



## India's deepening water stress

 [sanskritias.com/current-affairs/india-s-deepening-water-stress](https://www.youtube.com/watch?v=sanskritias.com/current-affairs/india-s-deepening-water-stress)



**(Mains GS 2 : Conservation, Environmental Pollution and Degradation, Environmental Impact Assessment.)**

### **Context:**

- The Global Water System Project launched in 2003 epitomises global concern about the human-induced transformation of fresh water and its impact on the earth system and society.
- The fact is that freshwater resources are under stress, the principal driver being human activities in their various forms.

### **Increasing gap:**

- The Intergovernmental Panel on Climate Change (IPCC) in its fourth assessment report in 2007 highlighted the link between societal vulnerability and modifications of water systems.
- It is globally estimated that the gap between demand for and supply of freshwater may reach up to 40% by 2030 if present practices continue.
- The latest UN World Water Development Report, 2021, titled 'Valuing Water', has laid stress on the proper valuation of water by considering five interrelated perspectives: water sources; water infrastructure; water services; water as an input to production and socio-economic development, and sociocultural values of water.

### **Appropriate framework:**

- The formation of the 2030 Water Resource Group in 2008, at the instance of the World Economic Forum, and the World Bank's promotion of the group's activity since 2018, is in recognition of this problem and to help achieve the Sustainable Development Goal (SDG) on water availability and sanitation for all by 2030 (SDG 6).
- It is to ensure safe drinking water and sanitation for all, focusing on the sustainable management of water resources, wastewater and ecosystems.
- Designing a comprehensive mix of divergent views about water (along with ecological and environmental issues) held by stakeholder groups is necessary because a hydro-social cycle approach provides an appropriate framework.

### **Inter-basin transfer projects:**

- The anthropogenic factors directly influencing a freshwater system are the engineering of river channels, irrigation and other consumptive use of water, widespread land use/land cover change, change in an aquatic habitat, and point and non-point source pollution affecting water quality.
- The intra- and inter-basin transfer (IBT) of water is a major hydrological intervention to rectify the imbalance in water availability due to naturally prevailing unequal distribution of water resources within a given territory.
- There are several IBT initiatives across the world, for example the National River Linking Project of India which is under construction.
- Based on a multi-country case study analysis, the World Wildlife Fund/World Wide Fund for Nature (2009) has suggested a cautious approach and the necessity to adhere to sustainability principles set out by the World Commission on Dams while taking up IBT projects.

### **Premise of IBT:**

- Recently, inter-basin transfer of water drew attention in India due to a provision made in Budget 2022 for the Ken Betwa river link project which is a part of the National River Linking project
- The basic premise of IBT is to export water from the surplus basin to a deficit basin; however, there is contestation on the concept of the surplus and deficit basin itself as the exercise is substantially hydrological.
- Water demand within the donor basin by factoring present and future land use, especially cropping patterns, population growth, urbanisation, industrialisation, socio-economic development and environmental flow are hardly worked out.
- Besides this, rainfall in many surplus basins has been reported as declining. The status of the surplus basin may alter if these issues are considered.

### **Capacity utilisation:**

- There is concern about the present capacity utilisation of water resources created in the country as by 2016, India created an irrigation potential for 112 million hectares, but the gross irrigated area was 93 million hectares.
- There is a 19% gap, which is more in the case of canal irrigation. In 1950-51, canal irrigation used to contribute 40% of net irrigated area, but by 2014-15, the net irrigated area under canal irrigation came down to less than 24%.
- Ground water irrigation now covers 62.8% of net irrigated area. The average water use efficiency of irrigation projects in India is only 38% against 50%-60% in the case of developed countries.

#### **Consumes more water:**

- At the crop level India consumes more water than the global average as rice and wheat, the two principal crops accounting for more than 75% of agricultural production use 2,850 m<sup>3</sup>/tonnes and 1,654 m<sup>3</sup>/tonnes of water, respectively, against the global average of 2,291m<sup>3</sup>/tonnes and 1,334m<sup>3</sup>/tonnes in the same order.
- The agriculture sector uses a little over 90% of total water use in India and in industrial plants, consumption is 2 times to 3.5 times higher per unit of production of similar plants in other countries.
- Similarly, the domestic sector experiences a 30% to 40% loss of water due to leakage.

#### **Low usage of grey water:**

- The grey water is hardly used in our country as it is estimated that 55% to 75% of domestic water use turns into grey water depending on its nature of use, people's habits, climatic conditions, etc.
- At present, average water consumption in the domestic sector in urban areas is 135 litres to 196 litres a head a day. Given the size of India's urban population (469 million estimated for 2021), the amount of grey water production can be well imagined.
- The discharge of untreated grey water and industrial effluents into freshwater bodies is cause for concern and the situation will be further complicated if groundwater is affected.

#### **Natural storage capacity:**

- Apart from the inefficient use of water in all sectors, there is also a reduction in natural storage capacity and deterioration in catchment efficiency.
- The issues are source sustainability, renovation and maintenance of traditional water harvesting structures, grey water management infrastructure, groundwater recharge, increasing water use efficiency, and reuse of water.

- Further, the axiom that today's water system is co-evolving and the challenges are mainly management and governance has been globally well accepted.

**Conclusion:**

- The complexity and scale of the water crisis in India calls for a locus specific response, that can galvanise and integrate the ongoing work of different Ministries and Departments through new configurations.
- Thus, a hybrid water management system is necessary, where (along with professionals and policy makers) the individual, a community and society have definite roles in the value chain.