



# नेहरु युवा केन्द्र संगठन Nehru Yuva Kendra Sangathan

स्वायत्तशासी संस्था  
युवा कार्यक्रम एवं खेल मंत्रालय  
भारत सरकार

*an Autonomous Body under the  
Ministry of Youth Affairs & Sports  
Government of India*



Ref. No. NYKS/ Spl. Projects/Namami Gange/20-21/15

Date:- 28.07.2020

From : M.P. Sharma, Deputy Director (Programme), NYKS

To: State Directors of Bihar, Uttarakhand, Uttar Pradesh and West Bengal

Subject: National Water Mission for rain water harvesting, storage and proper utilisation-reg.

Sir/Madam,

1. Please refer to whatsapp message of Director General, NMCG, Ministry of Jal Shakti, Govt. of India in Namami Gange Group by which it has been informed that Ministry of Jal Shakti through National Water Mission has launched an important campaign to sensitize people for rain water harvesting, storage and proper utilisation. Rain water is very important for rejuvenation of big and small rivers for Aviral Ganga.
2. It has also been informed that Namami Gange also wholeheartedly joins National Water Mission in this campaign. A PDF file on an approach for water conservation from National Water Mission is also **attached** for your ready reference.
3. You are requested to instruct all concerned District Youth Coordinators and DPOs working under Namami Gange Project for the following:-
  - a) Spread the message and share suitable creative material/ messages
  - b) Instruct Gangadoots to motivate villagers to actively participate in campaign
  - c) Create some innovative E-Posters, Slogans etc and share amongst all stakeholders for awareness on different issues of water conservation.
4. Further, massive plantation drive should also be continued and efforts should be made to achieve the set target.
5. **Precautions:** While undertaking these activities, the youth should wear face mask, wash their hands on regular intervals, due care for personnel hygiene and maintenance of social distancing as well as while following the advisories and Guidelines issued by Government and District Administration. Further, as per local notifications, permissions for conducting activities may be sought from District Administration.

With sincere regards,

  
M.P. Sharma

Encl: as above

CC:

- PS to Director General, NYKS
- PS to Director General, NMCG, Ministry of Jal Shakti, Govt. of India, 1st Floor, Major Dhyan Chand National Stadium, India Gate, New Delhi – 110002

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Ground Floor, 4 Jeevan Deep Building, Parliament Street, New Delhi-110001  
Phone : 011-23442800



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## NYKS Namami Gange, India

Ajit UP Project Assistant Namami Gange, Akash Dixit NYC Bula...



5:35 PM

+91 95822 25786 ~Rajiv Ranjan Mishra

Dear friends! You all have been actively participating in several programs. The tree plantation/ Vriksharopan abhiyan has been priority and rightly so in the season. As you may be aware, our Jal Shakti Mantralaya through National water Mission has launched an important campaign to sensitise people for rain water harvesting, storage and proper utilisation. Rain water is very important for rejuvenation of water bodies, recharge of ground water, aquifers and in turn rejuvenation of rivers..big & small and for Aviral Ganga.

Namami Gange mission also wholeheartedly joins National Water Mission in this campaign and request you all to spread the message. We will be sharing creatives, material but you all are yourself capable of developing and carrying suitable messages creatively.

With best wishes!

Namami Gange!

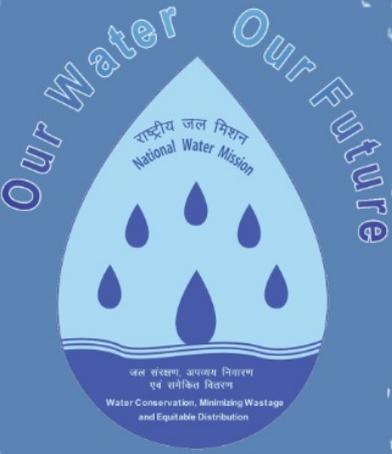
5:40 PM

+91 94531 02383 ~Vinay Kumar Saxena



Type a message





# Catch the Rain

Where it falls, When it falls

**NATIONAL WATER MISSION**

[catchtherain.nwm@gmail.com](mailto:catchtherain.nwm@gmail.com)



An approach for  
**Water Conservation**

Water covers around  
**70%** of the Earth's  
surface; approximately  
**97.5%** of it is saline  
and **2.5%** freshwater.



**97.5 %**

**Saltwater**  
Oceans & seas





# 2.5%

## Freshwater

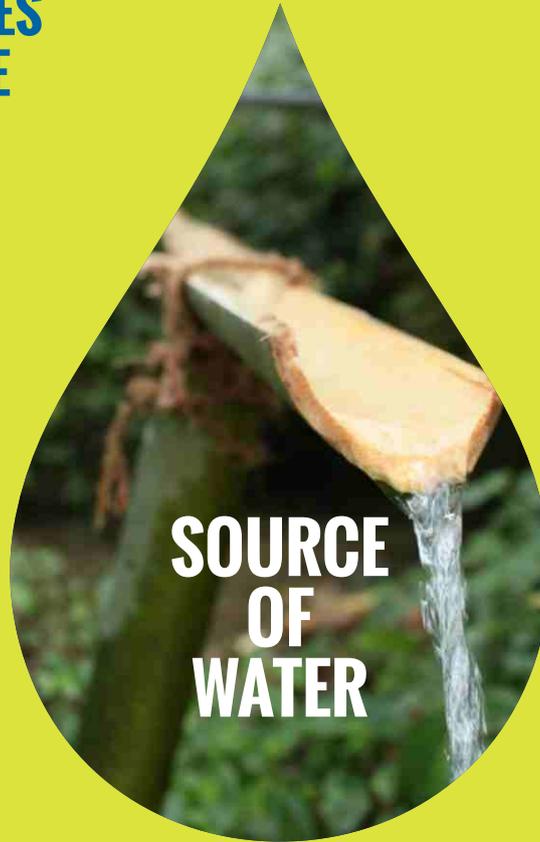
Lotic (Running water)

Lentic (Stagnant water)

Freshwater is a global renewable resource available in almost all parts of the world that is critical to the survival of all organisms on the planet. It maintains its renewability as it goes through a continuous hydrological cycle. Water exists on earth in 3 forms viz., solid ice, liquid water, and gaseous water vapour.



# DIFFERENT SOURCES OF WATER INCLUDE



## Ground sources

Ground water  
Springs  
Hyporheic zone  
Aquifers



## Surface water

River  
Tributaries  
Streams  
Springs  
Ponds  
Lakes  
Wetlands



## Precipitation

Rain  
Hail  
Snow  
Fog



## Biological source

Plants



## Saltwater sources

Ocean  
Sea  
Delta



## Freshwater sources

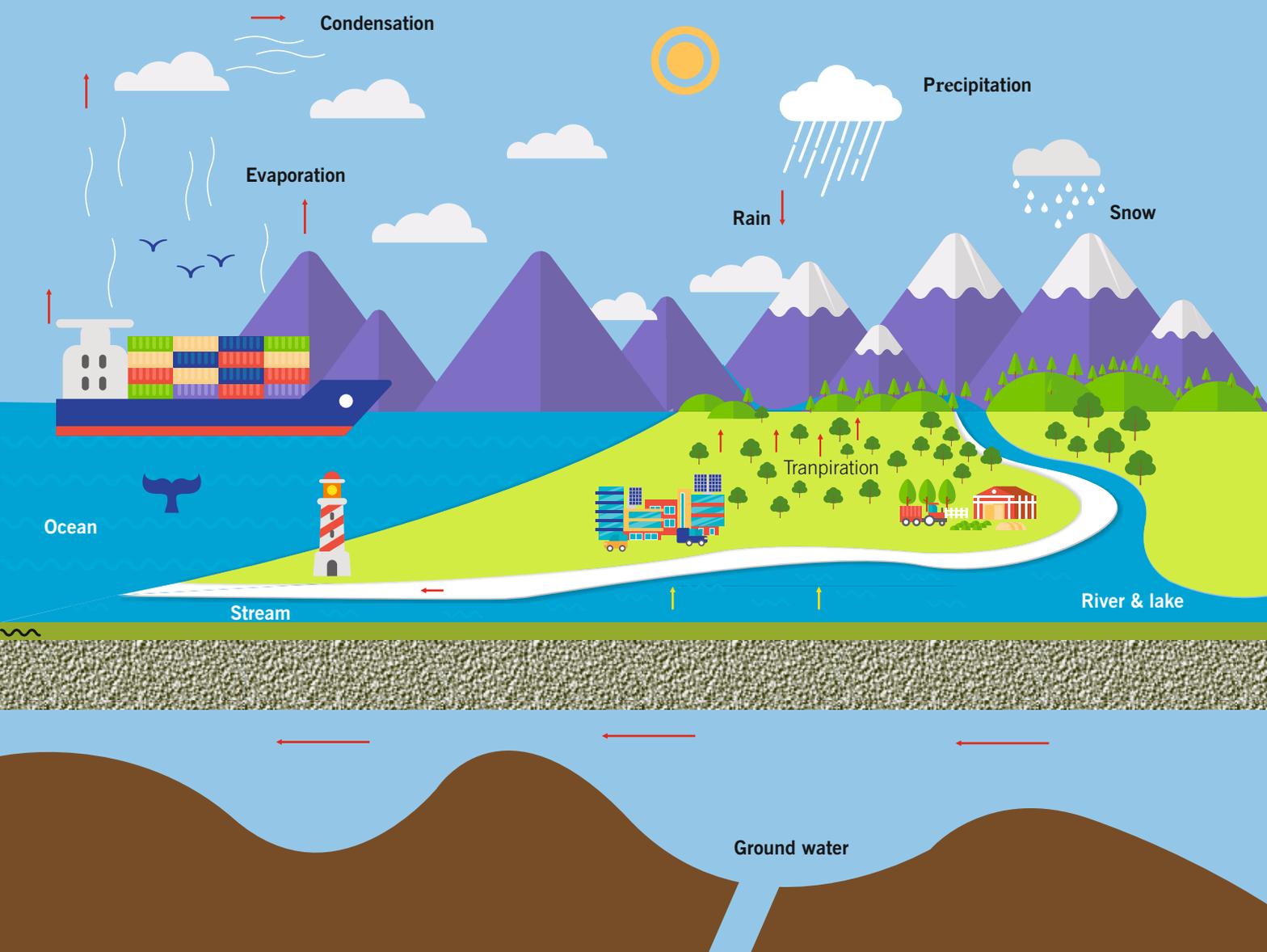
Ice caps  
Glaciers  
Groundwater

# We forget that the water cycle and the life cycle are one.

-Jacques Yves Cousteau

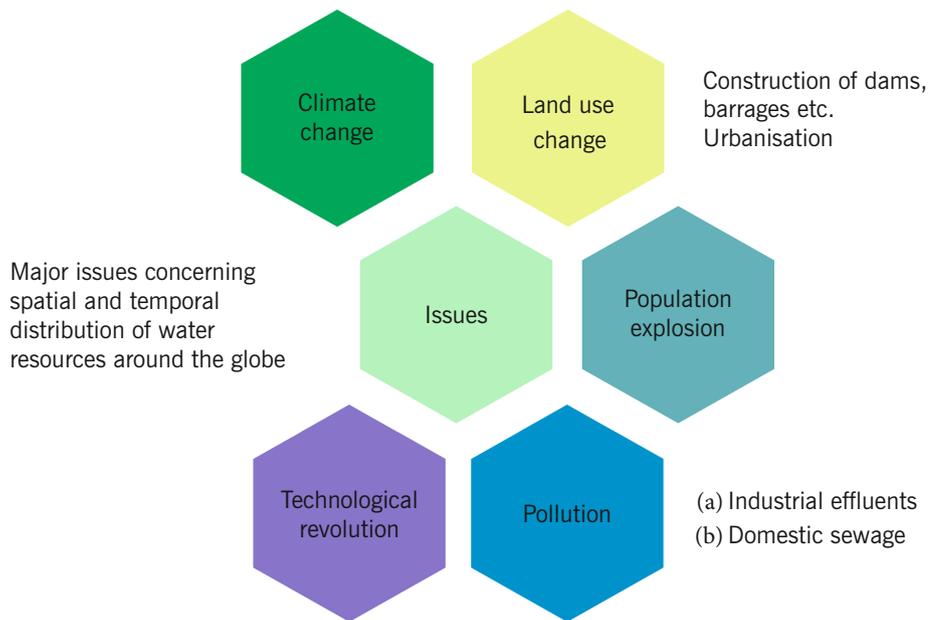
## HYDROLOGICAL CYCLE

Water is in a state of constant flux, and the exchange of water from one form to another is known as the turnover rate of water, or the global hydrological cycle.



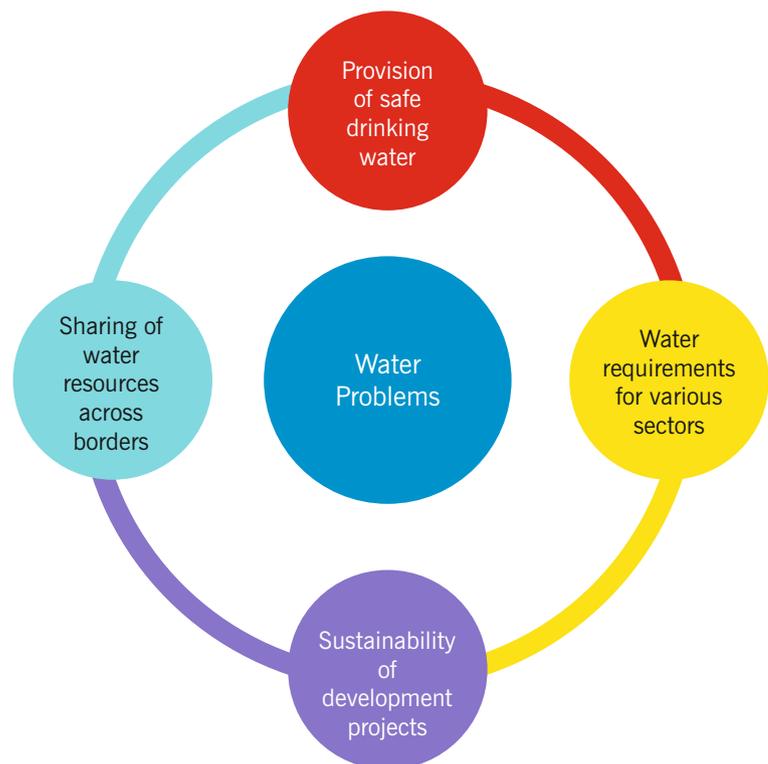
# MAJOR WATER ISSUES

Issues pertaining to water can be viewed at multiple levels i.e. at local, regional, national and global levels.



"If we pollute the air, water and soil that keep us alive and well, and destroy the biodiversity that allows natural systems to function, no amount of money will save us."

-David Suzuki



Major issues related to water, both quality and quantity, arises as a consequence of anthropogenic activities.

# MAJOR WATER ISSUES IN INDIA

## Growing water demand

Population growth, urbanisation and industrialisation; agricultural intensification and cultural changes have triggered an explosive increase in demand for water.

## Reducing potential for existing supplies schemes

Rapid increase in water pollution has dire implications for the health and welfare of human beings.

Presence of industries has a manifold impact on the availability and quality of the existing sources of freshwater.

14 major rivers in India accommodate 82% of the country's total population, leading to major pollutants being released from domestic as well as industrial areas.

## Groundwater depletion

Groundwater is an essential part of livelihood of many, as well as acting as a drought-buffer.

Often polluted due to extensive usage of chemical fertilisers and pesticides in agriculture.

Vulnerable to the pollution caused in aquifers and surface water sources.

## Dwindling water supplies

Indiscriminate exploitation of existing water supplies.

Increased levels of pollution in water & municipal waste.

## Reducing scope for augmenting existing supply of surface water

Utilisation of existing surface water runoff is very low.

Scope for further augmentation of utilisation is low, existing sites are being intensively exploited, and social & environmental cost of further exploitation are very high.

## Dwindling supplies of natural freshwater

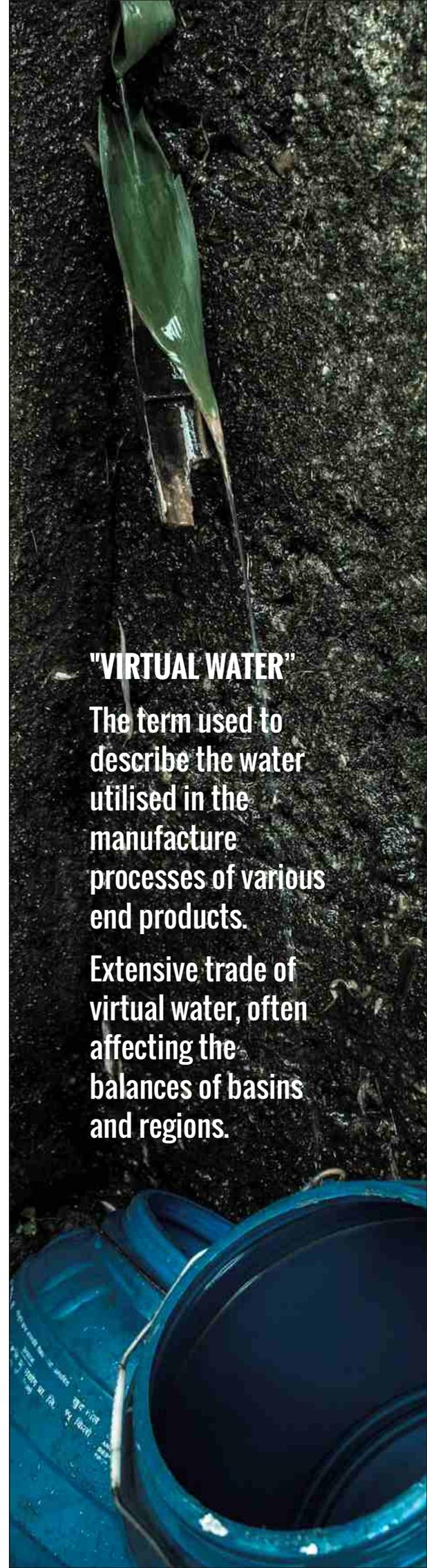
Soil erosion in catchment areas and subsequently accelerated siltation in reservoirs.

Irrigation systems connected to the reservoirs further add to the problems due to their lack of adequate maintenance, poor quality and reliability.

## "VIRTUAL WATER"

The term used to describe the water utilised in the manufacture processes of various end products.

Extensive trade of virtual water, often affecting the balances of basins and regions.



# NEED FOR WATER CONSERVATION



## Anthropogenic activities

Water withdrawal for activities like agriculture and energy production

## Water degradation

Decline in water quantity and degradation of water quality

## Sustainable water management

Need for development of strategies for sustainable water management

"Sustainability is not just about adopting the latest energy-efficient technologies or turning to renewable sources of power. Sustainability is the responsibility of every individual every day. It is about changing our behaviour and mindset to reduce power and water consumption, thereby helping to control emissions and pollution levels."

-Joe Kaeser

## SUSTAINABILITY CRITERIA

1. Access to basic amount of water to ensure sustenance of human health and ecosystems.
2. Basic protection of renewability of water resources.
3. Water resources should maintain a certain minimum standard, which is subjective to the location and objective of use of water.
4. Human activities should not impair the renewability of freshwater stocks and flows
5. Data on water resource availability, use and quality should be collected and made available to all parties
6. Setting up of institutional recommendations for planning, management and conflict resolution.
7. Water planning and decision making should be a democratic process, involving all affected parties and fostering direct participation of affected interests.

# STEPS FOR WATER CONSERVATION

## Local level

- Regional level monitoring, like villages and districts
- Micro-planning and management of local water resources

## Global level

- Monitoring across international borders
- Cooperation between nations and across borders to work towards sustainable development and management goals

## National level

- Monitoring at country level
- Evaluation of national trends of water resources and incorporation in national policies

## SALIENT FEATURES

- Traditional and basic step of water conservation strategies is to ensure percolation of water into the ground and preventing its run off into streams and rivers.
- Fundamental step towards conservation of water should be the efficient utilisation of the existing sources of water, especially in the agricultural and energy production industries, where there is a large potential for increased efficiency of water consumption and utilisation.

# CLASSICAL METHODS OF WATER MANAGEMENT

## Monitoring soil water content

- Maintenance of ground water table
- prevent soil erosion of dry soil particles

## Afforestation

- Slow down runoff with the help of trees and shrubs
- Avoid clear cutting

## Rainwater harvesting structures

- Check dams
- Water harvesting pits

## Rejuvenation of wetlands

- De-siltation
- Removal of encroachments
- Maintenance of inflow and outflow channels

## Rejuvenation of urban tanks

- Restoration of step wells, borewells and dug wells.

## Crop rotation

- Reduce water runoff
- Prevent exposure of soil to the atmosphere

## Prevent biomass removal from land

- Improves water retention of soil
- Prevents soil erosion

## Organic mulching

- Reduce water runoff improve water percolation
- Improve water percolation

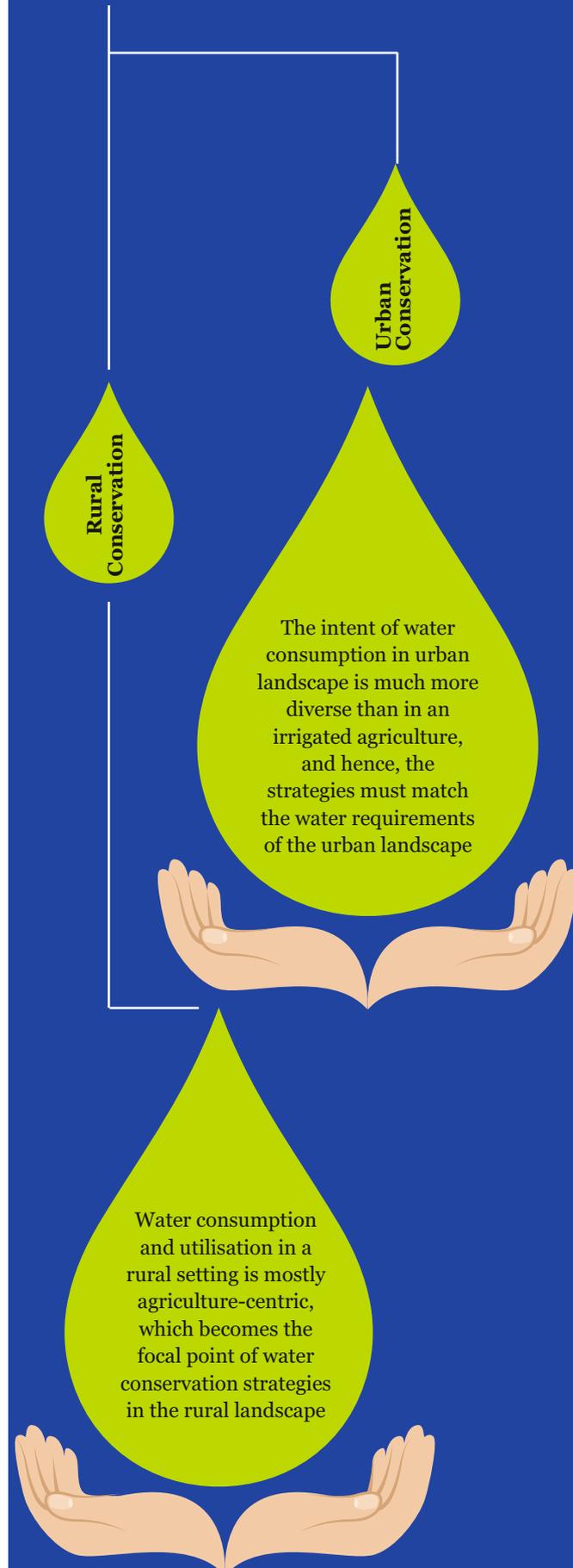
## Water needs

- Adjusting water application according to specific crop needs
- Use of specific water delivery systems

## Active stakeholder participation

- Education and awareness
- Liaising and networking

# MODERN METHODS WATER CONSERVATION



## Rainwater Harvesting

- Storage of rainwater in surface or subsurface aquifers for future use.
- This is done in order to prevent loss of rainwater in the form of surface runoff.
- Often acts to augment the ground water reserves.

## Groundwater conservation

Areas with scanty rainfall, the ground water table acts as the main source of water.

Since groundwater occurs in more quantity than surface water, and is more widespread, economically more viable, more sustainable and reliable, and relatively less vulnerable to pollution and drought than any other source of water.

Needs to be replenished and conserved, in order to act as a source of water not just for human civilisations, but also for natural ecosystems.

# NOVEL WATER MANAGEMENT STRATEGIES

Science, technology and innovations are integral parts to sustainable water management strategies. Technological advances and trends are likely to benefit rapid and effective adaptation in the water sector. Many innovations and developments in sustainable water management are high-risk and with uncertain returns. Some of the novel techniques developed for water conservation are enlisted below.

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### Cybernetics and Artificial Intelligence

Smarter internet and instantaneous information technology

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### Nanotechnology

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### Non-traditional Energy Technology

Use of cost-effective, renewable energy sources with a low carbon footprint

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### Biotechnology

Genetic engineering to help feed the populace and save endangered species

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### Space-based Environmental Monitoring Systems

Instantaneous feedbacks to predictive models

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### Geo-engineering to reverse global warming

Giant reflectors in orbit, greening deserts, iron fertilisation of the sea, and aerosols in the stratosphere

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### Weather and Climate Prediction

Effective and reliable prediction of weather patterns

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### Desalinization

Cost-effective method to convert sea water into potable water for supply to coastal cities

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### Sanitation and Wastewater Treatment

Improved wastewater treatment methods, in order to recycle water and decrease consumption

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### Ecological Engineering

To preserve habitats, reverse species extinctions and combat invasive species

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### RS & GIS

Mapping of groundwater resources and sustainable extraction levels

Any land area that is saturated or flooded with water, either seasonally or permanently, that is static or flowing, fresh, brackish or saline, including areas of marine water the depth of which at low tide does not exceed six metres.

# WETLAND CONSERVATION

## Marine

Coastal wetlands, lagoons, rocky shores, coral reefs

## Lacustrine

Associated with lakes

## Riverine

Along rivers and streams

## Estuarine

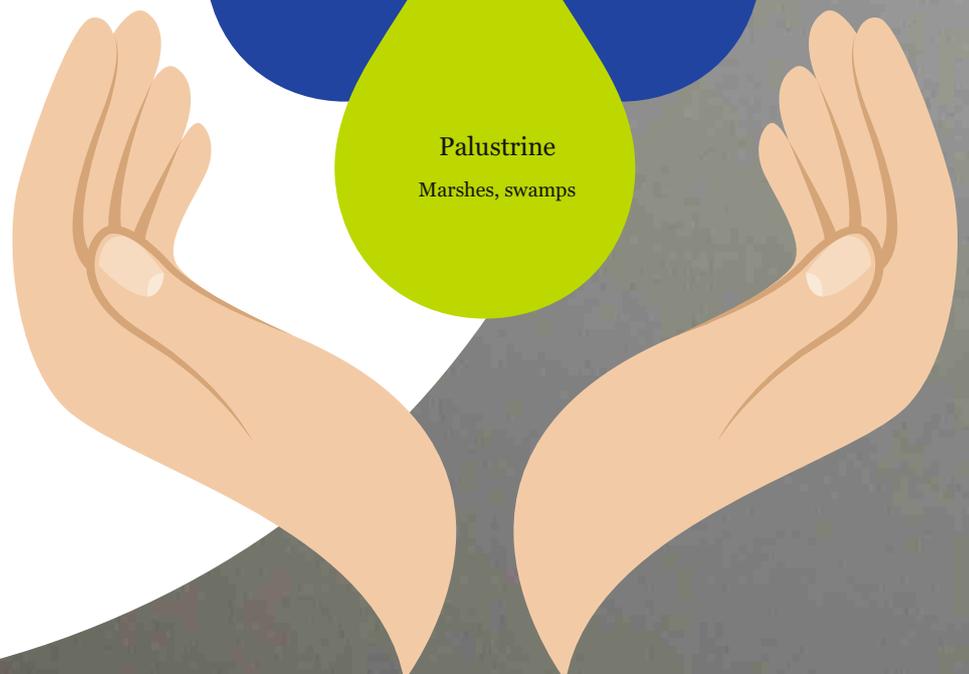
Deltas, tidal marshes, mangrove swamps

## Human-made

Farm ponds, irrigated agricultural lands, dam reservoirs

## Palustrine

Marshes, swamps





## Functions

Water storage

Drought buffering

Groundwater recharge and discharge

Storm protection

Shoreline stabilisation

Water purification

Flood mitigation

Erosion control

Retention of nutrients, sediments and pollutants

## Values

Water supply

Timber and other materials

Range of wetland products

Fisheries

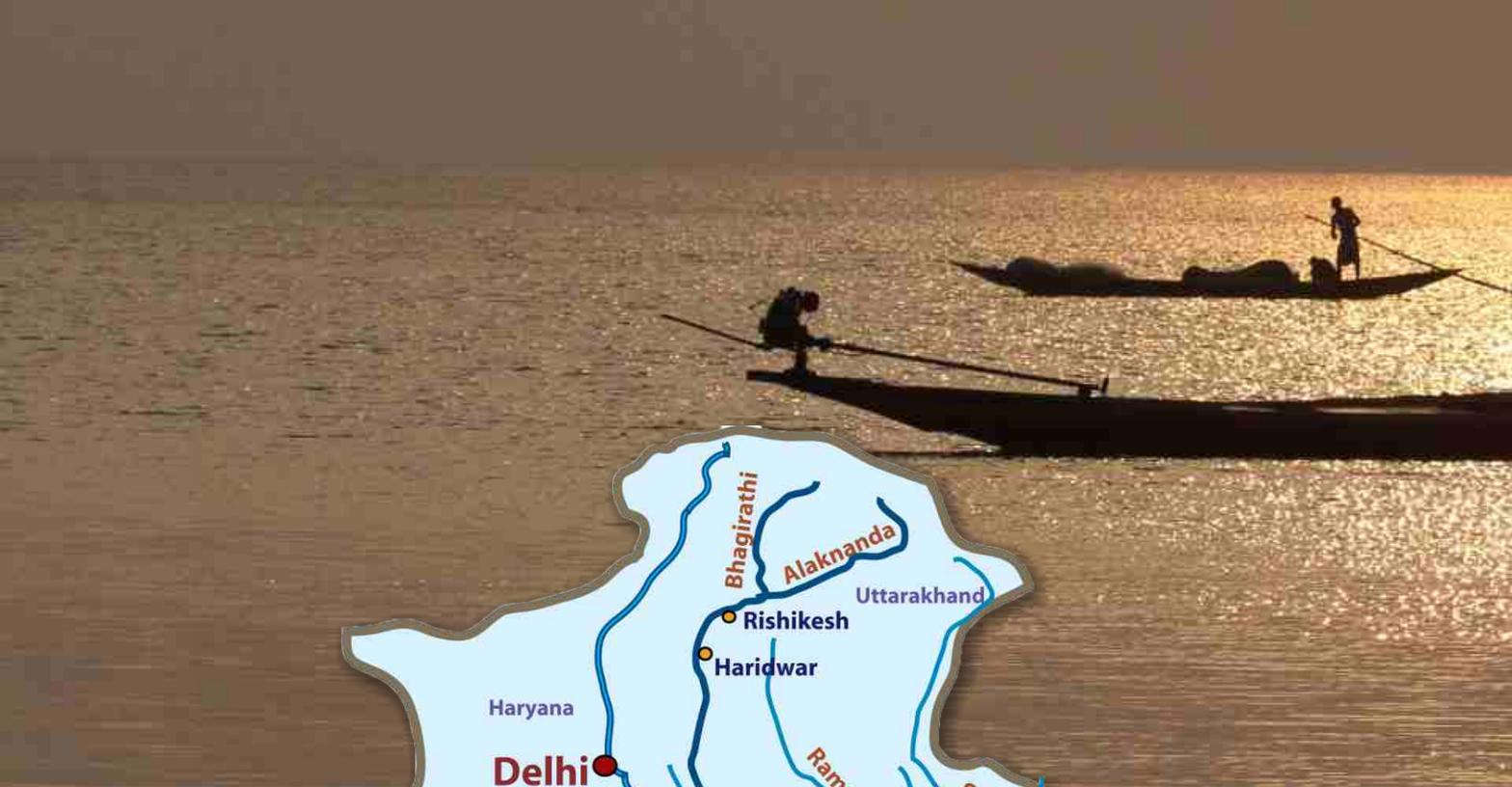
Energy sources like peat and plant matter

Recreation and tourism

Agriculture

Wildlife resources

Cultural importance



# GANGA RIVER BASIN

The Indo-Gangetic floodplain is the largest wetland system in India, extending from the Indus River in the west to the Brahmaputra River in the east. The Ganga River basin, with an area of 8,61,000 km<sup>2</sup>, occupies approximately 26.3% of India's geographical area. The basin is spread across the 11 states viz. Himachal Pradesh, Uttarakhand, Uttar Pradesh, Delhi, Haryana, Rajasthan, Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh, and West Bengal. The waters of the Ganga are extensively used for domestic, industrial and agricultural purposes, and hold high cultural, socio-economic, and ecological value. The basin shows a high degree of heterogeneity in terms of climate, geomorphology, soil, biogeography, culture and socio-economic structure. The Ganga River originates from the Gangotri glaciers in the Himalaya as the Bhagirathi River before being joined by the Alaknanda River at Devprayag. As it flows along its 2525 km length, the Ganga river is joined by a large number of tributaries on both the banks before it reaches the Bay of Bengal.



# CONSERVATION METHODS FOR GANGETIC WATER

- Empowerment of appropriate institutions to monitor and implement need-based programs.
- Public and local community participation.
- Plantation campaign & Cleanliness drive.
- Awareness workshops and Community outreach programme.
- Workshop and trainings on Ganga and biodiversity conservation.
- Evolution of segmented implementation plan.
- Sewage treatment plants.
- Promotion of forestry programs to prevent erosion problems.
- Regulated withdrawal of water from the river at various major towns and cities.
- River front development activities with garbage management on Ghats, removing floatables and maintaining cleanliness & hygienic status.
- Sub-surface flow constructed wetland – Engineered wastewater treatment systems encompassing a variety of treatment modules including biological, chemical & physical processes. Construction of such wetlands along banks of the Ganga may act as a biofilter capable of removing high loads of nutrients & other pollutants from the river.
- Macrophytes are considered to be the main biological component, which play an important role in the treatment process.

# Join us in our efforts for water conservation and water security for a better future



## GACMC

Ganga Aqualife  
Conservation  
Monitoring  
Centre

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**Website link:** [https://wii.gov.in/nmcg/news\\_events](https://wii.gov.in/nmcg/news_events)

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