

## 3 Water Resources

### Water

- Water is a renewable resource
- Three-fourth of the earth's surface is covered with water but only a small proportion of it accounts for freshwater fit for use.

### Some facts and Figures

- 96.5 percent of the total volume of world's water is estimated to exist as oceans and only 2.5 per cent as freshwater.
- India receives nearly 4 percent of the global precipitation and ranks 133 in the world in terms of water availability per person per annum.
- By 2025, it is predicted that large parts of India will join countries or regions having absolute water scarcity.

### Water Scarcity and need for water conservation and management

- The lack sufficient water as compared to its demand in a region is known as Water Scarcity.
- Causes of Water Scarcity are:
  - over-exploitation
  - excessive use and unequal access to water among different social groups.
  - Large population

### Dams

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

### Multi-purpose river projects

- Multi-purpose river projects large dams that serve several purposes in addition to impounding the water of a river and used later to irrigate agricultural fields. For example, the Sutluj-Beas river basin, the Bhakra-Nangal project etc.

## **Advantages of multi-purpose river projects are:**

- Electricity generation
- Irrigation
- Water supply for domestic and industrial uses
- Flood control
- Recreation
- Inland navigation
- Fish breeding

## **Disadvantages of Multi-purpose river projects are:**

- It affects the natural flow of river causing poor sediment flow and excessive sedimentation at the bottom of the reservoir.
- It destroys the habitats for the rivers' aquatic life.
- It submerges the existing vegetation and soil if created on the floodplains.
- It displaces the local people of the place where it is created.
- These are unsuccessful in controlling floods at the time of excessive rainfall.
- These projects induced earthquakes, caused water- borne diseases and pests and pollution resulting from excessive use of water.

## **Movements against Multi-purpose river projects**

- These projects cause of many new social movements like the 'Narmada Bachao Andolan' and the 'Tehri Dam Andolan' etc.
- This is due to the large-scale displacement of local communities.
- Inter-state water disputes are also becoming common with regard to sharing the costs and benefits of the multi-purpose project.

## **Rainwater Harvesting**

- Rainwater Harvesting refers to the practice of storing and using of rainwater from the surface on which it falls.
- In hill and mountainous regions, people built diversion channels like the 'guls' or 'kuls' of the Western Himalayas for agriculture.
- In Rajasthan, 'Rooftop rain water harvesting' was commonly practised to store drinking water.

- 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.
- In the semi-arid and arid regions of Rajasthan, almost all the houses traditionally had underground tanks or tankas for storing drinking water.

- **How Tankas works:**

- Tankas were connected to the sloping roofs of the houses through a pipe.
- Rain falling on the rooftops would travel down the pipe and was stored in these underground 'tankas'.