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## WATER SCARCITY IN INDIA

**THIS ARTICLE COVERS 'DAILY CURRENT AFFAIRS' AND THE TOPIC DETAILS OF "WATER SCARCITY IN INDIA". THIS TOPIC IS RELEVANT IN THE "ENVIRONMENT AND ECOLOGY" SECTION OF THE UPSC CSE EXAM.**

### Why in the News?

As per the forecasts by the India Meteorological Department (IMD), India is expected to experience a more intense summer with prolonged heat waves spanning from April to June. Consequently, the nation needs to prepare itself for potential water scarcity issues. One of the difficulties lies in our tendency to perceive acute stresses such as heat, water shortages, or extreme weather events as short-term problems, typically addressed through emergency relief measures.

### WATER STRESS IN INDIA

- **With 18% of the global population residing on only 2.4% of the Earth's land area, India faces a significant challenge with just 4% of the world's freshwater resources** at its disposal. Alarmingly, close to half of its rivers are contaminated, while approximately 150 primary reservoirs are operating at a mere 38% of their full storage capacity.
- Moreover, India ranks as the top consumer of groundwater worldwide. Compounding these issues, around three-quarters of India's districts are identified as hotspots for extreme climate occurrences.
- According to the **India Employment Report for 2024, approximately 45% of the population** is still engaged in agricultural activities, making it the country's primary employment sector.
- Concurrently, a study conducted by the **Council on Energy, Environment and Water (CEEW) revealed shifts in monsoon rainfall patterns across India. Over the past decade, 55% of sub-districts, known as 'tehsils,'** have experienced a noteworthy rise of over 10% in southwest monsoon precipitation compared to the preceding three decades.

### Reasons for Water Scarcity in India

- **Population pressure:** India's rapidly growing population puts immense pressure on water resources. With over 1.3 billion people and counting, the demand for water for domestic,

industrial, and agricultural purposes is escalating, leading to increased stress on available water sources.

- **Uneven Distribution of Water Resources:** Water resources in India are not uniformly distributed across the country. Regions such as the northwestern and central parts face acute water scarcity, while the northeastern and eastern regions receive abundant rainfall. This imbalance exacerbates water stress as areas with high demand often struggle with limited supply.
- **Climate Change:** Climate change has disrupted traditional weather patterns, leading to irregular rainfall, prolonged droughts, and more frequent extreme weather events like floods and cyclones. These changes affect the availability and distribution of water, exacerbating water stress in many parts of the country.
- **Overexploitation of Groundwater:** India is the largest consumer of groundwater globally, with agriculture being the primary user. Excessive groundwater extraction for irrigation purposes, often facilitated by unregulated pumping, leads to the depletion of aquifers and lowers the groundwater table, aggravating water stress in many regions.
- **Pollution of Surface Water:** Surface water sources such as rivers, lakes, and reservoirs are heavily polluted due to the discharge of untreated industrial effluents, agricultural runoff containing pesticides and fertilizers, and inadequate sanitation practices. Pollution renders water unfit for consumption and further reduces the availability of usable water resources.
- **Inefficient Water Management Practices:** Inefficient water management practices, including outdated irrigation techniques, inefficient water distribution systems, and wasteful agricultural practices, contribute to water stress. Improper water management leads to water loss through evaporation, leakage, and inefficient usage, reducing the availability of water for other sectors.
- **Lack of Water Conservation Measures:** Despite facing water scarcity, effective water conservation measures are often lacking. Inadequate investment in rainwater harvesting, watershed management, and water recycling exacerbates water stress by failing to maximize the utilization of available water resources.
- **Policy and Governance Challenges:** Weak enforcement of water-related regulations, inadequate implementation of water management policies, and governance issues contribute to the mismanagement of water resources. Lack of coordination among government agencies and stakeholders further hampers efforts to effectively address water stress.

### Effects of water scarcity in india

- **Impact on Agriculture:** Agriculture is the largest consumer of water in India, accounting for about 80% of total water usage. Water scarcity severely affects crop yields and agricultural productivity. Farmers face challenges in irrigation, leading to crop failures, reduced yields, and economic losses. This, in turn, affects food security and livelihoods, particularly in rural areas where agriculture is the primary source of income.
- **Drinking Water Shortages:** Water scarcity results in millions of people across India having inadequate access to safe and clean drinking water. Communities often rely on contaminated water sources, leading to waterborne diseases such as cholera, typhoid, and diarrhoea.
- **Economic Impact:** Water scarcity hampers industrial activities, particularly in water-intensive sectors such as manufacturing, textiles, and power generation. Industries face

production disruptions, increased operational costs due to water sourcing and treatment, and reduced competitiveness.

- **Social Disparities:** Water scarcity exacerbates social inequalities, disproportionately affecting marginalized communities, including rural populations, women, and children. Women and girls are often responsible for collecting water, leading to increased time and effort spent on water-related chores, limiting educational and economic opportunities. Moreover, conflicts over water resources can arise within communities, exacerbating social tensions and unrest.
- **Environmental Degradation:** Water scarcity contributes to environmental degradation, impacting ecosystems, biodiversity, and natural habitats. Reduced water availability affects aquatic ecosystems, leading to habitat loss, declining fish populations, and degradation of wetlands. Moreover, groundwater depletion and surface water pollution further degrade environmental quality, exacerbating ecological imbalances and threatening biodiversity.
- **Migration and Displacement:** Water scarcity can trigger population displacement and migration, particularly in rural areas where livelihoods depend heavily on agriculture. Farmers facing crop failures and economic hardships may be forced to migrate to urban areas for alternative livelihoods, leading to increased urbanization, strain on urban infrastructure, and social challenges associated with migration.
- **Urban Water Crisis:** Rapid urbanization exacerbates water scarcity in cities and urban areas, where population growth outpaces water infrastructure development. Urban water shortages lead to water rationing, unreliable water supply, and reliance on expensive water sources such as tanker trucks or groundwater extraction, disproportionately affecting low-income communities.

### Addressing Water Scarcity in India

- **Water Conservation and Demand Management:** Implementing water conservation measures at both individual and institutional levels is crucial. This includes promoting water-saving practices such as rainwater harvesting, drip irrigation, and water-efficient technologies in agriculture, industry, and households.
- **Improving Water Infrastructure:** Investing in developing and maintaining water infrastructure is essential to ensure efficient water distribution and utilization. This includes constructing dams, reservoirs, canals, and pipelines for water storage, transportation, and irrigation. Upgrading and modernizing existing infrastructure can help minimize water losses and improve water delivery systems.
- **Groundwater Management:** Implementing sustainable groundwater management practices is critical to prevent overexploitation and depletion of aquifers. This involves regulating groundwater extraction, promoting recharge techniques such as artificial recharge and watershed management, and monitoring groundwater quality to prevent contamination.
- **Promoting Water Reuse and Recycling:** Encouraging the reuse and recycling of wastewater can help alleviate water scarcity by reducing the demand for freshwater sources. Implementing wastewater treatment plants, decentralized sewage treatment systems, and recycling technologies can provide alternative sources of water for non-potable purposes such as irrigation, industrial processes, and groundwater recharge.
- **Climate Change Adaptation:** Building resilience to climate change impacts is essential for mitigating water scarcity risks. This involves integrating climate change adaptation measures

into water management strategies, such as developing drought preparedness plans, promoting climate-resilient crops and irrigation practices, and enhancing monitoring and early warning systems for extreme weather events.

- **Policy and Regulatory Reforms:** Strengthening water governance frameworks and enacting effective water policies and regulations are necessary to address water scarcity challenges. This includes implementing water pricing mechanisms, establishing water rights and allocation systems, enforcing pollution control measures, and fostering cooperation and coordination among states and regions for transboundary water management.

### **SOME POLICY MEASURES BY THE GOVERNMENT**

- **The Jal Shakti Abhiyan** commenced in 2019 with the objective of spearheading efforts for water conservation, recharge, and rainwater harvesting across 256 water-stressed districts. Since then, the initiative has expanded its coverage to encompass all 740 districts nationwide.
- **The Atal Bhujal Yojana** significantly emphasises replenishing groundwater resources and optimizing their utilization.
- **Amrit Sarovar initiative:** The government has committed to constructing 50,000 water bodies, known as Amrit Sarovar, each approximately covering an acre of land, to promote water conservation throughout the country.
- **The Nal Se Jal:** This pivotal component of the Jal Jivan Mission aims to ensure access to piped drinking water for every rural household by 2024. The scheme operates under the auspices of the Jal Shakti Ministry.
- **The Jal Shakti Ministry** resulted from the merger of the Ministry of Water Resources, River Development and Ganga Rejuvenation, and the Ministry of Drinking Water and Sanitation. It is tasked with various responsibilities, including ensuring access to clean drinking water, overseeing the Namami Ganga project, addressing interstate water disputes, and coordinating efforts for the Ganga River cleanup.
- **The National Water Policy** underscores the importance of water conservation, promotion, and protection. It advocates for measures such as rainwater harvesting to meet water demand sustainably.

### **Prelims Based Question**

**Q1. Consider the following statements with respect to the Jal Jivan Mission:**

1. It aims to provide potable water to every rural household through tap connection by 2024.
2. It comes under the Jal Shakti Ministry.

**Choose the correct answer using the codes given below:**

1. 1 Only
2. 2 Only
3. Both 1 and 2
4. Neither 1 nor 2

**ANSWER: C**

### **Mains Based Question**

**Q1. "Examine the role of climate change in exacerbating water stress in India. Suggest adaptive measures and policy interventions to mitigate the impacts of climate change on water resources."**

[Vikas](#)

## **EARTH DAY 2024**

THIS ARTICLE COVERS 'DAILY CURRENT AFFAIRS' AND THE TOPIC DETAILS OF "EARTH DAY 2024". THIS TOPIC IS RELEVANT IN THE "ENVIRONMENT" SECTION OF THE UPSC CSE EXAM.

### **WHY IN THE NEWS?**

Earth Day 2024 is celebrated worldwide on April 22 to support environmental conservation efforts and remind people of their responsibility to care for our planet. World Earth Day, also known as International Mother Earth Day, is a globally recognised event dedicated to raising awareness and promoting the sustainability of our planet.

Since its inception in 1970, Earth Day has grown into a global movement, inspiring millions to advocate for environmental conservation and sustainability. Since then, it's grown into a massive movement, with billions of people participating in events and activities worldwide.

### **KEY HIGHLIGHTS OF EARTH DAY 2024:**

- This year, Earth Day tackles a pressing environmental issue: plastic pollution.
- The theme for 2024 is "Planet vs. Plastics," highlighting the dangers plastic poses to our planet and health.
- Millions of plastic waste are in landfills and oceans every year. This plastic pollutes our environment, harms wildlife, and even enters the food chain.
- Investing in innovative technologies and materials to build a plastic-free world.
- It committed to ending plastics for the sake of human and planetary health, demanding a 60% reduction in the production of ALL plastics by 2040.

Global plastic recycling rates, particularly in developing countries, are usually poor—as low as 15%. With a population exceeding 1.4 billion, India generates 26,000 tonnes of plastic waste daily. Most of this is not recycled. Plastic remains a soil pollutant for generations if not recycled and phased out efficiently.

According to World Wildlife Fund research, global plastic trash production exceeds 380 million tonnes annually, with a substantial amount of it entering landfills, oceans, and waterways.

### **IMPORTANCE OF EARTH DAY:**

Earth Day reminds us of our collective responsibility to safeguard the Earth for future generations. It calls for individuals, communities, governments, and businesses to adopt sustainable practices and work towards a more environmentally friendly future. From planting trees and cleaning up

litter to advocating for renewable energy and reducing carbon emissions, Earth Day inspires a wide range of activities to promote environmental stewardship and create positive change. **Here are a few reasons why it's important:**

- **Environmental Awareness:** Earth Day raises awareness about environmental issues such as climate change, pollution, deforestation, and species extinction. It prompts individuals, communities, and governments to take action to address these challenges.
- **Global Collaboration:** Earth Day is a platform for people worldwide to come together and advocate for environmental protection. It encourages collaboration between governments, organizations, businesses, and individuals to solve pressing environmental problems.
- **Education and Outreach:** It provides opportunities for education and outreach about environmental issues. It promotes ecological literacy and empowers people with knowledge and resources to make informed decisions and take meaningful action.
- **Policy Change:** It also sparks discussions and initiatives that lead to local, national, and international policy changes. It influences legislation and policies related to environmental protection, conservation, and sustainability.
- **Engaging Youth:** Earth Day is a great opportunity to involve young people in caring for the environment. It inspires them to take action and learn more about how they can make a difference in the future.
- **Building a Movement:** It brings together people who care about the environment worldwide. They work together, share ideas, and help each other out. People organize things like cleaning trash, planting trees, and teaching others about nature.

### **CONCLUSION:**

World Earth Day is more significant than ever in an era of growing concerns about the environment, depleting natural resources, and severe climate change. In addition to highlighting the growing problems, it provides a crucial forum for raising public awareness of these issues and encouraging and inspiring individuals globally to take action. It serves as a reminder that everyone has a shared responsibility for the planet's health and that corporations, governments, communities, and individuals must work together to achieve this goal.

Earth Day serves as a yearly reminder of the importance of environmental stewardship and the collective effort needed to safeguard the health and well-being of our planet for current and future generations.

### **MAINS PRACTICE QUESTION:**

- Q. How does plastic pollution impact marine life and ecosystems, and who is responsible for addressing and mitigating its impact?**

**Amit Pradhan**