

CHAPTER 3 WATER RESOURCES

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Objective-

1. To understand the importance of water as a resource.
2. To learn traditional methods of water conservation.
3. To learn modern methods of water conservation.
4. Comparison between traditional and modern methods.
5. To understand the rain water harvesting.

1. What is water scarcity?

Water scarcity is the lack of availability of water to meet the demand.

Factors responsible for scarcity of water.

Large and growing population

- Large population require more food.
- More water for domestic use.
- water cannot be treated because of unplanned expansion of cities leading to water pollution.
- More population need more industrialisation.

Irrigation

- HYV seeds needs more.
- cultivation of commercial crops in unsuitable areas. like cultivation of rice in Punjab and Haryana.
- Expansion of agriculture to the drylands.
- Cultivation of multiple crops using irrigation.

Urbanisation

- unplanned expansion leads to discharge of untreated water.
- Urbanisation leads to increase in demand for industrial goods.
- Lack of rain water harvesting infrastructure leads to flash floods and sudden runoff of water.
- Most of the domestic waste and other urban waste find their ways to water bodies, this leads to water pollution.

Industrialization-1.uses water as heat absorber and solvent.

2. Industries releases untreated water into nearby water bodies.
3. Industries don't follow the policy of reuse.

4. Excessive water is drawn from water bodies than permissible limits.
5. All the above factors requires electricity and this electricity is produced using water.

Quantitative aspect- this aspect talks about the availability of water in a region it depends on precipitation, water sources such as river and lakes. A dry region will automatically face scarcity of water.

Qualitative aspect- This aspect talks about the quality of water i.e whether available water is fit for use or not. Water may get polluted due to a variety of reasons.

Jal Jeevan mission- it is a program launched by Government of India to provide clean water to every rural house.

Conservation of water-

Dam-

1. A dam is barrier across a flowing water that obstructs, directs and decreases the rate of flow.
2. India has been constructing and using dams since the ancient times.
3. In ancient times dams were used mostly used for storage of water and irrigation purpose.
4. Modern dams are used for various functions like water supply, industrial uses, flood control, transportation, fish breeding, hydroelectricity and others.
5. Because of multiple uses of dams in modern age, dams are also called multipurpose river projects.
6. Based on the structure and material used for construction of dam, dams can be of several subtypes.
7. Because of the role played by these dams in water management first prime minister of India referred dams as the temples of modern India.

Problems with dams-

1. They submerge a large area and destroy local vegetation.
2. Construction of dams obstructs the movement of aquatic animals, especially for laying eggs.
3. Natural flow of river is disturbed which impacts the habitation of aquatic animals and sedimentation of river. (Sedimentation is related to the deposition of silt brought by the river. These silts acts as the natural fertilizers and makes the soil fertile)
4. Due to excessive sedimentation in the reservoir these dams has failed to prevent the floods during excessive rains and in some cases sudden release of water from dams has caused floods in the lower areas.
5. Lot of tribal people has to face migration because of construction of dams.

6. Instead of local people large farmers, industrialists and few urban centres are getting the benefit of dams. This increases the inequality.
7. Construction of canals has promoted the cropping of water intensive crops leading to other soil related issues.
8. Inter state water disputes are also on a rise.
9. In some cases dams has induced earthquakes.

Because of the above mentioned problems construction of dams has been opposed by various organizations. One such organization is Narmada Bachao Andolan which has been opposing the construction of Sardar Sarovar Dam over river Narmada in Gujarat state.

Discuss in class and write the reasons why we must conserve our water resources in the space given.

Some ancient water conservation techniques

1. Guls or kuls- These are diversion channels constructed to store water in Himalayan region.

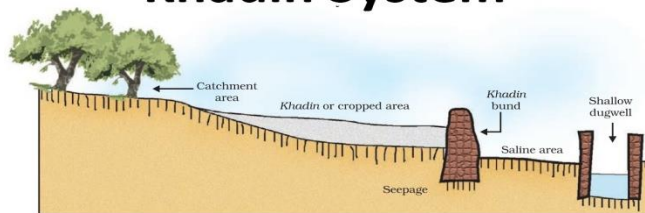


2. Inundation channels – These are the canals that were used to divert the rain water and this water was used for irrigation at later stage.



3. Khadin/ Johad- In this system a low lying agricultural field was used to store water.

Khadin System



4. Roof top water harvesting.
5. Tankas system- Water is stored in a covered well constructed in the ground.



What is rain water harvesting?

It is the method of increasing the level of groundwater by capturing and storing rain water.

Advantages of water Harvesting-

- 1. It is cheap and affordable method.**
- 2. These techniques are in use since the ancient times.**
- 3. Individual efforts taken collectively can produce better results.**
- 4. More ecofriendly than Dams.**
- 5. It has more local effect when compared to dams.**
- 6. Requires very less area. These can also be constructed under the house.**

