♦ Chapter 3: Water Resources – CBSE Notes

◆ 1. Water - A Renewable Resource

- ✓ CBSE Repeated Question: How is water a renewable resource?
 - **Water cycle** (hydrological cycle) renews water through evaporation, condensation, and precipitation.
 - Freshwater comes from rainfall, rivers, lakes, and groundwater.
 - Only **2.5% of Earth's water is freshwater**, and most is locked in glaciers or underground.

2. Water Scarcity

▼ Frequently Asked: What is water scarcity? Mention its causes.

What is it?

- Water scarcity means shortage of usable freshwater in an area.
- Can happen even in areas with high rainfall if water is polluted, wasted, or overused.

Causes:

- Over-extraction of groundwater
- 2. High population pressure
- 3. Urbanisation & industrialisation
- 4. Water pollution from chemicals and waste
- 5. Unequal access between social groups

3. Need for Conservation and Management

- **☑ Board Focus**: Why should we conserve water?
 - Ensure food and livelihood security
 - Prevent water conflicts
 - Protect ecosystems
 - Combat climate-induced crises
 - Support health, hygiene, agriculture, and industries

4. Multi-Purpose River Projects

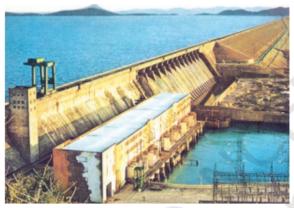


Fig. 3.2: Hirakud Dam

▼ Common CBSE Topic: What are multi-purpose river projects?

Definition:

- Dams built for irrigation, electricity, drinking water, flood control, recreation, etc.
- Example: Bhakra Nangal Project on Satluj → irrigation + hydel power.

Benefits:

- Hydroelectricity generation
- Water supply for agriculture and urban use
- Control floods and droughts
- Boost inland navigation and fisheries

Criticism:

- **☑** Board Repeated Focus: Disadvantages of large dams
 - Disrupt natural river flow → loss of aquatic life
 - Submerges land, forests, and settlements
 - Induces earthquakes and water-borne diseases
 - Displacement of tribal and rural populations
 - Affects sediment flow → loss of fertile soil.

Famous Projects:

- Sardar Sarovar Dam on Narmada covers Gujarat, MP, Maharashtra, Rajasthan
- **Hirakud Dam** Mahanadi basin (flood control + irrigation)
- ◆ 5. Water Disputes in India
- Often Asked in Map or Descriptive Questions
 - Krishna-Godavari dispute (Maharashtra, Andhra Pradesh, Karnataka)
 - Due to water sharing and reduced downstream flow
- 6. Rainwater Harvesting
- ✓ Long Answer Topic in CBSE: Traditional and modern methods of water conservation

Definition:

• Collection of rainwater from rooftops or ground surface for reuse or storage.

Traditional Methods in India:

Region	Method
Rajasthan (Jaisalmer, Barmer)	Tankas, Johads, Khadins
Western Himalayas	Kuls, Guls (diversion channels)
Bengal	Inundation channels
Maharashtra	Lakes & check dams
Delhi (14th century)	Hauz Khas tank
Meghalaya	Bamboo drip irrigation (200+ year-old method)
Mysuru (Karnataka)	Rooftop harvesting in Gendathur village – 50,000 litres/house/year

Rooftop Harvesting:

- Rainwater flows from sloping roof → pipe → underground storage (Tanka).
- First rainfall is discarded to clean dust.
- Widely practiced in **Shillong (Meghalaya)** and **Tamil Nadu** (first state to make it compulsory).

CBSE Focus: Summary of Repeated Topics

Repeated Question Topic	Explanation
Water scarcity causes	Overuse, pollution, unequal access
Dams - Pros & Cons	Multipurpose benefits vs displacement, ecological harm
Rainwater harvesting	Traditional & modern methods in arid/semi-arid regions
Hydrological cycle	Makes water a renewable resource
Water disputes	Krishna-Godavari, Narmada, etc.