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Paper ⇒ Water Demand
Supply and
distribution

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Ans 1

Hydrologic Cycle ÷ Water circulates in the hydrosphere through a network of paths constituting the hydrologic cycle.

The earth's water ^{or} circulatory system is known as Hydrologic cycle. Total water supply of earth is in constant circulation from earth to atmosphere and back to earth.

⇒ It is true that hydrological cycle of the world has been disturbed. It is mainly due to the human activities. The following are the reasons for disturbance of hydrological cycle.

① Geology ÷ Due to rapid increase of urbanization the cities are being expanded to hilly areas. For this purpose the hilly areas are being exposed. Permeable rocks allow for groundwater storage, percolation base flow, through flow and infiltration. Impermeable layers reduce infiltration and percolation. Therefore less water is stored as groundwater and the water table may drop.

② Paved Surface ÷ It is also become a huge factors now days that mostly the surfaces of earth is getting paved by concrete or asphalt due to this absorption inside the earth is less which may cause drop in ground water table.

③ GLOBAL WARMING ÷ It is now a days the most crucial issue of the world. because it effects mostly the hydrological cycle.

④ Vegetation ÷ Dense foliage increases interception to the precipitation to get into the soil surface which makes the hydrological cycle imbalanced.

⑤ Irrigation ÷ Modern ways of irrigation are also causing disturbance of hydrological cycle.

⑥ Dam Building ÷ Dam building increases water storage and reduces river levels. which may effects local rainfall pattern.

⑦ Deforestation ÷ Deforestation can lead to extreme river flows due to increase in overland flow and a lack of interception.



Ans 2

Ground Water Sustainability :-

Ground water sustainability is the development and use of groundwater resources to meet current and future beneficial uses.

Globally groundwater resources dwarf surface water supplies. but because groundwater is hidden, the resource is often forgotten or misunderstood, Groundwater is in fact vital to public health, The environment and economy. A sustainable supply of clean drinking water is crucial for worlds future. Studies were initiated to begin to answer of acceptable hydrolic and environmental limits to sustainability.

⇒ Linking (E) rain water harvesting to ground water Sustainability

This practice increases the sustainability of ground water in the areas where the ground water levels are declining and water scarcity is being experienced. Rainwater harvesting is also necessary because of

The following reasons

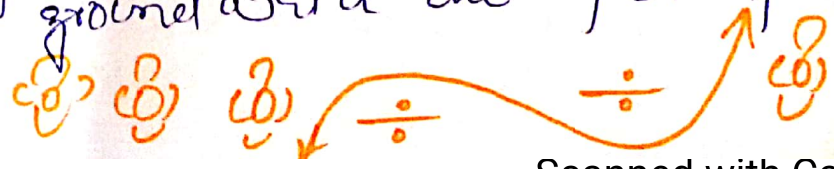
Agriculture continue to be single largest consumer of water. To maintain the balance of ecological and hydrological cycle of environment and reduces

The private purchase of water from tankers Demand on water resources is increasing day by day due to the population growth and expansion in urbanization, industrialization and agri irrigated agriculture

In developed countries the governments are building civil structure to harvest the rainwater for their domestic needs, for agriculture, industrial etc.

But in countries under financial crises can't afford this much expenses so they use their groundwater for this purpose. Because of this the ground water table is declining because of imbalance of supply and demand.

The ground water sustainability depends only on rain water harvesting. and the countries largely depends upon the groundwater to meet its agricultural needs which causes shortage of groundwater and fall of GWT



Ans 3 Quality Parameters ÷ The following quality parameters should be considered in designing water supply system for a community.

① Physical Quality of water ÷ The physical quality of water is the appearance of water to the consumer. physical quality includes the cleanness of water, taste, odor and temperature

② Bacterial Quality of water ÷ The most important quality of water is that of bacteria content. In the early 20th century, disease outbreaks from water and food borne bacteria were common throughout the world.

③ Water Chemistry ÷ Water is an excellent solvent. so it is not surprising that it picks up other chemicals. During this cycle of water movement, water picks up many solids and gaseous components

Many and varied constituents are added to the water from dissolution of rocks and minerals which come in contact with the water and its movements. Of particular importance to the water supplies are the following constituents.

- ① Acidity and alkalinity.
- ② Calcium, carbon compounds
- ③ chlorides
- ④ Fluorides
- ⑤ Iron
- ⑥ Magnesium.
- ⑦ Nitrogen compounds
- ⑧ Silica.
- ⑨ Water Age
- ⑩ Tubercle
- ⑪ Pipe wall reactions.

⇒ END