Water: it is a vital renewable natural resource. Three- fourth of the earth's surface is covered with water. It is therefore appropriately called the 'water planet'. The oceans cover two- thirds of the earth's surface and support a rich variety of plant and animal life. The oceans water is however saline and not fit for human consumption. Only 1 per cent of freshwater is available and fit for human use. It is found as ground water, as surface water in rivers and lakes and as water vapors in the atmosphere.

- Fresh water is the most precious substance on earth. Water can neither be added nor subtracted from the earth. Its total volume remains constant. Its abundance only seems to vary because it is in constant motion, cycling through the oceans, the air, the land and back again, through the processes of evaporation, preparation, precipitation and run- off.
- This as you already know is referred to as the 'water cycle'. Humans use huge amounts of water not only for drinking and washing but also in the process of production. Water for agriculture, industries, generating electricity through reservoirs of dams is the other usages. India has abundant water resources.
- Yet large parts of the country suffer from severe water scarcity. This is because water resources are unequally distributed in India, both normally and spatially. The rivers of Deccan and the south are seasonal rivers that depend on the monsoons for their water. They flood during monsoons, and have hardly any water during hot summer months.

Problems or water availability: There is scarcity of water in many regions of the world. Most of Africa, West Asia, south Asia, parts of western USA, are facing shortage in fresh water supply. Countries located in climatic zones most susceptible to droughts face great problems of water scarcity. Thus, water shortage may be a consequence of variation in seasonal or annual precipitation or the scarcity is caused by over –exploitation and contamination of water sources.

- **Conservation of water resources:** Access to clean and adequate water sources is a major problem facing the world. Discharge of untreated or partially treated sewage, agricultural chemicals and industrial effluents in water bodies are major contaminants. They pollute water with nitrates, metals and pesticides. Most of these chemicals are non- biodegradable and reach human bodies through water. Water pollution can be controlled by treating these effluents suitably before releasing them in water bodies.
- Forest and other vegetation cover slow the surface runoff and replenish underground water. Water pollution can be controlled by treating these effluents suitably before releasing them in water bodies.
- Forest and other vegetation cover slow the surface runoff and replenish underground water. Water harvesting is another method to save surface runoff. The canals used for irrigating field should be properly lined to minimize losses by water seepage.
- To control the annual summer floods of the northern rivers and to put its waters to better use, multi-purpose projects were started by the Indian government. Dams were built on the rivers. These dams served the multiple purposes of
  - Flood control
  - Providing water for irrigation
  - Generation of hydroelectricity

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- Providing drinking water and recreation

Some of the major multi-purpose projects in India include the Bhakra-Nanagal Project, the Damodar Valley Project, the Hirakud Project, the Nagarjunasagar Project and the Narmada Valley Project. Indian agriculture is increasingly dependent on irrigation, or artificial methods of supplying water to the crops. The main sources of irrigation in India are irrigation canals, wells, tanks and tubewells.

Water pollution: The problem of water pollution has started assuming challenging proportions. The major contaminants in water are partially treated or untreated sewage, chemicals fertilizers used in the agricultural sector and industrial effluents discharged into the water bodies. They pollute water with bacteria, parasites, viruses and toxic chemical like pesticides. Most of these chemicals are non biodegradable. They enter human bodies not through the water and causes diseases.

Methods to conserve water:

- Water pollution has to be brought under control. For this it is essential to treat effluents suitably before discharging them into water bodies.
- Afforestation will not only help reduce run off, but also replenish underground water by enabling percolation.
- Rainwater harvesting(by constructing tanks and percolation pits) is another method to conserve water by saving surface runoff.
- Scientific and regulated irrigational methods will prevent wastage of water.

Natural vegetation and wildlife: Natural vegetation and wildlife exist only in the narrow zone of contact between the lithosphere, hydrosphere and atmosphere that we call biosphere. In the biosphere living beings are inter- related and interdependent on each other for survival. This life supporting system is known as the ecosystem. Vegetation and wildlife are valuable resources. Plants provide us with timber, give shelter to animals, produce oxygen we breathe, protects soils so essential for growing crops, act as shelter belts, help in storage of underground water, give us fruits, nuts, latex, turpentine oil, gum, medicinal plants and also the paper.

- Wildlife includes animals, birds, insects as well as the aquatic life forms. They provide us milk, meat, hides and wool. Insects like bees provide us honey, help in pollination of flowers and have an important role to play as decomposers in the ecosystem.
- Vulture due to its ability to feed on dead livestock is a scavenger and consider of the environment. So animals big or small, all are integral to maintaining balance in the ecosystem.

Distribution of natural vegetation: The growth of vegetation depends primarily on temperature and moisture. The major vegetation types of the world are grouped as forests, grasslands, scrubs and tundra.

- Thorny shrubs and scrubs grow in dry areas of low rainfall. In such areas plants have deep roots and leaves with thorny and waxy surface reduce loss of moisture through transpiration. Tundra vegetation of cold Polar Regions comprise of mosses and lichens.
- Forests are broadly classified as evergreen and deciduous depending evergreen forests do not shed their leaves simultaneously in any season of the year. Deciduous forests shed their leaves in a particular season to conserve loss of

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moisture through transpiration. Both types of forests are further classified as tropical or temperate based on their location in different latitudes.

Conservation of natural vegetation and wildlife:

- Forests are our wealth. Plants give shelter to the animals and together they maintain the ecosystem. Changes of climate and human interferences can cause the loss of natural habitats for the plants and animals.
- Many species have become vulnerable or endangered and some are on the verge of extinction. Deforestation, soil erosion, constructional activities, forest fires, tsunami and landslides are some of the human and natural factors which accelerate the process of extinction of these resources. The animals are poached for collection and illegal trade of hides, skins, nails, teeth, horns as well as feathers.
- National park, wildlife sanctuaries, biosphere reserves are made to protect our natural vegetation and wildlife. Conservation of creeks, lakes, and wetlands is necessary to save the precious resources from depletion.
- An international convention CITES [the Convention on International Trrade in Endangered Species of Wild Fauna and Flora] has been established that lists several species of animals and birds in which trade is prohibited. Conservation of plants and animals is an ethical duty of every citizen.

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