

WATER RESOURCES

but only a small part is usable. ← $3/4^{\text{th}}$ of earth's surface is covered with water. → all water move within the hydrological cycle ensuring that water is renewable.

* WATER SCARCITY AND THE NEED FOR WATER CONSERVATION AND MANAGEMENT.

- The availability of water resources varies over space and time, mainly due to the variations in seasonal and annual rain.
- Water scarcity in most cases is caused by over-exploitation, excessive use and unequal access to water.

Quantitative reasons

1. Large population
2. Unequal distribution
3. Irrigating land for farming
4. Urbanisation
5. Industrialisation

← why there are water scarcity →

Qualitative reasons

[JSM] Jal Jeevan mission ↓ enables every rural household get assured supply of potable pipe at service level of 55L per day.

1. Bad water quality ↓ polluted by domestic and industrial waste, chemicals, pesticides and fertilizers

* The need for the water conservation and management:

- i] to prevent health hazards.
- ii] ensure food security.
- iii] Degradation of Natural resources.
- iv] overexploitation and mismanagement of water resources.

Urbanisation	Industrialisation
<ul style="list-style-type: none"> The increasing no of industries had made the matter worse by exerting pressure on existing fresh water resources. Industries require a lot of water to run hydroelectric power. 	<ul style="list-style-type: none"> Urban centres with large and dense population and urban lifestyle have not only added to water and energy requirements but further elevated the problem.

WHAT ARE EVIDENCES WHICH SUPPORT THAT H₂O CONSERVATION TECHNIQUES WERE USED IN ANCIENT TIMES?

- ① Sringeripuram near Allahabad had sophisticated water harvesting system channelling the flood water of River Ganga.
 - ② During Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.
 - ③ Evidences of sophisticated irrigation - in Odisha (Kalinga), (AP) Nagarjunakonda, (Karnataka) Bennur, Kolhapur (Maharashtra).
 - ④ Bhopal Lake was one of the largest artificial lake built in 11th century.
 - ⑤ In 15th century, the tank in Hauz Khas, Delhi was constructed by Sultan Shah for supply of water in Siri Fort area.
- Q. Why are dams called multipurpose project?
- Dams were traditionally built to impound rainwater and river for future water use purposes.
 - Today dams are built not just for irrigation but for electricity, water supply, flood control, recreation, inland navigation & fish breeding.
 - Hence dams are called multipurpose projects because it is used to fulfill various needs.
- Q. Why JLN proclaimed dams as Temple of Modern India?
- that it would integrate development of agricultural and the village economy with rapid industrialisation and growth of the urban company.

A dam is a barrier across flowing water that obstructs, directs or retards the flow often creating reservoir, lake or impoundment.

ADVANTAGES of Dams

① vehicle that would lead the nation to development and progress, overcoming the handicap of its colonial past.

② temple of modern India.

Rainwater Harvesting:

1. In hills & mountain regions people build guls and khuls for agriculture.

2. Rooftop rainwater harvesting is practised in Rajasthan for drinking.

3. In flood plains of Bengal people develop inundation channels to irrigate their field.

4. In arid and semi-arid region agricultural fields were converted into rain fed storage structures that allowed the water to stand and moisten the soil like Khadins in Jaisalmer and Johads in Rajasthan.

5. In arid and semi arid region, (Rajasthan) all houses have Tankas for storing drinking water.

• many houses build tankas to beat heat in summer.

⇒ Palar Pani = Rainwater = purest form of drinking water.

1. Electricity generation
2. Flood control
3. Recreational activities
4. Providing water.

DISADVANTAGES of Dams

① Dams affect their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir, resulting in rockier stream beds and poor aquatic life.

② Dams also fragment the river making it difficult for aquatic fauna to migrate.

③ Reservoir created on flood plains also submerge the existing vegetation and soil leading to its decomposition over a period of time.

④ Displacement of locals.

⑤ Irrigation has also changed the cropping pattern of many regions with farmers shifting to water intensive and commercial crops.

⑥ It is transformed social landscape, increasing the gap between the rich and poor.

⑦ Dams cause flood due to sedimentation.

⑧ Sedimentation also meant, flood plains were deprived of natural fertilizer.

⑨ water-borne diseases

⑩ earthquakes.