



INSIGHTSIAS
SIMPLIFYING IAS EXAM PREPARATION

APR. 22. 2024

INSIGHTS INTO EDITORIAL



Editorial

ANALYSIS

EDITORIAL ANALYSIS

Preparing India for water stress, climate resilience

- **Prelims:** Current events of national and international importance (Ground water, world Bank, UN Water Conference, SDG-6, WASH, Jal Shakti Abhiyan, etc)
- **Mains GS Paper II & III:** Geographical features and their locations- change in critical geographical features etc

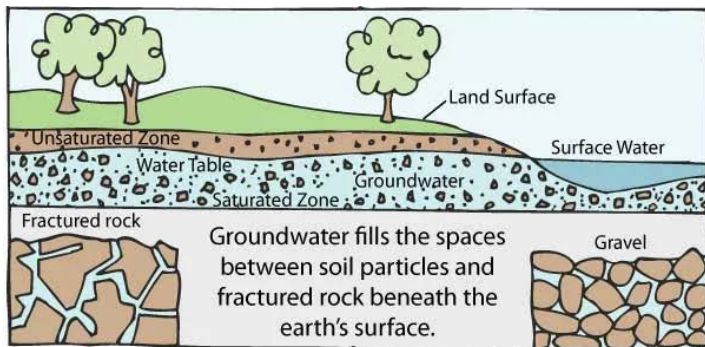
ARTICLE HIGHLIGHTS

- **India Meteorological Department (IMD)** predicts a **hotter summer and longer heat waves** from April to June.

INSIGHTS ON THE ISSUE

Context

Groundwater;



- Groundwater is the water present below the earth's surface and is a vast resource of water.
- Almost **22 percent** of water is below the surface land in the form of groundwater.
- **World Bank report:** India is the largest groundwater user.

Importance of Groundwater:

- **Groundwater is the backbone of India's agriculture** and drinking water security in rural and urban areas
- **It meets nearly 80% of the country's drinking water** and two-thirds of its irrigation needs.

- **Groundwater** is pivotal to India's water security.

Water crisis:

- It may be **physical or economic**
- **Factors for water crisis:**
 - Rapid urbanization
 - industrialisation
 - unsustainable agricultural practices
 - climate change
 - erratic rainfall patterns
 - water overuse
 - inefficient water management
 - pollution
 - inadequate infrastructure
 - lack of 'belongingness' among stakeholders
 - runoff due to high rain along with soil erosion and sedimentation.
- **Water scarcity:** It leads to the poor functioning of ecosystems, threatens food and water security, and, ultimately, affects peace.
- **According to the World Resources Institute:** **17 countries** face 'extremely high' levels of water stress which is threatening to result in conflict, unrest and peace among people.

Background:

- **India houses 18% of the world's population** on **2.4%** of the earth's surface area and has just 4% of global freshwater resources.
- **Nearly half its rivers are polluted**, and **150** of its primary reservoirs are currently at just **38%** of their total live storage capacity.
- **India is the largest user of groundwater** in the world.
 - **Three-quarters of India's districts** are hotspots for extreme climate events.

Relation between Water and Economy:

- **Water connects** hydrological, food, and energy systems, impacting millions of people.
- **Precipitation is the primary source of soil moisture** and water stored in vegetation (green water) and the water available in riv-

ers and aquifers (blue water).

- **Both blue and green water impact the food we grow** — irrigating crops, influencing harvests, and being critical to the economy.
 - **This sector employs the most and is increasingly** climate vulnerable.
- **The India Employment Report 2024:** It shows that agriculture still employs around **45% of the population** and absorbs most of the country's labor force.
- **Council on Energy, Environment and Water (CEEW) study:** It showed that monsoon rainfall is changing patterns in India
 - **with 55% of 'tehsils' or sub-districts** seeing a significant increase of more than 10% in southwest monsoon rainfall in the last decade (compared to the previous three).
 - **The increased rainfall is frequently coming** from short-duration, heavy rain, affecting crop sowing, irrigation and harvesting.
 - **Making the agricultural sector more resilient to climatic and water stresses** matters for jobs, growth and sustainability.
- **Water is a key component** of the world's clean energy transition.
- **Green hydrogen is an important pillar for decarbonising industry** and long-distance transport sectors
 - **It is produced using water and electricity** sourced from renewables.
- **Pumped storage hydropower** which acts as a natural battery and is essential to balance the power grid load.
 - **It is an important component** of a clean but reliable power system.

Climate crisis and its impact on hydrometeorological disasters:

- **According to the UN World Water Development Report 2020:** Almost **75% of natural disasters** in the last two decades were related to water.
- **According to CEEW analysis (between 1970**

and 2019): the number of flood associated events (such as landslides, thunderstorms and cloud bursts) increased by up to 20 times in India.

- **Freshwater**, one of the nine planetary boundaries, has been transgressed (2023 study).

The ingredients of water security

- **Attaining water security will need a mix of the right policies**, judicious use of water, including reuse of urban wastewater, and finance for adapting to a changing world.
- **Effective water governance needs policies** that recognise its interactions with food and energy systems.
 - **CEEW and International Water Management Institute (IWMI) analysis** shows that although India has adopted several policies
 - **most do not recognise** this nexus while planning or at the implementation stage.
 - **Scaling up of green hydrogen** is desirable, the link with water availability is not always considered.
- **The impact of scaling up solar irrigation pumps** on groundwater levels must be analyzed to deploy the technology where there is an optimal mix of solar resource and higher groundwater levels.
- **Policies should incorporate the food-land-water nexus** through localized evidence and community engagement.
- **India needs to focus on the judicious use of blue and green water** through water accounting and efficient reuse.
- **The National Water Mission targets increasing** water use efficiency by **20% by 2025**.
- **The Atal Mission on Rejuvenation and Urban Transformation (AMRUT) 2.0** calls for reducing non-revenue water, which is lost before it reaches the end user, to less than **20% in urban local bodies**.
 - **These are not backed by any baseline set** using water accounting prin-

principles that will help quantify the “20 percent” change in freshwater use.

- **In the absence of water use data (for the reference year):** It is difficult to quantify the potential water saving in one sector, such as agriculture, that can then be diverted to other sectors
 - **such as industries or domestic purposes**, which will drive India’s water demand.
- **Water accounting is essential for promoting water use efficiency** and creating incentives for investments in treated wastewater reuse.

Legally binding instruments on regulation of trans-boundary river water courses:

- UN Water Convention 1997
- United Nations Economic Commission for Europe (UNECE) Water Convention 1992

Way Forward

- **We must move from panic reactions when disaster strikes** (like the water crisis in Bengaluru), to understand and respond to the chronic nature of risks we face.
- **Climate action cannot be left to a few sectors or businesses.**
 - **Nor can environmental sustainability** be reduced to sapling plantation drives over a few days.
- **Leverage financial tools** to raise money for climate adaptation in the water sector.
 - **India’s climate action** has been largely focused on mitigation in the industrial, energy, and transport sectors.
- **More funding is needed for adaptation-specific interventions** such as:
 - **strengthening** wastewater management
 - **providing incentives** to promote climate-resilient agricultural practices (micro irrigation and crop diversifica-

tion)

- **scaling up desalination plants** as an alternative water source for thermal plants and green hydrogen production.
- **Market innovations such as India’s Green Credit Programme** have the potential to partially bridge the adaptation funding gap by encouraging
 - Investment in wastewater treatment
 - desalination plants
 - agricultural extension services.
- **Considering the investments in India under Corporate Social Responsibility (between 2014-15 and 2020-21)**, there is a potential to leverage about ₹12,000 crore worth of investments every year.
- **Pursuing more coherence in water, energy and climate policies**, creating data-driven baselines to increase water savings, and enabling new financial instruments and markets for adaptation investments.
 - **A water-secure economy** is the first step towards a climate-resilient one.

QUESTION FOR PRACTICE

Q. What is water stress? How and why does it differ regionally in India? (UPSC 2019) **(200 WORDS, 10 MARKS)**