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 3rd 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such dams will increase to 4,400 by 2050 which means that 80% of the nation's large dams face the prospect of becoming outdated as they will be 50 years to over 150 years old.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 progress.
- 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

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