing the groundwater depletion. In a southern Indian village of

Plachimada in Kerala State, droughts have dried up the local wells, forcing the residents to rely on different sorts of water supply being trucked in daily.¹¹ The government then tracks all of these water supplies to retain information. All in all, you can see that groundwater depletion is an extremely serious topic that prevents different countries from receiving the right amount of water they need daily in order to survive. Now, we are going to get into the topics of water tables. A water table is the level below which the ground is saturated with water. Researchers estimate that the water table is declining at a rate of one meter every three years.¹² Around 114 million people live in this region, where 95% of groundwater withdrawals are for the irrigation of crops. Water security is widely recognized as one of the major challenges to India's economic and social development. These combinations of climate conditions drove India's farmers, households, and industries to depend so much on groundwater rather than surface water. Because of this, the dependence is currently leading to a rapid deterioration in the resources of groundwater. Many factors that contribute to groundwater depletion have a huge effect on the outcome. With this being said, groundwater depletion started to begin from a monsoon that occurred in 2012. The first two months of the monsoon recorded an uncommonly weak rainfall. A lack of reservoir infrastructure is another contributing factor as to why there are tons of shortages. Groundwater resources are unable to compensate like before which indicates that what was once a long-term issue is developing into a huge crisis. Finally, solutions to groundwater problems are obviously hard to come across. For example, solutions that confront water depletion, climate change and poverty are all hard to find at once. More than 15% of India's food is produced by mining groundwater. The groundwater levels are falling at an extreme rate in the states of Punjab and Haryana, as well as Gujarat. Tamil Nadu is one of the main states where groundwater levels are decreasing at a high rate of speed. Much of the depletion has been driven by the availability of inexpensive motorized pumps. The International Water Management Institute (IWMI) estimates that around 11 million farmers connected to the electricity grid could benefit from electric buy-back schemes within this. Presently, groundwater depletion in India is one of the worst we have seen in a long period of time, aside from California. I could provide more information on groundwater, however the point of this podcast is to understand the different aspects of depletion, especially within India. In order to obtain the depletion levels, scientists need to get an understanding on the different reservoirs and how they provide the type of information needed in order to keep track of the water levels. You can find more information regarding groundwater depletion here at zeenews.india.com.

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