



## Tackling Global Water Scarcity

**For Prelims:** Jal Kranti Abhiyan, National Water Mission, National Rural Drinking Water Programme, NITI Aayog Composite Water Management Index, Jal Jeevan Mission, Jal Shakti Abhiyan, Atal Bhujal Yojana

**For Mains:** Global Water Scarcity and related Steps taken, Water Resources, Conservation of Resources

### Why in News?

According to a newly published book, **unconventional water sources** can help beat [global water scarcity](#).

- The book was compiled by experts at the United Nations University's Institute for Water, Environment and Health (UNU-INWEH), UNU Institute for Integrated Management of Material Fluxes and of Resources and the UN [Food and Agriculture Organisation](#).
- **Conventional water sources which rely on snowfall, rainfall and rivers** - are not enough to meet growing freshwater demand in water-scarce areas.

#### What are Unconventional water sources?

<b>Enhancing Rain via Cloud-Seeding:</b>	<ul style="list-style-type: none"><li>▪ Global research on cloud-seeding technology indicates that <b>precipitation can be in norm</b>, depending on the available cloud resources and technical systems used.</li><li>▪ However, it was <b>acknowledged that greater research was needed</b> on the variable areas.</li></ul>
<b>Fog Harvesting and Micro-Catchment Rainwater Harvesting:</b>	<ul style="list-style-type: none"><li>▪ <b>Efficient fog harvesting systems</b> wherein <b>moisture in fog is collected through</b> within 20 litres per square metre per day, for a decade. Only 70 sites have shown to be</li><li>▪ Micro-catchments have also <b>shown potential for households</b> or farmlands in dry e</li></ul>
<b>Role of Icebergs:</b>	<ul style="list-style-type: none"><li>▪ <a href="#">Icebergs</a>, the world's largest source for freshwater, have also been gaining attention</li><li>▪ <a href="#">Climate change</a> is causing polar ice caps to melt and break, and scientists, scholars polar ice caps to countries with water shortages.</li><li>▪ In 2017, faced with massive water shortages, the <b>United Arab Emirates proposed country</b>, but no action was taken on this front.</li></ul>
<b>Ballast Water:</b>	<ul style="list-style-type: none"><li>▪ Ballast water is <b>another transportable resource</b> - freshwater or saltwater held in t ships to provide stability and maneuverability during a journey.</li><li>▪ Around 10 billion tonnes of ballast water is discharged globally every year in accorda water needs to be desalinated.</li><li>▪ When <b>desalination is used to treat ballast water</b>, the end product (desalinated v organisms and unhealthy chemical compounds, making it usable for public water sup</li></ul>
<b>Municipal Wastewater:</b>	<ul style="list-style-type: none"><li>▪ Proper treatment of municipal wastewater — already underway in several countries is agriculture.</li><li>▪ Several countries have <b>launched successful initiatives to treat wastewater to r</b></li></ul>
<b>Drainage Water:</b>	<ul style="list-style-type: none"><li>▪ Drainage water used in irrigation agriculture also has potential for reuse, but is hinde</li><li>▪ Careful management and promotion of salt-resistant crops can be the solutions for th</li></ul>
<b>Brackish Water:</b>	<ul style="list-style-type: none"><li>▪ Research has shown that <a href="#">continental shelves</a> have around <b>5 million cubic km b</b></li></ul>

cubic km freshwater within their sedimentary deposits.

- Development of brackish water resources is already underway in countries in West Asia and India.

## What is the Current State of Water Scarcity?

### ▪ World:

- **Only 3% of the world's water is freshwater**, and two-thirds of that is tucked away in frozen glaciers or otherwise unavailable for our use.
- As many as **87 countries are projected to become water-scarce by 2050**.
- One in four people on Earth face shortages of water for drinking, sanitation, agriculture and economic development.
  - Water scarcity is expected to intensify in regions like the Middle East and North Africa region, which has 6% of the global population but only 1% of the world's freshwater resources.

### ▪ India:

#### ◦ About:

- Although India has **16% of the world's population**, the country possesses only 4% of the world's freshwater resources.
- In recent times, the **water crisis in India has become very critical**, affecting millions of people across India.
- As many as **256 of 700 districts in India have reported 'critical' or 'overexploited' groundwater levels according to the most recent Central Ground Water Board data (from 2017)**.
- **Three-fourths of India's rural families lack access to piped, drinkable water** and must rely on unsafe sources.
- India has **become the world's largest extractor of groundwater**, accounting for 25% of the total. Some **70% of our water sources** are contaminated and our major rivers are dying because of pollution.

#### ◦ Related Initiatives:

- [Jal Kranti Abhiyan](#)
- [National Water Mission](#)
- [National Rural Drinking Water Programme](#)
- [NITI Aayog Composite Water Management Index](#)
- [Jal Jeevan Mission](#)
- [Jal Shakti Abhiyan](#)
- [Atal Bhujal Yojana](#)

## What are the Recommendations?

- Unconventional water resources can provide major relief, provided the following strategies are followed:
  - **Promoting further research and practice** on both technical and nontechnical aspects of unconventional water resources.
  - **Ensuring that unconventional waters provide benefits**, not cost to the environment.
  - Positioning unconventional waters as a reliable source of water in times of uncertainty.
  - Supporting complementary and multidimensional approaches such as addressing water scarcity and climate change together.

## UPSC Civil Services Examination, Previous Year Question

**Q. If National Water Mission is properly and completely implemented, how will it impact the country? (2012)**

1. Part of the water needs of urban areas will be met through recycling of waste-water.
2. The water requirements of coastal cities with inadequate alternative sources of water will be met by adopting appropriate technologies that allow for the use of ocean water.
3. All the rivers of Himalayan origin will be linked to the rivers of peninsular India.

4. The expenses incurred by farmers for digging bore-wells and for installing motors and pumpsets to draw ground-water will be completely reimbursed by the Government.

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

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 and 4 only
- (d) 1, 2, 3 and 4

**Ans: (b)**

**Exp:**

- The National Water Mission is one of the eight missions in the National Action Plan on Climate Change to tackle the threats of global warming. The objective of National Water Mission is “conservation of water, minimizing wastage and ensuring its equitable distribution both across and within States through integrated water resources development and management”.
- The mission has provisions for the capacity building in areas like:
  - Adaptation and Management planning for judicious utilization of water resources.
  - Exploring new sources. Hence, 2 is correct.
  - Using Reverse Osmosis for sea water and brackish water desalinization.
  - Recycle of water and reuse wherever possible. Hence, 1 is correct.
  - Technologies for water purification.
  - Mandating water harvesting.
- However, it does not have provisions related to the interlinking of rivers or for the reimbursement of expenditure related to digging bore wells and buying pumps. Hence, 3 and 4 are not correct. Therefore, option (b) is the correct answer.

**Source: DTE**

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