Ch 3 - Water Resources

Exercises

Answer the following questions in about 30 words.

(i) Explain how water becomes a renewable resource.

A (a) Three - Fourth of the earth's surface is covered with water, but only a small proportion of it accounts for freshwater that can be put to use.

(b) This freshwater is mainly obtained from surface runoff and groundwater that is continually being renewed and recharged through the hydrological cycle.

(c) All water moves within the hydrological cycle ensuring that water is a renewable recources.

(ii) What is water scaricity and what are its main causes?

A (a) Water scaricity is the shortage of water but it is not only associated with regions having low rainfall or those that are drought - prone.

(b) The availability of water resources varies over space and time, mainly due to the variations in seasonal and annual precipitation, but water scarity in most cases is caused by overexploitation, excessive use and unequal access to water among different social groups.

(iii) Compare the advantages and disadvantages of multipurpose rivers projects.

A (a) Regulating and damming of rivers affects their natural flow causing poor sedimentation at the bottom of the reservoir, resulting in sorkies stream beds and poorer habits for the rivers' aquatic life.

(b) Dams also fragments rivers making it difficult for aquatic fauna to migrate, especially for spawning. It has great ecological consequences like salinasation of the soil.

(c) At the same time, it has transformed i.e. ~~incre~~ increasing the social ~~lands~~ gap between the riches landowner and the landless poor.

(d) The dams that were constructed to control floods have triggered floods due to sedimentation in the reservoir.

(e) Moreover, the big dams have mostly been unsuccesful in controlling floods at the time of excessive rainfall. It was also observed that the multi-purpose projects induced earthquakes, caused waterborne diseases and pests and pollution resulting from excessive use of waters.

Answer the following questions in about 120 words.

(i) Discuss how rainwater harvesting in semi-arid regions of Rajasthan is carried out.

A (a) In the semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi and ~~Barmer~~ Barmer, almost all the houses traditionally had underground tanks or tankas for storing drinking water.

(b) The tanks could be as large as a big room. The tankas were part of the well-development rooftop rainwater harvesting system and were built inside the main house or the courtyard.

(c) They 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'.

(d) They ~~were~~ rainwater from the subsequent showers was then collected. The rainwater can be stored in the tankas till the next rainfall making it an extremely reliable sources of drinking water when all other sources are dried up, particularly in the summers.

(e) The first spell of rain was usually not collected, as this would clean the roofs and the pipes.

(f) Rainwater, or palar pani, as commonly refferred to in these parts, is considered the purest form of natural water. Many houses constructed underground rooms adjoining the 'tanka' to beat the summer heat as it would keep the room cool.

(iii) Describe how modern adaptations of traditional rainwater harvesting methods are being carried out to conserve and store water.

Ans (a) Fortunately, in many parts of rural and urban India, rooftop rainwater harvesting is being successfully adopted to store and conserve water.

(b) In Gendathur, a remote backward village in Mysore, Karnataka, villagers have installed, in their household's rooftop, rainwater-harvesting system to meet their water needs.

(c) Nearly 200 households have installed this system and the village has earned the rare distinction of being rich in rainwater.

(d) Rainwater harvesting is once again being conserved through modern adaptation. Rainwater running down from roofs is not fed into drains. Instead it is piped into underground reservoirs.