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## GROUNDWATER IN INDIA

**Relevance for Prelims:** Recent Statistics, Groundwater in India

**Relevance for Mains:** Implications and concerns associated with the Excessive extraction of Groundwater.

**Groundwater** is a vital resource in India, as it is the primary source of drinking water for millions of people and is also extensively used for irrigation. However, over-extraction and mismanagement of this resource have led to a decline in groundwater levels in many parts of the country.

### ABOUT THE STATUS OF THE GROUNDWATER IN INDIA

India has the most significant net groundwater withdrawal in the world, with an estimated **230 cubic kilometers** of groundwater being extracted annually. However, this extraction is not sustainable, as the recharge rate of the aquifers is much lower than the extraction rate. This has led to a decline in groundwater levels, with around 21% of the country's blocks being classified as "over-exploited" and another 52% being classified as "critical" or "semi-critical".

One of the major reasons for the **over-extraction of groundwater** in India is the heavy reliance on it for irrigation. Agriculture is the primary source of livelihood for a large part of the population in India, and irrigation is essential for crop production. However, the irrigation system in the country is highly inefficient, with a large part of the irrigation water being lost due to leakage, evaporation, and seepage. Additionally, the lack of proper drainage systems also leads to waterlogging and salinization of the soil, making it difficult to grow crops.

### REASONS FOR THE DECLINE OF GROUND WATER IN INDIA

Another major reason for the **decline in groundwater levels** is the **rapid urbanization and industrialization in the country**. The increasing demand for

water in urban areas has led to the over-extraction of groundwater, and the lack of proper sewage treatment and disposal systems has led to the contamination of the groundwater. Industrial activities, such as mining and manufacturing, also contribute to the pollution of groundwater.

## THE SOLUTIONS TO THE ISSUES

- To address the issue of declining groundwater levels, the government of India has implemented several measures. These include the **National Water Policy**, which lays down the framework for the management of the country's water resources, and the National Water Mission, which aims to conserve and manage water resources in a sustainable manner. The government has also launched several schemes and programs, such as the **Atal Bhujal Yojana** and the **Jal Jeevan Mission**, to conserve and recharge the groundwater.
- However, the implementation of these measures has been largely ineffective, as they have not been able to address the root causes of the problem. To effectively conserve and manage the groundwater resources in the country, there is a need for a comprehensive and integrated approach, which involves the participation of all stakeholders, including the government, industries, and the general public.
- This can be done by implementing measures such as **rainwater harvesting, improving the efficiency of the irrigation system, and promoting the use of alternative water sources**, such as treated wastewater, for irrigation. Additionally, proper regulations and monitoring systems need to be put in place to prevent pollution and over-extraction of the groundwater.

## Conclusion

In conclusion, **groundwater is a vital resource in India**, and it is essential to conserve and manage it in a sustainable manner. The over-extraction and mismanagement of this resource have led to a decline in groundwater levels in many parts of the country. To address this issue, there is a need for a comprehensive and integrated approach, involving the participation of all stakeholders, to conserve and manage the groundwater resources in the country.

**Shibaji biswas**