Water Crisis in South India

For Prelims: Water Crisis in South India, **El Niño**, **Monsoon**, **NITI Aayog**, **MGNREGA for water conservation, Jal Kranti Abhiyan**.

For Mains: Reasons and Implications of Water Crisis in South India.

Source: TH

Why in News?

The southern states of India, particularly Karnataka, Tamil Nadu, Andhra Pradesh, and Telangana, are facing a **severe water crisis** due to significantly **low water levels in major reservoirs.**

What is the Current Situation of Water Crisis in the Southern States?

- **Current Water Situation:**
    - According to the **Central Water Commission**, most major reservoirs in Karnataka, Tamil Nadu, Andhra Pradesh, and Telangana are **filled to only 25% of their capacity or even less.**
    - Notable dams such as **Tungabhadra** in Karnataka and **Nagarjuna Sagar** on the Andhra Pradesh-Telangana border are filled to 5% or less of their full capacity.
        - Mettur dam in Tamil Nadu and Srisailam on the Andhra Pradesh-Telangana border are also experiencing low levels, with less than 30% of their capacity filled.

In troubled waters

The data for the charts were sourced from the latest weekly bulletin published by the Central Water Commission

Chart 1: The chart shows a region-wise comparison of the current storage levels as a share of the total capacities of reservoirs. It also compares the current water levels with last year's levels and the 10-year average

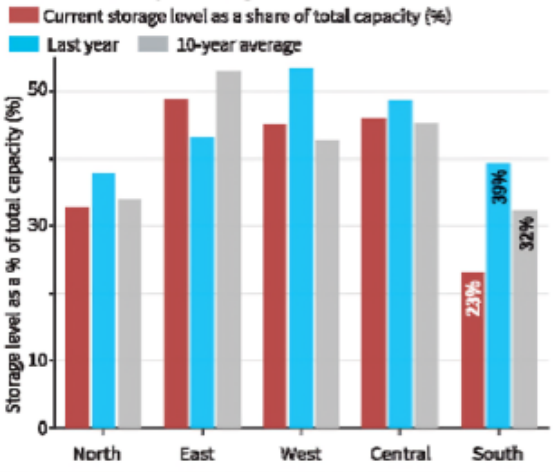
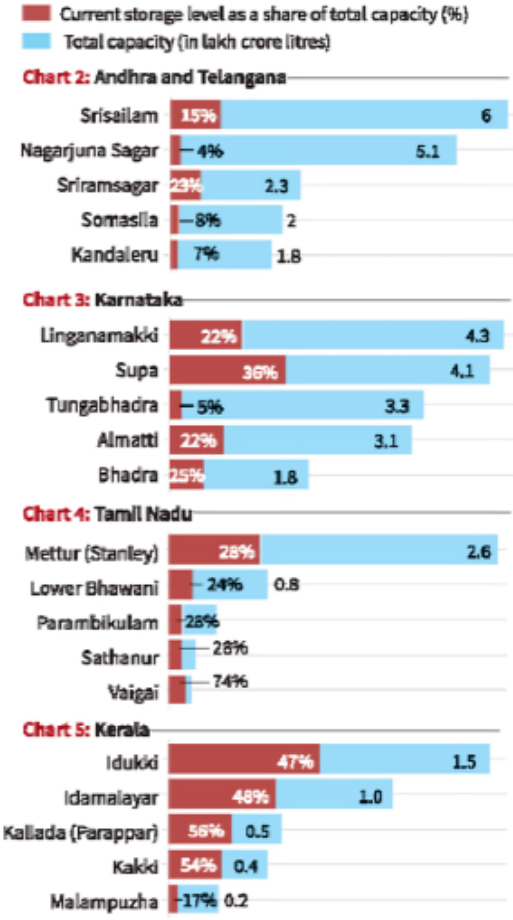


Table 6: The table shows the % of districts, across various levels of rainfall deficits, during the 2023 south-west monsoon. For instance, in about 27% districts of Kerala, rainfall deficit during last monsoon was 40% or more

State	Deficit				No deficit
	40% or more	25%-40%	15%-25%	<15%	
Andhra	5%	5%	32%	21%	37%
Karnataka	6%	13%	48%	26%	6%
Kerala	27%	20%	40%	13%	-
Tamil Nadu	3%	11%	13%	16%	58%
Telangana	-	7%	2%	27%	63%

Chart 2,3,4,5: The charts show the current storage levels as a share of the total capacity of major dams in southern States



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- **Comparison of Water Levels Across Regions:**
  - The southern region is the most affected, with reservoirs collectively filled to only 23% of their capacity, significantly lower than last year and the 10-year average.
  - In contrast, other regions like northern, central, western, and eastern India have reservoir levels closer to their 10-year averages.
- **Exception in Kerala:**
  - Kerala stands out among southern states with most major dams filled to at least 50% of their capacities.

- Reservoirs like **Idukki**, Idamalayar, Kallada, and Kakki are reported to have relatively better water levels.

What are the Reasons for the Water Crisis in South India?

- **Rainfall Deficiency and El Niño Effect:**
  - Lower rainfall caused by **El Niño events has led to drought-like conditions a**nd prolonged dry periods in the region.
    - El Niño is a climate pattern characterized by the warming of sea surface temperatures in the Pacific Ocean, which can disrupt normal weather patterns globally, leading to reduced rainfall in certain regions.

- **Delayed Monsoon and Post-Monsoon Deficiency:**
  - The deficiency in rainfall during the **Monsoon** and post-monsoon seasons has contributed **significantly to the depletion of water levels** in reservoirs.
  - The delayed onset of monsoon and inadequate rainfall during critical periods have exacerbated the situation.
  - During the **post-monsoon period (October-December 2023)**, more than 50% of regions in the country **were rain-deficient.**
- **Increased Temperature and Evaporation:**
  - Rising temperatures due to global warming accelerate evaporation rates, leading to faster depletion of water from reservoirs and water bodies.
  - Higher temperatures also exacerbate drought conditions, increasing water demand for agriculture, urban consumption, and industrial purposes.
- **Groundwater Depletion:**
  - Excessive groundwater extraction for irrigation, particularly in regions with inadequate surface water sources, has led to groundwater depletion.
  - South India predominantly cultivates crops such as rice, sugarcane, and cotton, which require substantial amounts of water.
- **Pollution of Water Bodies:**
  - Pollution from industrial discharge, untreated sewage, and solid waste dumping has contaminated water sources, rendering them unfit for consumption and further reducing the available water supply.
  - A study conducted by the **Environmental Management & Policy Research Institute (EMPRI)** states that about 85% of Bengaluru's water bodies are polluted by industrial effluents, sewage, and solid waste dumping.
- **Mismanagement and Inequitable Distribution:**
  - Inefficient water management practices, including wastage, leakage, and unequal distribution of water resources, contribute to the severity of the water scarcity crisis in the region.

What are the Implications of the Water Crisis in India?

- **Health Issues:**
  - Lack of access to safe drinking water can cause **various health problems such as dehydration,** infections, diseases, and even death.
  - A report by the **NITI Aayog stated that around 2 lakh** people die in India every year due to inadequate water supply.
    - According to the **World Bank, India has 18% of the world's population**, but only has enough water resources for **4% of its people**.
    - In 2023, around 91 million Indians will not have access to safe water.
- **Ecosystem Damage:**
  - Water scarcity also poses a **threat to the wildlife and the natural habitats** in India. It also disrupts the biodiversity and the ecological balance of the ecosystems.
  - Many wild animals have to venture into human settlements in search of water, which can lead to conflicts and endangerment.
- **Reduced Agriculture Productivity:**
  - Water scarcity can have a negative impact on the agricultural sector, **which consumes approximately 80% of the country's** water resources.

    - Water scarcity can reduce crop yields, affect food security, and increase poverty among farmers.
- **Economic Losses:**
    - Water scarcity can affect industrial production, reduce energy generation, and increase the cost of water supply and treatment. Water scarcity can also affect tourism, trade, and social welfare.
    - In the report, **'Climate Change, Water and Economy', the World Bank (2016)** underlines that countries with water shortages may face a major setback in economic growth by 2050.

What are the Government Initiatives To Tackle the Water Crisis in India?

- MGNREGA for water conservation
- Jal Kranti Abhiyan
- National Water Mission
- Atal Bhujal Yojana (ABHY)
- Jal Jeevan Mission (JJM)
- National Mission for Clean Ganga (NMCG)

Way Forward

- Addressing the water crisis in southern India requires a c**omprehensive approach, including sustainable water management** practices, conservation measures, investment in infrastructure for water storage and distribution, promotion of water-efficient technologies, and public awareness campaigns to promote water conservation.
    - **One Water Approach**, also referred to as **Integrated Water Resources Management (IWRM)** includes managing that source in an integrated, inclusive and sustainable manner by including the community, business leaders, industries, farmers, conservationists, policymakers, academics and others for ecological and economic benefits.
- Encourage farmers to adopt water-efficient farming practices such as drip irrigation, precision agriculture, crop rotation, and agroforestry.
    - As per the **MS Swaminathan committee** report on **'More Crop and Income Per Drop of Water'** (2006), drip and sprinkler irrigation can **save around 50% of water in crop cultivation** and increase the yield of crops by 40-60%.
- There is a need for coordinated efforts at the national, state, and local levels are essential to mitigate the impacts of water scarcity and ensure sustainable water resource management for future generations.

Drishti Mains Question:

Q. Evaluate the reasons and implications of the water crisis in Southern India. Suggest measures to address this crisis.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q.1. Which one of the following ancient towns is well known for its elaborate system of water harvesting and management by building a series of dams and channelizing water into connected reservoirs? (2021)

(a) Dholavira

(b) Kalibangan

(c) Rakhigarhi

(d) Ropar

Ans: A

Q.2. With reference to 'Water Credit', consider the following statements: (2021)

1. It puts microfinance tools to work in the water and sanitation sector.
2. It is a global initiative launched under the aegis of the World Health Organization and the World Bank.
3. It aims to enable the poor people to meet their water needs without depending on subsidies.

Which of the statements given above are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Ans: C

Mains:

Q.1 What are the salient features of the Jal Shakti Abhiyan launched by the Government of India for water conservation and water security? (2020)

Q.2 Suggest measures to improve water storage and irrigation system to make its judicious use under the depleting scenario. (2020)