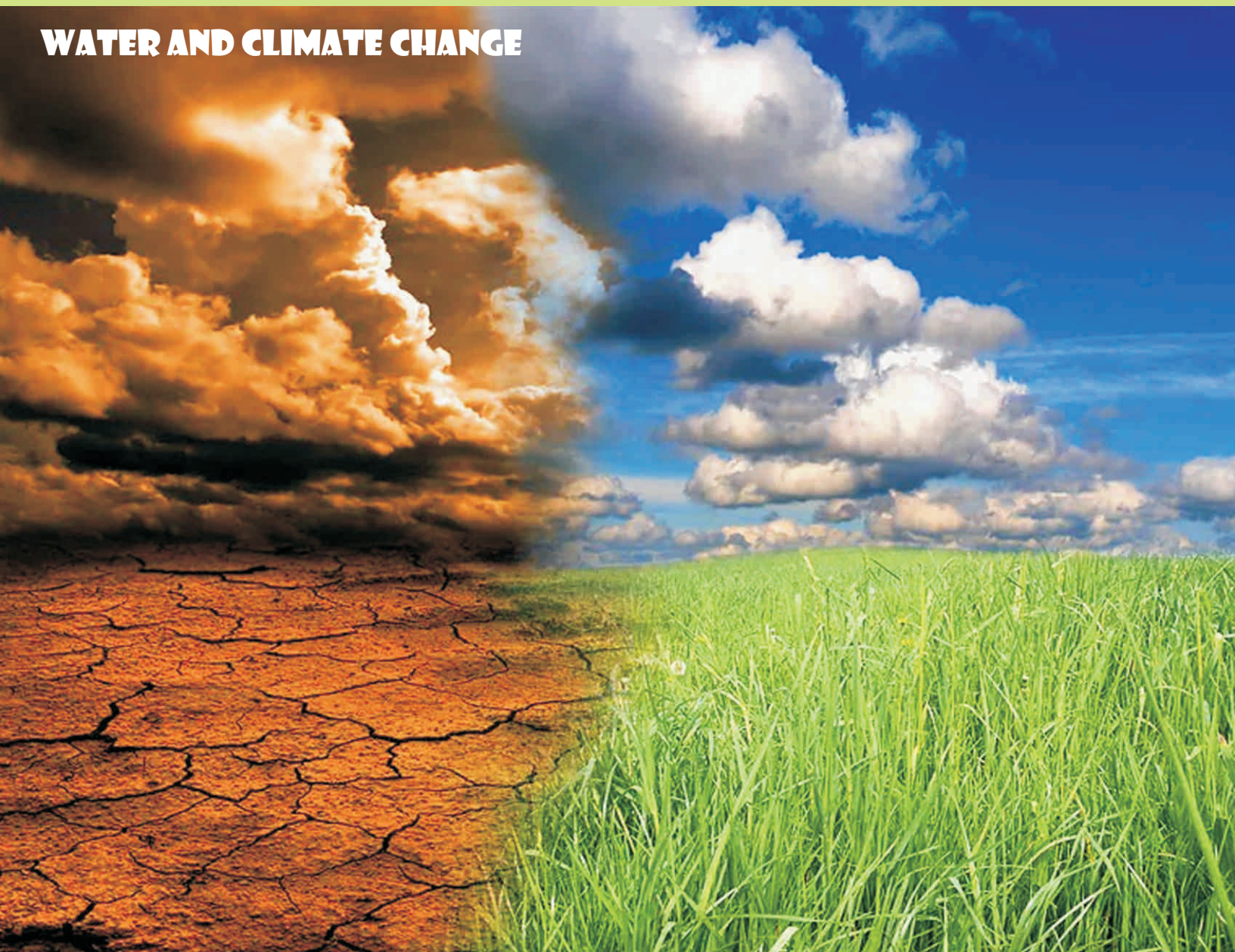


Climate SAR

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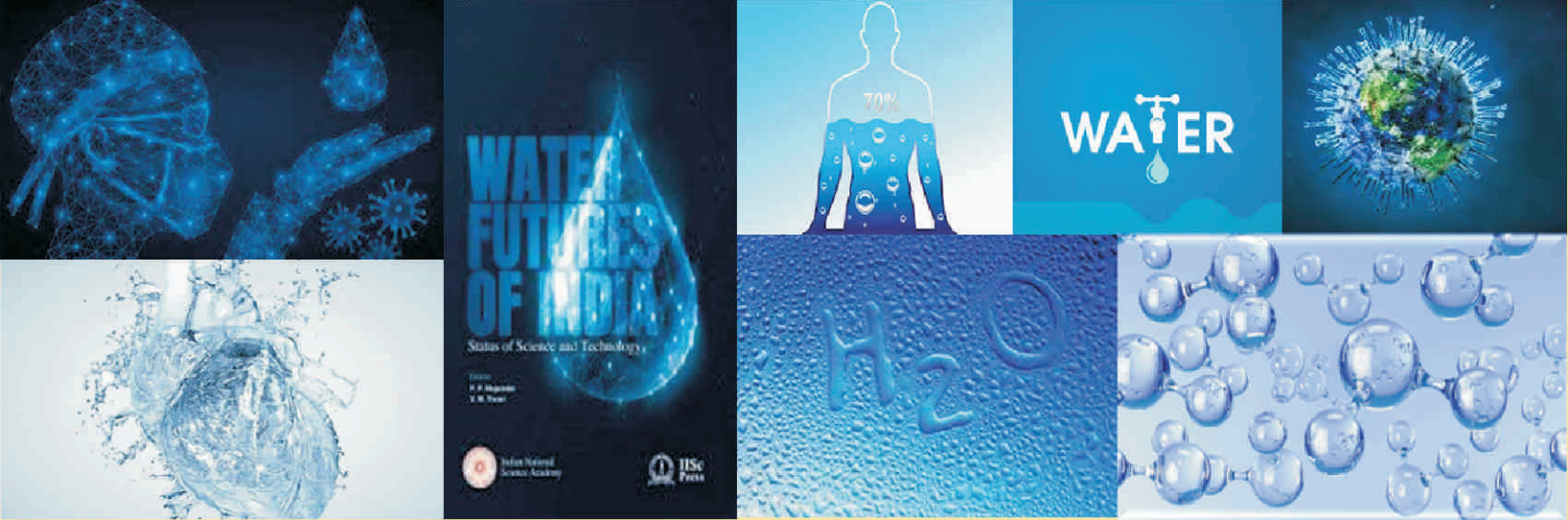
WATER AND CLIMATE CHANGE



Climate Change Research Institute

Science & Technology Solutions for Sustainable Energy Future

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FROM EDITOR



The Water cycle or Hydrological cycle is the most important cycle for the 'Life on Earth'. Water cycle gets affected by weather and climate. The Inter-governmental Panel on Climate Change (IPCC) in 2007 suggested that due to global warming, Water cycle will change and get affected throughout the 21st century.

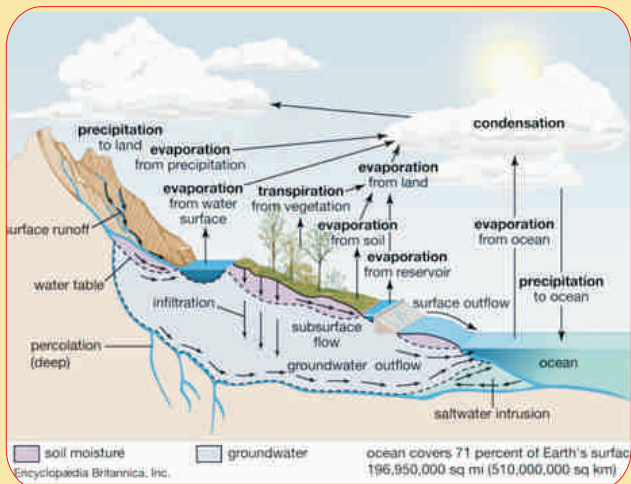
About three percent of Earth's water is fresh water. Of that, only about 1.2 percent can be used as drinking water.

In this issue you learn about India's Missions for preserving water resources, water cycle, water conservation and climate change impacts.

Please do send your feedback or information update to contactus@ccri.in

Happy Reading!

Dr. (Mrs.) Malti Goel
President and Chief Executive
Climate Change Research Institute



HYDROLOGICAL CYCLE

The Hydrological cycle is a Water cycle, it describes the movement of water in the earth's atmosphere, on the land, oceans & rivers and also underground. Various processes of water cycle are known as; Evaporation, Precipitation, Transpiration, Condensation and Run-off. The sun is the driving force of the water cycle. Earth's gravity keeps water in the atmosphere from leaving the planet.



CLIMATE CHANGE AND WATER CYCLE

The changes in climate cause changes in the Water cycle. Floods and draughts determine the amount of rainfall in a particular season.

The water cycle gets altered due to weather and climate. For example, during colder climatic conditions, more glaciers and ice caps are formed (lessening the water in other process of cycle) and during the warmer climatic condition the opposite happens.

In 2007, The Inter-governmental Panel on Climate Change (IPCC) suggested that due to global warming, the water cycle would intensify throughout the 21st century.

Climate change and water cycle are directly linked. The climate change is causing sea water level rise, floods in deserts, droughts and water scarcity.

INDIA AND SDG 6

The 17 Sustainable Development Goals (SDGs) highlight the connections between the environmental, social and economic aspects of sustainable development.

SDG 6 targets to Ensure Availability and Sustainable Management of Water and Sanitation for All.

- ★ Water being a critical source for survival, its absence can impact the health, food security and livelihood across the globe.
- ★ Government of India has introduced several flagship programmes: **Jal Jeevan Mission, Swachh Bharat Abhiyan, National Rural Drinking Water and Namami Gange Programmes** to implement SDG6 in India.
- ★ The access to water sources has increased in India from 68% in 1992-93 to 89.9% in 2015-16.
- ★ India has achieved a score of 56.6 percent 2023 in terms of its progress towards **SDG 6**.

CLIMATE CHANGE & WATER USE



FLOODING
Contaminates drinking water



HEAT
Fuels algae blooms, lowers snowpack



DROUGHT
Damages crops, shrinks supply



NAMAMI GANGE PROGRAMME

Namami Gange Yojana implementation was announced on July 10, 2014. This is an umbrella project, integrating all previous and ongoing initiatives by better coordinated interventions, enhancing efficiency, extracting synergies and providing technical and financial assistance.



National Mission for Clean Ganga (NMCG) is the implementation wing of the National Council for Rejuvenation, Protection, and Management of River Ganga also known as National Ganga Council, set up in 2016.

NATIONAL MISSION FOR CLEAN GANGA

Namami Ganga Programme is a flagship programme approved in 2014 to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga.

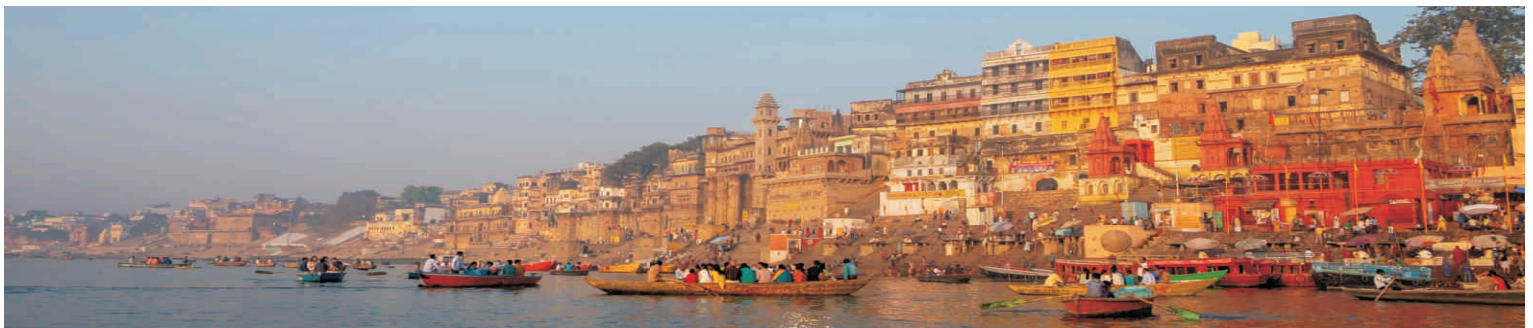
National Mission for Clean Ganga, endeavors to deploy best available

knowledge and resources across the world for Ganga rejuvenation.



EIGHT MAIN PILLARS OF THE NAMAMI GANGE PROGRAMME ARE:-

- ★ Sewerage Treatment
- ★ Infrastructure
- ★ River-Front Development
- ★ River-Surface Cleaning
- ★ Bio-Diversity
- ★ Afforestation
- ★ Public Awareness
- ★ Industrial Effluent Monitoring
- ★ Ganga Gram



JAL JEEVAN MISSION

The Jal Jeevan Mission (JJM) is the genesis of the Rashtriya Jal Jeevan Kosh (RJK), which is a flagship programme of the Government of India inaugurated by the Hon'ble Prime Minister Mr Narendra Modi on August 15, 2019. It envisioned providing safe and adequate drinking water through individual household tap connections to all households in rural India. It has following vision.

Vision

Every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities.



The main objective of the Jal Jeevan Mission is to supply 55 liters of water per person per day to every rural household through Functional Household Tap Connections (FHTC) by 2024.

Jal Jeevan Mission looks to create a Jan Andolan for water, thereby making it everyone's priority. The programme implements source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting etc. The mission is based on a community approach to water and including extensive Information, Education and Communication as a key components of the mission.



WATER CONSERVATION

Water needs to be conserved by using water efficiently so as to reduce water usage per activity (including both quality and quantity of water utilized).

As per NITI Aayog, at present India is facing the worst-ever water crisis with over 600 million people, nearly half the country's population suffering from extreme water stress.

By using water-saving features you can reduce your in-home water use by up to 35%. How can you save water by being a bit alert and attentive? Here are some tips.

DO YOU KNOW

- Water, is a resource that can't be created by man!
- Water can be much older than we think, one of the astonishing water cycle fact is the ground water beneath the surface, that is collected as a result of run-off can be very old and is called fossil water.
- Water is the one of the most abundant and one of the fundamental elements of the earth.
- The water molecule is composed of two elements, hydrogen and oxygen.
- The Earth's Water Cycle began about 3.8 billion years ago when rain fell on a cooling Earth, forming the oceans.
- By using water-saving features you can reduce your in-home water use by up to 35%.



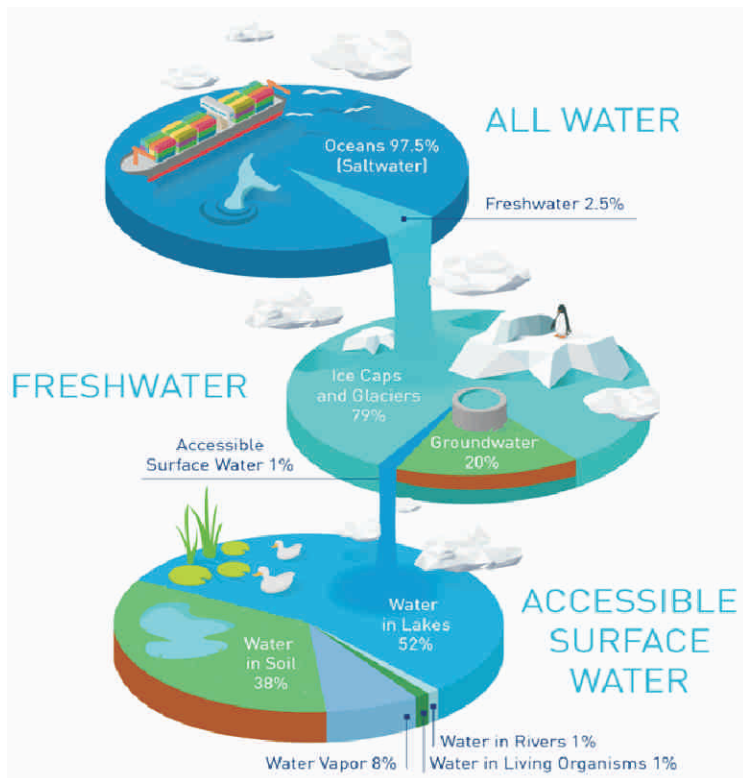
How can you contribute?

- Turn off taps tightly when not in use
- Use right amount of water for Laundry, washing dishes
- Reuse water from washing fruits and vegetables to water plants
- Utilise the water coming out from RO and ACs
- Check for and repair leaks in taps
- Carry your own water bottles - Saves your money as well as Plastic Waste



FRESH WATER AND WATER CYCLE

Approximately 70% of earth surface is covered with water. Of the total water on earth, the total volume in the terrestrial hydrologic cycle is about 119,000 km³. Around 35% of this, or 44,800 km³, is returned to the oceans as run-off from rivers, groundwater and glaciers. Only about three percent of Earth's water is fresh water. Of that, only about 1.2 percent can be used as drinking water; the rest is locked up in glaciers, ice caps, and permafrost, or buried deep in the ground. 97% of water is in the oceans.



CLIMATE CHANGE RELATED WATER HAZARDS - SOME BOLD FACTS

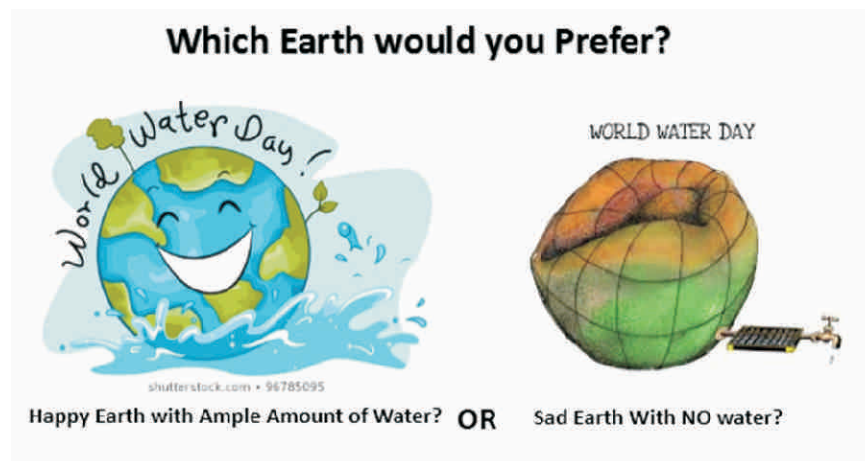
- ★ Climate change has made extreme weather events such as floods and droughts more likely and more severe
- ★ Rising global temperatures increase the moisture that atmosphere can hold, resulting in more storms and heavy rains.
- ★ Drought and flood risks, and associated societal damages, are projected to further increase with global warming.
- ★ Water-related disasters have dominated the list of disasters over the past 50 years and account for 70 per cent of all deaths related to natural disasters
- ★ Since 2000, flood-related disasters have risen by 134 per cent compared with the two previous decades.

(Source: www.un.org/en/climatechange)

Distribution of Water on Earth	By Volume
Ocean	97.2%
Ice caps	2.0%
Ground Water	00.62%
Freshwater Lakes	00.009%
Inland Seas & salt Lakes	0.008%
Atmosphere	0.007%
Rivers	0.001%
Total	99.8381 %



World Water Day is celebrated on 22nd March every year since 1993.



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