**PGD002**

**Post Graduate Diploma in Water Hygiene and Sanitation Assignment 3**

**Submitted**

**by**

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ANSWER

1. The six major non-domestic use of water are:
   1. Irrigation: conveying water to agricultural lands using different methods such as farrow, sprinkler, drip and other systems of irrigation like hydroponics.
   2. Industry: water is essential in industrial works, it could be supplied from water supply system or obtained from own ground water source. In industries, water may be used either as part of the production process or as an ingredient, where water is one of the components of the product, for example in a soft-drink plant. In the production process, it can be used for cooling, washing, diluting, boiling or cooking, transportation of raw materials, and as a cleaning agent.
   3. Mining: water plays a crucial role in mining industry because mining activities need huge amount of water both during exploration, processing ore and mineral extraction stage.
   4. Power generation:
      1. water is used to generate power in the form of hydroelectric power by moving the turbine dynamo as in Renaissance Dam of Ethiopia and
      2. geothermal energy in which energy is derived from the heat of the Earth e.g. Rift valley part of Ethiopia
   5. Aquaculture:  is the farming of aquatic organisms such as fish, crustaceans and molluscs for human food supply and consumption.
   6. Recreation: Water plays an important role in recreational activities, in resorts, lakes, spas, and could play a crucial role in the tourism

industry (bot domestic and international) and as a source of income.

1. The important roles that water plays in the human body:

Our body uses water in all its cells, organs, and tissues to help regulate its temperature and maintain other bodily functions. Because our body loses water through breathing, sweating, and digestion, it's important to rehydrate by drinking fluids and eating foods that contain water. Hence, water is very important for our life and we need to replenish our body fluid by taking the daily recommended amount of water.

1. List the types of people who are most vulnerable to waterborne diseases. Explain your answers why and how to overcome the diseases

People who are most vulnerable to waterborne diseases are: children and infants, the elderly, and people who are ill or debilitated. This is because due to their condition they could not get access to water source and as a result they drink whatever kind of water they get. To overcome this problem educating those who take care of them (e.g mothers for their children, children to their aged parents) to boil the water that they get in their premises, to fetch water from a reliable source in their surroundings area.

1. Suppose that inhabitants of a village obtain water from a spring. What advice would you give to the users about the prevention of contaminants entering the spring?

I would advise them to:

* + avoid open defecation around the spring
  + not construct latrines above the spring because of the danger of contaminating the groundwater
  + use latrines properly
  + keep animals away from the spring.

1. The following are pollution sources. Give two specific pollutants for each source.
2. A residential area:

* Human excreta
* Waste water dissolved and suspended organic matter

1. A metal plating plant:

* Cyanides
* Heavy metals

1. Agricultural activities:

* Nitrates
* Pesticides

1. An uncontrolled landfill site:

* Leachate containing dissolved organic matter
* Inorganic components and heavy metals

1. Urban surface water run-off:

* Sediment
* Metals