

CHAPTER 3- WATER RESOURCES



WATER FACTS

- ❑ 96.5 per cent 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 per cent 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.

Source: The UN World Water Development Report, 2003

WATER SCARCITY

What is Water Scarcity ?

Water scarcity can mean scarcity in availability due to physical shortage, or scarcity in access due to the failure of institutions to ensure a regular supply or due to a lack of adequate infrastructure.

SOURCE UN REPORT

CAUSES OF WATER SCARCITY

- ☐ Over- exploitation
- ☐ Excessive use
- ☐ Unequal access to water among different social groups
- ☐ Large and growing population
- ☐ Industrialization and Urbanization
- ☐ Increased requirement of irrigation
- ☐ Poor Quality of Water

MULTIPURPOSE RIVER VALLEY PROJECTS

- ❑ These are those river valley projects that serve multiple purposes such as irrigation, hydroelectric power generation and drinking water supply.
- ❑ Dams are built across rivers. These are big reservoirs that store river and rainwater that is used for generating hydroelectricity and for irrigation.

MULTIPURPOSE RIVER VALLEY PROJECTS

MULTIPURPOSE PROJECT	RIVER
BHAKRA NANGAL PROJECT	SUTLUJ
HIRAKUD PROJECT	MAHANADI
DAMODAR VALLEY PROJECT	DAMODAR
NARMADA VALLEY PROJECT	NARMADA

DISADVANTAGES – MULTIPURPOSE RIVER VALLEY PROJECTS

- ❑ Regulating and damming of rivers affect their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir.
- ❑ Poorer habitats for the rivers' aquatic life. Dams also fragment rivers making it difficult for aquatic fauna to migrate, especially for spawning.
- ❑ The reservoirs that are created on the floodplains also submerge the existing vegetation and soil leading to its decomposition over a period of time.

DISADVANTAGES – MULTIPURPOSE RIVER VALLEY PROJECTS

- ☐ Large scale displacement of local communities.
- ☐ Triggers floods due to sedimentation in the reservoirs.
- ☐ Water borne diseases and pollution resulting from excessive use of water.

RAINWATER HARVESTING METHODS

- ❑ In hill and mountainous regions, people built diversion channels like the 'guls' or 'kuls' of the Western Himalayas for agriculture.
- ❑ 'Rooftop rain water harvesting' was 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 like the 'khadins' in Jaisalmer and 'Johads' in other parts of Rajasthan.

RAINWATER HARVESTING METHODS

- ❑ In the semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi and Barmer, almost all the houses traditionally had underground tanks or tankas for storing drinking water.
- ❑ In Gendathur, nearly 200 households have installed this system and the village has earned the rare distinction of being rich in rainwater.
- ❑ **BAMBOO DRIP IRRIGATION SYSTEM** In Meghalaya, a 200-year-old system of tapping stream and spring water by using bamboo pipes, is prevalent.