



**Sleepy Classes**  
Free. Regular. Quality.

---

**MAD- 2020**  
**Day - 17**  
**GEOGRAPHY**

To Watch the Video, Click Here:

<https://youtu.be/X4-QEurnG1M>

**Question:**

Discuss "water stress in India" and prepare a blueprint for its sustainable management.

**Answer:**

**Let's us discuss the whole concept of Water Stress in India**

**Structure:**

- 1) Introduction
- 2) Reasons for Water Stress
- 3) Water Stress - Why Diff. in India
- 4) Consequences
- 5) Way Forward
- 6) Already Implemented (Example - if any)
- 7) Conclusion

**INTRODUCTION**

The water stress refers to a twofold situation, when the demand for water exceeds the current available resource or when the poor quality of water restricts its use

**WATER STRESS IN INDIA - CURRENT SITUATION**

India has only about **4 per cent of the world's renewable water resources but is home to nearly 18 per cent of the world's population** According to the Aqueduct Water Risk Atlas released by the World Resources Institute (WRI), **India is placed thirteenth among the world's 17 'extremely water-stressed' countries** where irrigated agriculture, industries and municipalities withdraw more than **80% of their available supply** on average every year

1. India's groundwater resources are **severely overdrawn, largely to provide water for irrigation. Groundwater tables in some northern aquifers declined at a rate of more than 8 centimeters per year from 1990-2014.**
2. A **recent report by the Ministry of Earth Sciences (MoES)** shows a 'significant' drop in rainfall in **Uttar Pradesh, Bihar and West Bengal** over the past three decades, and rising variability in the monsoons nationwide, thus adding to the water stress of India in Northern parts.
3. **Although annual precipitation is adequate (at about 4,000 bcm), but the geological factors like steep slopes contribute to the lesser usability of the rainwater.**

**REASONS FOR WATER STRESS IN INDIA:**

India's water crisis is often attributed to **lack of government planning, increased corporate privatization, industrial and human waste and government corruption**. In addition, water scarcity in India is expected to worsen as the overall population is expected to increase to 1.6 billion by year 2050. To that end, global water scarcity is expected to become a leading cause of national political conflict in the future, and the prognosis for India is no different.

**Let's us talk about certain issues in Detail:**

1. **Over-exploitation of ground water.** Unsustainable use of groundwater for irrigation purposes has resulted in steep depletion of groundwater table. **India uses more groundwater than any other country in the world and groundwater exploitation has causes accelerated drying of aquifers.** The total groundwater used for irrigation has risen from 30% in the 1980s to nearly 60% today.
2. **The Flaw in Law: Exclusive rights to landowners over groundwater intensifies the problem.**
3. **Rapid Urbanization:** With more people migrating towards urban areas, water demand from households and industry obstructs the water supply.
4. **Outdated techniques and methodologies make 'Water Data' unreliable. Hence inefficient policymaking.**
5. **Unsuitable planning:** Water-intensive crops like paddy and sugarcane, which were promoted by Green revolution, uses groundwater in rain deficit states like Punjab and Maharashtra respectively.
6. The concept of '**water treatment**' is not getting adequate spotlight from the policy makers and public as well. **Barely 2% of our urban areas have both sewerage systems and sewage treatment plants.**
7. **Global Warming:** Global warming has altered the rainfall pattern in India dramatically. Previously, average monsoon rainfall spanned 45 days. This number has now decreased to 22 days, with each monsoon having a smaller intensity of rain.
8. **Guidelines Unavailable:** Despite being a populous country with a diverse geography and climate, India does not have a comprehensive water policy. There are no proper guidelines available for usage of surface water and groundwater by different sectors and different states.
9. **Destruction of Ecosystems: Construction of dams, other hydroelectric projects, and water diversion for irrigation has led to systematically destroying large river ecosystems.** River basins, catchments, and watersheds have not been properly utilized for water and soil conservation purpose, which in turn affect the hydrology of the river basins.
10. **Shift to cash crops:** Water is being diverted from food crops to cash crops that consume an enormous quantity of water.

**WATER STRESS DIFFERS REGIONALLY IN INDIA:**

- ✓ **Geography:** Regions on the leeward side of Western Ghats (Vidarbha and Marathwada) are water-stressed regions and on the other hand, the drainage basin of rivers like Brahmaputra and Ganga are overflooded for a major part of the year.
- ✓ **Agricultural patterns:** Wheat and rice belt in the northern part is water-stressed due to the water intensive nature of the crop. Groundwater depletion faces high groundwater depletion with states like Punjab, Haryana, Rajasthan facing severe water stress. Punjab, Haryana also faces water stress due to overuse of water in agriculture.
- ✓ **Population density:** Higher population density in Indus plains results in more water stress in the region as compared to coastal plains. Population pressure and mining industries of these regions in polluting the rivers of these regions, thus making drinking water unavailable for many.
- ✓ **Water management:** As per NITI Aayog report, Haryana, Uttar Pradesh and Bihar scored below 40% on all the indicators in Water Management Score whereas Gujrat, Madhya Pradesh and Andhra Pradesh scored above 60%.

**FUTURE SITUATION-**

Water scarcity in India is expected to worsen as the overall population is expected to increase to 1.6 billion by year 2050. To that end, global water scarcity is expected to become a leading cause of national political conflict in the future, and the prognosis for India is no different. Water stress is just one dimension of water security.

**Economic Terms:** A Niti Aayog report predicted that water demand will be twice the present supply by 2030 and India could lose up to 6% of its GDP during that time.

**People:** The scarcity of water in India affects hundreds of millions of people across the country. A major portion of the population does not have a reliable and constant means of getting water for their daily needs. In June 2019, 65% of all reservoirs in India reported below-normal water levels, and 12% were completely dry. Since tap water is unavailable in many cities including some megacities such as Chennai; residents are reliant on alternative water sources

**Agriculture crisis:** Water is essential to the popular occupation of agriculture in India. Farmers are unable to produce crops in the absence of water. The drought in 2019 even destroyed the supplementary crops in addition to the winter crops. The scarcity of water has rendered a lot of valuable farmland in India completely useless and much of the farming industry in these regions has ceased to operate. In 2016, the city of Latur witnessed mass unemployment, where about half of its workforce was threatened to be unemployed as the agricultural industry struggled

**Ecosystem:** Wild animals are forced to infiltrate villages and cities in India as they attempt to find potable water. In 2016, the city of Mettur and Kolathur experienced an acute water shortage caused by a drought, which caused water bodies in nearby forests to dry out. Eventually, local wild animals like elephants, tigers, and spotted deers started to sneak into the cities in search of water.

#### Conflicts over water:

The long-standing conflict over water from the Cauvery River between the Indian states Karnataka and Tamil Nadu has recently **resurfaced in the context of drier climate conditions**. The implications are not only legal battles, but also violent protests following decisions to alter water distribution between the two states.

**Like any challenge, its outlook depends on management. Long-term solutions are better suited to handle the problems.**

#### STEPS THAT CAN BE TAKEN TO REDUCE WATER STRESS IN INDIA ARE -

##### 1. Technological level -

- **Increase agricultural efficiency:** Since agriculture uses majority of our fresh groundwater resources - Farmers can use seeds (like pulses, millets and oilseeds) that require less water and improve their irrigation techniques by using precision watering rather than flooding their fields. Further, precision farming, micro irrigation techniques would reduce the use of water. This can aid in the protection of forests and development of horticulture.
- **Invest in grey and green infrastructure:** WRI and the World Bank's research shows that built infrastructure (like pipes and treatment plants) and green infrastructure (like wetlands and healthy watersheds) can work in tandem to tackle issues of both water supply and water quality. **Example:** 71 per cent of the wastewater collected in Arab states is supposedly being safely treated, of which 21 per cent is being used, mostly for irrigation and groundwater recharge.
- **In arid regions, rain harvesting** could be one solution for water collection. Collected water can be immediately used for agriculture, and with improved filtration practices to reduce water-borne pathogens, also quickly available for human consumption.

##### 2. Policy level -

- Transferring the **water from the state list to Concurrent list so that the interstate river disputes are solved faster and efficiently.**
- A **National level ground water bill needs** to be introduced as suggested by the National Water Commission of India.
- Government needs to step-up and sponsor water treatment and rain harvesting projects. The efforts like the formation of **Jal Shakti Ministry** (to tackle water issues holistically) and the goal to provide piped water to all rural households by 2024, under the **Jal Jeevan mission, needs to implemented efficiently.**
- **Investing in Infrastructure:** Proper drainage and sewerage management in cities would help not only in avoiding disasters **like that happened in Chennai, but also help in recycling of water which could be used in non-domestic use.**
- Finally, at the center and state level, development of a **formal water policy is crucial.** This will provide guidance to the administration and citizens for proper usage of surface water and groundwater. It is also necessary to create management strategies for interstate and trans-boundary rivers.

### **3. Societal level**

- There is a need to leverage **Information Technology** to revamp **water-related data systems**, which seem to be sorely lacking in coverage, efficiency or robustness.
- People tend to **neglect the importance of water conservation because in most places it is free of cost or charged nominally.** At the community level, water conservation is absolutely necessary to reduce pressure from groundwater and to supply water for human consumption. **Thus, development of community level water harvesting structures like water bodies is important.**
- **Rational pricing of water** can be put to practice, keeping in mind the affordability of the population in the country.
- **Education** is critical to solving the water crisis.

### **4 Following International Examples:**

- ✓ **Israel supply around 70% of its domestic water requirement through desalination of seawater.** This would help increase the supply to meet the growing demand.

### **Example of Steps already taken by States:**

- ✓ Rajasthan- 'Mukhya Mantri Jal Swavlamban Abhiyan'
- ✓ Telangana - Mission Kakatiya

### **CONCLUSION:**

**In conclusion, water scarcity, is an issue that will greatly affect the number of crops grown and will determine whether there is enough food to feed the world by 2050. Since the population is increasing, there will need to be a lot more work, research and money for there to be a sufficient food supply. In fact, in order to cope with future water scarcity, it is necessary **to radically reform all forms of consumption.****