

# **TOPIC: Find out how much water is available annually, and how much is used to generate electricity.**

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- **Introduction to Water Resources:**

- Most of Earth's water is salty; only 2.5% is freshwater.
- India has 4% of the world's freshwater but depends a lot on monsoon rains.
- Water is not evenly available everywhere.

- **Global vs. Indian Water Availability:**

- Some parts of the world have more water than others.
- India faces water shortages in many areas.
- Rainfall and high demand make the problem worse in India.

- **Water Use by Sector:**

- Farming uses the most water worldwide and in India.
- Water is also used for industries, homes, and electricity.
- Power plants need a lot of water, especially in India.

- **Water in Electricity Generation (Global):**

- Water is used to cool power plants and create steam.
- Dams and hydropower generate clean energy but need a lot of water.
- Big countries like the U.S. and China rely heavily on water for energy.

- **Water in Electricity Generation (India):**

- India uses rivers and dams (like Tehri) for hydropower.
- Coal and nuclear power plants also need cooling water.
- Power demand in India is growing, putting pressure on water supplies.

- **Case Studies:**

- **Global:** *Three Gorges Dam in China:* Produces a lot of power but affects the environment and people living nearby.
- **India:** *Sardar Sarovar Dam:* Provides water and electricity but displaces villages and changes the local environment.

- **Environmental Impact:**

- Power plants can pollute and reduce local water supply.
- Dams change river flow and harm fish and plants.
- Competing needs for water create conflicts between sectors like farming and energy.

- **Climate Change Impact:**

- Climate change causes droughts or floods, reducing water availability.
- India's monsoons are unpredictable, making it harder to manage water.
- Power plants struggle if water is not available year-round.

- **Conservation and Sustainable Practices:**

- Using less water for energy production is important worldwide.
- Solar and wind power use little to no water.
- India is working on better water management and renewable energy.

- **Future Outlook and Solutions:**

- Balancing water use between farming, energy, and homes is crucial.
- Switching to renewable energy can save water.
- Policies and technology can help countries like India manage water better.