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Natural Sources of Unpolluted Water

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This article is based on **“Pipe dreams, ground reality”** which appeared in The Hindu on 18/09/2019. It talks about leveraging natural sources of unpolluted water against Jal Jeevan Mission.

India is home to **17% of the world’s population but has only 4% of the world’s freshwater resources**. At present, **75%** of Indian households do not have access to drinking water, and close to **90% of rural households have no access to piped water**.

In this context, the government resolved to provide **piped water to all rural households by 2024** under the **Jal Jeevan Mission (JJM)**. However, JJM may prove to be a costly exercise and yet be less effective.

Status of Water Security In India

- India is a **water-stressed country** with 1,544 cubic metres per capita annual availability and slowly advancing towards becoming water-scarce.
Five of the world’s 20 largest cities under water stress are in India.
- Also, as per the Economic Survey 2018-19, by 2050, India will be extremely susceptible to water insecurity.
- NITI Ayog's **Composite Water Management Index report** states that by 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people and an eventual 6% loss in the country's GDP.
- On account of the economic cost of environmental degradation that India is facing, a 2018 **World Bank report** held that India loses approximately \$80 billion per year, **which amounts to around 5.7% of our GDP**.

Reasons for Water Crisis in India

- **Excessive groundwater pumping**

- **An inefficient and wasteful water management system-** storage/ transportation/ extraction/ treatment has huge carbon footprint
- **Deficient rains/** climate change
- **Rapid urbanisation:** unequal distribution of water, contamination/ depletion of local water bodies due to pollution
- **Infrastructure issues:** leakage losses, water pricing and metering of water. Lack of proper maintenance of existing infrastructure
- **Policy loopholes:** Lack of economically efficient and environmentally sustainable water policy

Issues in Jal Jeevan Mission

- Providing piped water to all rural households will be a **highly capital intensive exercise.**
- **Since over 70% of India's surface water (rivers and lakes) and groundwater is polluted,** thus the piped water needs to be augmented by reverse osmosis (RO) purification.
This will only add a burden to the country's already expensive water programme.
- **Ecological stress:** Digging up the land will also affect the local ecology of the region.

Non-invasive Sources of Unpolluted Water

Nobel Laureate A.J. Leggett and renowned scientist M.S. Swaminathan suggest two non-invasive schemes which **can perennially provide natural mineral water and unpolluted bulk water for Indian cities.**

- **Waters underlying the floodplains of rivers can be harnessed**
 - This local and sustainable river floodplain scheme can provide water supply for hundreds of river cities in India.
 - For example: Under Yamuna Palla floodplain scheme for Delhi in 2009, quality water is provided to more than a million people in Delhi.
 - Also, floodplain water harvesting is being carried out in cities like Varanasi, Prayagraj, Agra, Mathura, most towns in Bihar, West Bengal and Tamil Nadu.
- The other source of **unpolluted water is natural mineral water that underlies forests.**
 - Unpolluted rain falls on the forest, percolates through the humus or leaf cover on the forest floor while picking up nutrients, and then through the underlying rock while picking up minerals. It finally settles in underground aquifers.
 - This subterranean natural mineral water is of the better quality of water.
 - All our cities in the sweep of the Western and Eastern Ghats have such forest aquifers, which can provide enough water for millions of people.
- **Distribution reforms:** This natural mineral water **can be distributed at a nominal charge, ₹2-3 a litre**, through Mother Dairy kiosks and other outlets as its total cost would be economical compared to bottled RO water.

Way Forward

- To ensure the sustainability of floodplains and forest aquifers, they need to be declared as **water sanctuaries** similar to national parks and tiger reserves.
Shimla has a forest mineral water sanctuary spread over nearby hill ranges.
- **The water levels of the floodplain aquifers need to be monitored** scrupulously to be well above the river water level to avoid contamination by river water.
- Floodplains can be **secured by planting organic food forests** or fruit forests which don't demand or consume much water.
- In water management, corporations must play a more active role in using their **Corporate Social Responsibility (CSR)** efforts towards innovation and conservation of water and harness water recharge.

Other Possible Solutions to Treat Water Stress

- Differentiating potable and non-potable water usage: water should be treated and supplied according to usage.
- Rainwater harvesting

- Treatment and reuse of wastewater
- Policy: Decentralised approach, with a key focus on water conservation, source sustainability, storage and reuse wherever possible. A participatory approach is needed in water governance.
- Emphasis on behavioural change

Water and its management will determine India's ability to achieve high economic growth, ensure environmental sustainability, and improve the quality of life. Therefore, it is then of utmost importance that we protect remaining the few unpolluted sources of water otherwise, India will be consigned as a nation to drink unhealthy water.

Drishti Mains Question

With the looming water crisis, critically analyse the role that can be played by Jal Jeevan Mission in this regard.