



Integrated Water Resources Management (IWRM)



Key water problems

1 Access to water supply and sanitation

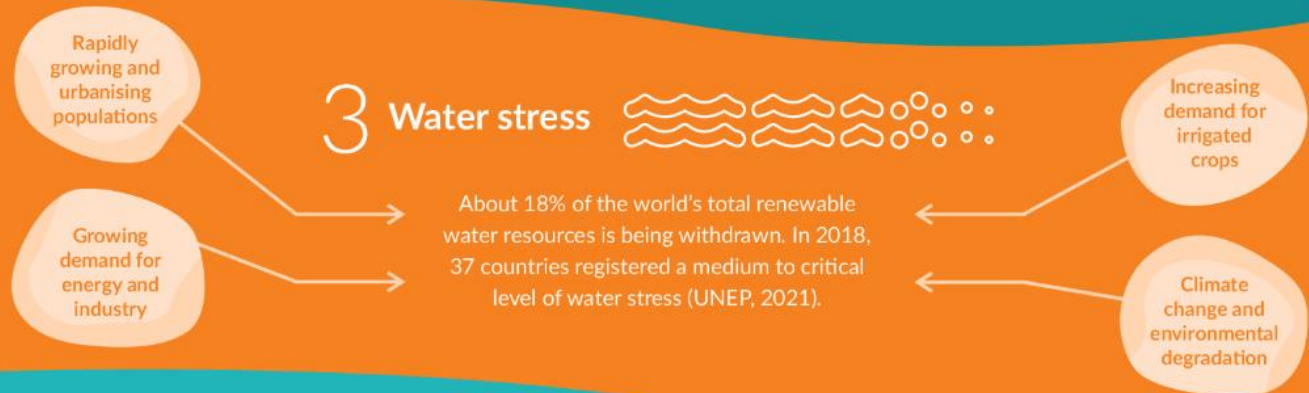


In 2020, 1 in 4 people lacked safely managed drinking water and about 3.6 billion did not have access to safely managed sanitation services (JMP, 2021).

2 Water-related disasters



Between 2000 and 2019 at least 3 billion people were affected by extreme water-related events - approximately 1.65 billion by floods and 1.43 billion by droughts (World Bank, 2021).



4 Water pollution



Approximately 80% of wastewater worldwide goes untreated, most of which is dumped directly into rivers and oceans (UNEP, 2021). In 2020, 28% of water bodies failed to achieve good ambient water quality status (UNEP, 2021).

5 Ecosystem degradation and biodiversity loss



Since the pre-industrial era, the world has seen an 80% loss of freshwater and coastal wetlands and a drop of about 5% in the area covered by mangrove ecosystems since 1996 (UNEP, 2021). Freshwater wildlife populations have dropped by over 80% since 1970 (Wetlands International, 2021).

IWRM principles

PRINCIPLE 1



Freshwater is a finite and vulnerable resource, essential to sustain life, development, and the environment

PRINCIPLE 2



Water development and management should be based on a participatory approach, involving users, planners, and policy-makers at all levels

PRINCIPLE 3




Women play a central part in the provision, management, and safeguarding of water

PRINCIPLE 4



Water has an economic value in all its competing uses and should be recognised as an economic good

Importance of water management in agriculture



Water is a critical resource for agricultural production, affecting crop yields and food security.



Effective management practices are essential for reducing vulnerability to water-related hazards such as droughts and floods



IWRM promotes efficient water use, conservation, and equitable distribution among users

Rainwater harvesting

Rooftop Harvesting: Collecting rainwater from rooftops into storage tanks



Surface Runoff Collection: Creating channels or basins to capture runoff from agricultural fields



Percolation Pits: Digging pits to allow rainwater to infiltrate and recharge groundwater





What is Rainwater Harvesting?

This is the gathering of rainwater and its storage and use for domestic, agricultural or industrial purposes. The water collected may be used for:

- drinking
- livestock
- irrigation
- refilling aquifers ('*groundwater recharge*')

How is rainwater harvested/stored?

Water may be gathered from every square area on which it falls and subsequently stored in affordable containers or water storage units such as plastic tanks. Water collection areas may include:

- Concrete/zinc roofs
- Road pavements
- Corridors
- Greenhouse plastic roofing

Rainwater Harvesting in Jamaica

In Jamaica, our water resource is often mismanaged. However rainwater harvesting can mitigate through the adoption of the following practices:

- Water catchment areas can be put in place on both public and private buildings
- Water collected should be stored in containers which are safe from pests and rodents
- Householders can store water in tanks for backyard gardening
- Water can be stored in black tanks for subsistence farming outside of the usual irrigated areas

Rainwater is also a good source of water in times of drought and can always be used to complement the normal water supply. With respect to its use for drinking, it is to some extent healthier than chlorine and calcium based water from rivers, may also be treated for consumption.



Low-cost water conservation strategies



Water storage solutions



Rainwater tanks: Storage tanks for collected rainwater, available in various sizes



Reservoirs: Larger bodies of stored water that can supply irrigation and livestock needs.



Surface ponds: Constructed ponds that capture runoff and provide a water source for crops.

Integrated approaches to water management



Combining rainwater harvesting, water conservation strategies, and storage solutions creates a comprehensive water management system.



Encouraging community involvement and knowledge sharing can enhance the effectiveness of IWRM practices.



Policies and regulations should support sustainable water management at local and national levels.