

## **Ageing Indian dams**

### **What is the issue?**

India's ageing dams can threaten water security, affect farmers' income, and increase flooding.

### **How old are Indian dams?**

- India is ranked 3<sup>rd</sup> in the world in terms of building large dams.
- Of the over 5,200 large dams built so far, about 1,100 large dams have already reached 50 years of age and some are older than 120 years.
- The number of such dams will increase to 4,400 by 2050 which means that 80% of the nation's large dams face the prospect of becoming outdated as they will be 50 years to over 150 years old.
- Krishna Raja Sagar dam was built in 1931 and is now 90 years old and Mettur dam was constructed in 1934 and is now 87 years old.
- Moreover hundreds of thousands of medium and minor dams are even more hazardous as their shelf life is even lower than that of large dams.

### **What are the other worrying facts about the dams?**

- As the dams get older, soil replaces the water in the reservoirs and the storage capacity cannot be claimed to be the same as it was in the 1900s and 1950s.
- In a paper, 'Supply-side Hydrology: Last gasp', published in 2003, reveals that the observed siltation rate in India's iconic Bhakra dam is 139.86% higher than originally assumed.
- At this rate, the Bhakra dam is now expected to function for merely 47 years, virtually halved from the original estimate of 88 years.
- Similarly, the actual siltation rate observed for the Hirakud, Maithan and Ghod dams are way higher at 141.67%, 808.64% and 426.59%, respectively.
- Studies in later years showed the similar findings which establish the fact that Indian reservoirs are designed with a poor understanding of sedimentation science.
- The designs underestimate the rate of siltation and overestimate live storage capacity created.
- Therefore, the storage spaces in Indian reservoirs are receding at a rate faster than anticipated and reservoirs are expected to become extinct in less

than a few decades.

### **What are the consequences of the siltation?**

- Siltation disrupts the supply of water flow & cropped area begins to receive less and less water as time progresses.
- The net sown water area either shrinks in size or depends on rains or groundwater, which is over-exploited.
- Crop yield gets affected severely and disrupts farmer's income & farmer's income may get reduced as water is one of the crucial factors for crop yield along with credit, crop insurance etc.
- The flawed siltation rates demonstrate that the designed flood cushion within several reservoirs across many river basins may have already depleted substantially.
- Hence floods are becoming more frequent in downstream of dams- flooding of Bharuch in 2020, Kerala in 2018 and Chennai in 2015.
- Eventually nation will be unable to find sufficient water in the 21st century to feed the rising population by 2050, grow abundant crops, create sustainable cities, or ensure growth.
- Therefore, it is imperative for all stakeholders to come together to address this situation.

**Source: The Hindu**

