



# Introduction

This is a learning as well as an exam preparation video.

At the end of the video are practice assignments for you to attempt.

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# Chapter 3: Water Resources

# Chapter 3: Water Resources

## Introduction

Water is one of the most important resources on the Earth. Although 71% of the total surface of the Earth is covered with water, only 1% of freshwater is available for direct human use. Evaporation of water from oceans and precipitation in the form of rainfall-parts of the water cycle-ensure the continuous availability of freshwater. However, water is becoming a scarce resource. India is facing an acute shortage of water supply. India receives about 4% of the global precipitation and ranks 133 in the world in terms of availability of water per person in a year.

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## Reasons for Scarcity of Water in India

The following reasons can be attributed to the scarcity of water in India:

- A large and growing population has resulted in the scarcity of water resources in the country.
- To provide food resources for such a vast population, water resources are overused to irrigate agricultural fields. Indiscriminate use of wells and tube wells has led to a considerable decline in the water table.

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## Reasons for Scarcity of Water in India

- The establishment of various industries has resulted in the further exploitation of water resources. The discharge of industrial effluents has also degraded the quality of water.
- In India, generation of hydroelectricity on a large scale has also put pressure on the water resources.
- Urban centres have multiplied in the country. Many houses and housing societies have their own independent boring devices. This has further depleted the water table.

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## Reasons for Scarcity of Water in India

- In India, many places or regions may have sufficient water resources but may still suffer from water scarcity. This may be because of the deterioration in the quality of drinking water. Disposal of household and industrial wastes and the use of insecticides and pesticides in agriculture may result in worsening of the quality of water.

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## Multi-purpose River Projects

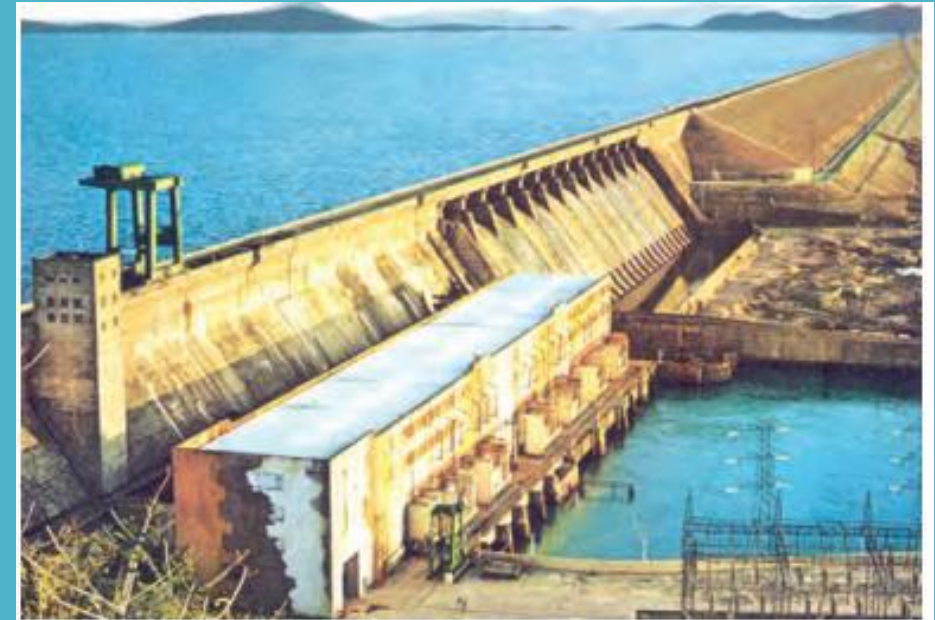
Multi-purpose projects, launched after Independence with their integrated water resources management approach, were thought of as the vehicle that would lead the nation to development and progress, overcoming the handicap of its colonial past. Multi-purpose projects and large dams have been the cause of many new social movements like the Narmada Bachao Andolan and the Tehri Dam Andolan etc. Local people often had to give up their land, livelihood and their meagre access and control over resources for the greater good of the nation.



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## Multi-purpose River Projects

**Dams:** A dam is a barrier across flowing water that obstructs, directs or retards the flow, often creating a reservoir, lake or impoundment. “Dam” refers to the reservoir rather than the structure.



*Hirakud Dam*

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## Multi-purpose River Projects

**Main objectives or Advantages of Multipurpose Project:**

- **Generation of Power:** They produce neat, pollution free and cheapest energy which is the back bone of industry and agriculture. According to the economic survey 2005-06 these produce more than 30,000 M.W. power.
- **Flood Control:** These projects control the flood because water can be stored in them. These projects have converted many 'rivers of sorrow' into river of boon. Example River Kosi.

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## Multi-purpose River Projects

- **Soil Conservation:** These conserve the soil because they slow down the speed of water.
- **Irrigation:** They irrigate the fields during the dry seasons. Many canals have been dug and they irrigate dry areas.
- **Afforestation:** Trees are systematically planted in and around reservoirs. This helps in preserving “Wild life” and natural ecosystem.

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## Multi-purpose River Projects

- **Water Navigation:** They provide for Inland water navigation through main river or canal. It is the cheapest means of transport for heavy goods.
- **Fisheries:** These provide ideal condition for the breeding of fish. Chosen varieties of fish are allowed to grow.
- **Tourist Centres:** These projects are well cared and are scientifically developed. So these become the centre of tourist attraction.

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## Negative Impact of Building Big Dams:

At present, many big dams are constructed in our country. These are called multipurpose dams as they help in the generation of electricity and provide water for irrigation and industrial uses. Recently, these multipurpose dams have come under attacks from environmentalists because of the following reasons:

- Damming of rivers and regulating their flow result in excessive sedimentation at the bottom of the reservoir. This may hamper aquatic life and their migration to other water bodies.

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## Negative Impact of Building Big Dams:

- Building of dams result in the submergence of land and vegetation. This results in the decomposition of vegetation.
- Construction of large dams results in the displacement of villagers and communities. The villagers have to give up their lands and their means of livelihood.
- Large forest areas are also submerged because of the building of dams. This threatens our biodiversity.

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## Negative Impact of Building Big Dams:

- As dams provide water for irrigation, intensive irrigation leads to salinity of soil.
- Frequently, the water in large dams is used for the benefit of the urban population and the rural population is often left out. This further widens the gap between the rich and the poor.

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## Negative Impact of Building Big Dams:

- Dams which were initially built to control floods are now causing floods because of sedimentation. In case of excessive rainfall, the release of water from dams often floods the area, causing damage to lives and property.
- Land degradation, water-borne diseases and pollution are some other effects of building large dams.



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It has been stressed that it is more beneficial to build small check dams and small reservoirs in order to deal with the problem of water scarcity. It not only provides water for irrigation at the time of need but also recharges groundwater.

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## Hydraulic Structures in Ancient India:

- In the first century B.C., Sringaverapura near Allahabad had sophisticated water harvesting system channeling the flood water of the river Ganga.
- During the time of Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.



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## Hydraulic Structures in Ancient India:

- Evidences of sophisticated irrigation works have also been found in Kalinga (Odisha), Nagarjunakonda (Andhra Pradesh), Bennur (Karnataka), Kolhapur (Maharashtra), etc.
- In the 11th Century, Bhopal Lake, one of the largest artificial lakes of its time was built.
- In the 14th Century, the tank in Hauz Khas, Delhi was constructed by Iltutmish for supplying water to Siri Fort area.

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## Hydraulic Structures in Ancient India:

India has a long tradition of water harvesting. The technique differed from regions to regions and was also called by different names. Rain roof water harvesting was practised in Rajasthan and in Bengal. Long canals were taken out from large rivers which received water during flooding of the river (inundation canals) in dry regions of western India.

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## Hydraulic Structures in Ancient India:

Agricultural fields were converted into rain-fed storage structures. This helped the soil to gain moisture. In Rajasthan, many houses had underground storage tanks (known as 'tanka'). Rainwater from the sloping roofs of the house was collected into these underground tanks through pipes.

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## Rainwater harvesting :

Rainwater harvesting is one of the most important methods to deal with the scarcity of water. It not only provides water for domestic use during the summer but also recharges the water table.

Different methods have been adopted in different areas for Rain Water Harvesting.

- In hill and mountainous regions, people have built diversion channels like the 'guls' or 'kuls' of the Western Himalayas for agriculture.

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## Rainwater harvesting :

- “Rooftop rainwater harvesting” is commonly practised to store drinking water, particularly in Rajasthan.
- In the flood plains of Bengal, people developed inundation channels to irrigate their fields.
- In arid and semi-arid regions, agricultural fields were converted into rain-fed storage structures that allowed the water to stand and moisten the soil such as ‘khadins’ in Jaisalmer and ‘Johads’ in other parts of Rajasthan.

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## Rainwater harvesting :

The tankas are part of the well-developed rooftop rainwater harvesting system and are built inside the main house or the courtyard. This is mainly practised in Rajasthan, particularly in Bikaner, Phalodi and Barmer areas for saving the rainwater.

Many houses have constructed underground rooms adjoining the 'tanka' to beat the summer heat as it would keep the room cool.



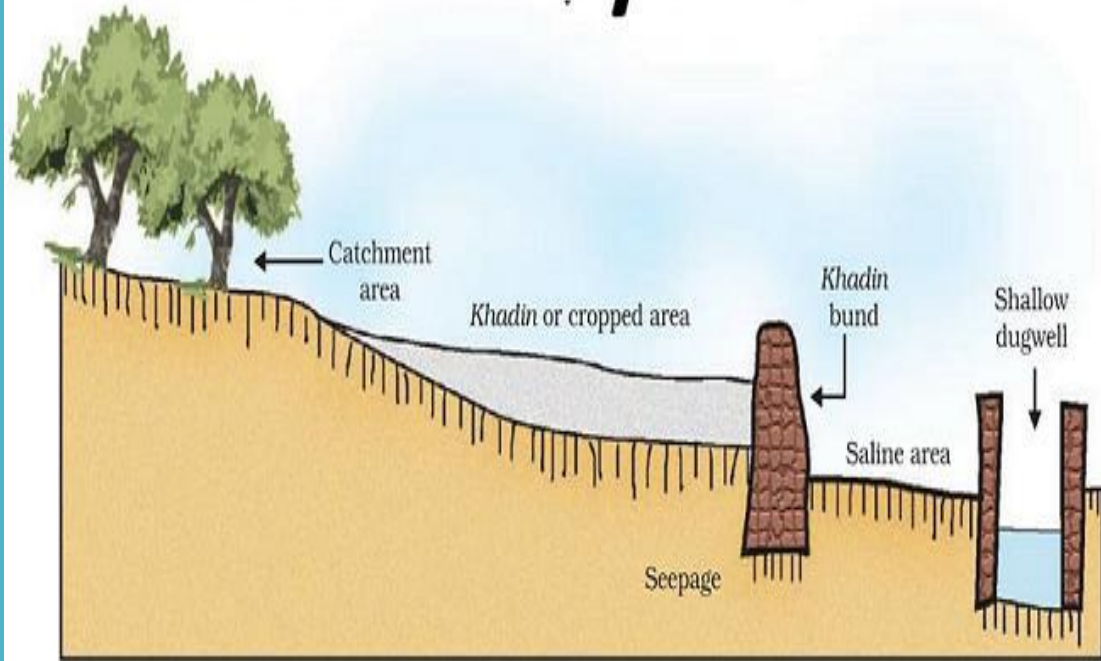
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## Rainwater harvesting :

- Tamil Nadu is the first state in India which has made rooftop rainwater harvesting structure compulsory to all the houses across the state. There are legal provisions to punish the defaulters.

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## Khadin System



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# Practice Assignments, Exam Prep Assignments for The CBSE Business Studies

1. You may now proceed to try out the exam preparation assignments.
2. **ALL** assignments will be marked and feedback will be given.
3. Should you need to speak to one of our tutors send your email to **administration@intemass.com**
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