SCIENCE

WATER FOR ALL

Water for all

WATER AS A BASIC NATURAL RESOURCE

- It is a valuable national asset.
- It is the main requirement of human beings.
- Water is of two types - salt water and fresh water.
- Fresh water is an unlimited natural resource, it can be obtained from three natural resources - rain water, surface water and ground water.
- Human intervention pollutes water and also changes the availability of water in various regions.

(a) Water Sources:

- Rain in India are due to monsoon.
- Failure to sustain underground water due to loss of vegetative cover, development of water demanding crop and pollution from industrial effluents.
- Small dams, canals and tanks were used for irrigation purpose and to fulfil the basic minimum needs.
- Large dams and canals were made by British as well as our own government due to the mega projects, local irrigation methods got neglected and the local people lost control over management of local water sources.

(b) Management of Water Resources:

- It includes: • Integrated water-shed plan for drinking, irrigation and industrial uses.
- Flood control
- Transfer of surplus water to water deficient basins by inter-linking of rivers.
- Artificial recharging of the ground water.
- Mass awareness programmes through public or private agencies.

(1) Dams: They are massive barriers built across rivers and streams to confine and utilize the flow of water for human purposes such as irrigation and generation of electricity.

- Large dams can also ensure the storage of adequate water.

- Canal system leading from dams transfer large quantity of water upto great distances, e.g., Indira Gandhi Canal of Rajasthan brought greenery to considerable areas.

(i) Purposes for building a da

- Generation of electricity

- Irrigation

- Control of flood which either stops or slows the amount of water in the river.

(ii) Criticism about large dams:

- Social problems: They displace large number of farmers and tribals.
- Economic problems: They consume huge amount of public money without proportionate benefit.
- Environmental problems: As they cause deforestation and loss of biological diversity.
- Due to mismanagement in distribution of water, the benefit of constructing a dam goes to few people only. For example, people close to the water source grow water intensive crop like sugarcane and rice while people father downstream do not get any water. This resulted in discontentment among the people who have been displaced by building of dam.

(2) Watershed management: It means scientific conservation of soil and water to increase the biomass production.

- Watershed management not only increases the production and income of the watershed community but also overcomes drought and flood.
- It increases the life of downstream dams and reservoirs.

(3) Water harvesting: It means capturing rainwater where it falls or capturing the runoff water in a local area and taking measures to keep the water clean by not allowing polluting activities to take place.

I. Traditional Techniques of water harvesting: Water harvesting techniques are mainly location specific. It is an age - old concept in India.

• Khadins, tanks and nadis in Rajasthan.

• Bandharas and tals in Maharashtra

• Ahars and Pynes in Bihar

• Kuhis in Himanchal Pradesh

• Ponds in kandi belt of Jammu.

• Eris (tanks) in Tamilnadu.

• Surangams in kerela.

• Kattas in Karnataka.

• Due to own control of the local population over exploitation of the local water resources is reduced.

II. Some of the water harvesting techniques are:

• Capturing of runoff water from roof tops.

• Capturing of runoff water from local catchment.

• Capturing seasonal flood water from local streams.

III. Benefits of water harvesting:

• Provide drinking water.

• Provide irrigation water.

• Increase in ground water resources.

• Reduces storm water discharge, urban flood and overloading of sewage treatment plants.

IV. Advantages of ground water:

• It does not evaporate.

• It spreads out to recharge wells.

• It provides moisture for vegetation.

• It does not provide breeding grounds for mosquitoes.

• It is relatively protected from contamination by human and animal waste.

V. Traditional water harvesting system:

• The water harvesting structures are mainly crescent shaped.

• Monsoon rains fill ponds behind the structures.

• The large structure hold water throughout the year while most dry up after monsoon.

• The main purpose of this system is to recharge the ground water and not to hold surface water.