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Changing Village Settlement Pattern and Decline of Ground Water: An Experience of a Village in Allahabad, U.P

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Abstract: Access to water and sanitation for all is one of the sustainable development goals of the UN. Water needs of drinking, industry and irrigation is fulfilled mainly through ground water. In this article, author tries to see the linkages between population growth, change in settlement pattern and decline of ground water level. Both national and state level water indicators explicitly shows the stress on the over extraction of ground water. This is more clear and evident at micro level, observation and analysis of a village in Allahabad in which demographic changes directly exerts pressure on the village settlement pattern and land use. Rapid increase in village population demands more land for cultivation, construction of new houses and hamlets. Disturbances in old water cycles badly affected the water recharge system of village. Pucca house, pucca naali, pucca road, use of hand pipe and mechanical way to withdraw ground water resources lowering the ground water level critically. To reverse this, water management and intervention in rural area is required immediately.

Keywords: Population growth, Settlement pattern, Ground water, Water management etc.

There is a popular Hindi proverb "Jal hai to kal hai", which means if there is water then only our future is safe. Another Hindi proverb says it more clearly "Jal hai to jeevan hai" which means if there is water there is life. All animals and plants need water to survive. Our human body consists of 75% of water and three-fourth of our earth surface is covered by water. So it is clear that water is one of the basic elements for life on the earth.

Current Water Scenario: The world is facing imminent threats due to water scarcity with implications for world peace, security and development. The world economic forum (Global risk report 2016) recognized the water crisis as the third risk in a list of top ten risks in terms of impact. Estimates indicate that around 4 billion people or two-thirds of the world population is facing severe water shortage for at least one month every year. Agriculture already accounts for approximately 70% of freshwater withdrawals globally and one of the main factors behind the increasing global scarcity of freshwater. In this context the UN adopted (2015) the agenda for sustainable development with 17 goals. In which goal 6 are dedicated to ensure 'access to water and sanitation for all'.

India's water sector is showing a sign of water stress in terms of per capita availability and heading towards water scarcity in the near future. More than one third India's districts are affected by severe drought affecting some 33 crore plus people in 250 plus districts of ten states. Western Maharashtra, Gujarat, Bundelkhand region of both UP and MP, Shimla, Pune and other Industrial Towns are facing shortage of freshwater. This shortfall of water across the states has led to crop failure, mass forced migration, suicides, closing down of Health Care facilities and industry. Surprisingly, this problem is more due to water mismanagement than its actual scarcity.

Ground Water Scenario of the Uttar Pradesh: Ground Water, which is aquifers below the surface of the earth, is the one of the nation's most important natural resources. Most of the water needs of drinking water (80%) and also of industrial sectors (80%) are fulfilled from groundwater. Uttar Pradesh is mainly an agrarian state, where nearly 70% irrigated agriculture land is mainly dependent on ground water. Withdrawals of groundwater are expected to rise as the population increases and available site for surface reservoir becomes more limited.

Growing dependency on ground water resources can be assessed by the fact that the rate of ground water development/exploitation assessed as 54.31 percent in the year 2000, has increased to 73.78 percent in the year 2013. Large scale exploitation is being done from 41 lakhs shallow tube wells, 25730 medium tube wells and 25198 depth wells in minor irrigation sectors and 29595 state tube wells. Under the drinking water schemes, 5200 million liter ground water from 630 urban areas and more than 7800 million liter ground water

the state. Ground Water development is the need of the state, therefore both short and long-term management, intervention and planning becomes essential for the stressed areas like over-exploited rural areas as following: First step towards abundance of water is to reestablish the relationship between people and water. Awareness generation among communities is the prerequisite for water conservation activities. Both short and long-term measures are required towards water abundance. Gram Panchayat and water committee would form properly and take care /monitor water bodies in their respective areas. Village Panchayat ensure access to safe drinking water to all. Restore/rehabilitate/create water conservation structures- to save every drop of water reach in village earth through medbandi on their field so that water can be preserved. A small recharge pit (dugwell) should be dug to capture the rain. All village public ponds, local ponds, drains and other water structures should maintained, cleaned, repaired, protected and used for water recharge. New rain water conservation structures such as ponds etc should be constructed on low land where water collects in monsoon. MPLAD / VidhayakNidhi would be used for big water bodies. Control and limit wastage of water in domestic use and in land irrigation by using pipe irrigation. Better irrigation methods like sprinkler and drip irrigation helps in reducing water consumption. Enhance efficiency of water use by reuse and recycling. Promote the agricultural crops which can grow in available water.---Use surface water and canal water for irrigation.

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