**SCHOOL OF PUBLIC HEALTH**

**COURSE: POSTGRADUATE DIPLOMA IN WATER SANITATION & HYGINE**

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**UNIT : WASH ASIGNMENT 3**

ASSIGNMENT

1. Explain six major non-domestic use of water.

Six major non-domestic use of water includes the following

a). Mode of transportation: Big water bodies such as ocean, lakes, big rivers can be used as a mode of transport using vessels like ships, ferry and speed boats to transport both goods, raw materials and people. Water transport has proved to be the most reliable transportation mode for heavy and bulky loads. At the moment different continents across the globe enjoys intercontinental trade which is supported by the use of ships on the oceans.

b). Recreation: Water in ocean, lakes, rivers, dams and pools can be sued as a source of recreation such as boat riding and swimming. This has earned many countries with coastlines a lot of revenue from tourism.

c). Aquaculture: Water can also be used in aquaculture, which is the farming of aquatic organisms such as fish, crustaceans and molluscs for food. Fish farming needs water for the fish to live in! In this case, water is used to hatch fish eggs under controlled conditions, and the fish are grown to maturity in tanks or ponds, before being sold for food. Although not currently practised in Ethiopia, the business potential for aquaculture has been recognised and it may be introduced in the future (Rothuis et al., 2012).

d). Mining: Mining activities use huge amounts of water in processing ore to extract minerals. In Ethiopia, mining for gold and other valuable metals is an increasingly important part of the national economy.

e). Power generation: The rivers of Ethiopia have enormous potential for generating hydroelectric power (HEP). HEP uses the energy from moving water and converts this to electrical energy. The development of HEP has transformed energy supply in recent years and more schemes are under construction or planned. However, it is important to realize that in HEP the water is not ‘used’ in the sense of being consumed, because after passing through the HEP plant the water continues its path in a river channel. Another process under development in the Rift Valley area of Ethiopia is the use of geothermal energy, in which energy is derived from the heat of the Earth. This process involves drilling down into hot layers of underground rock and using this heat to convert water into steam, which is then used to drive generators to produce electricity.

f). Industrial use: In many industries water is essential. Some industries use piped water supplied from water treatment plants while others draw the water themselves from underground sources and treat it on site for use. The 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 (for example, moving potatoes in a food factory), and as a cleaning agent.

Briefly describe the important roles that water plays in the human body.

Body temperature regulation: Water play a key role when it comes to regulation of the entire body temperature for normal operations of organs and the body system at large.

Boy waste elimination: Water helps the body to get rid of wastes that are generated from the systems of the body. These includes through sweat, urine, faeces and tears.

Since the body loses a lot of water through sweating, urinating and ingestion, it is important to drink water for rehydration. Water is essential to the body because it delivers nutritional elements such as minerals, trace elements and vitamins to the cells. It forms the base of many bodily fluids such as blood and saliva. Water helps to regulate body temperature, forms fluid surrounding joints, needed for digestion, softening and dissolving food components, essential for normal bowel movements and preventing constipation, keeps skin hydrated

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

Children: Their immune system is not strong enough to fight waterborne disease-causing microorganisms like the adults.

Elderly persons: Their immune system has dropped and may not protect the well enough from the risk of waterborne diseases.

People affected by emergencies such as flood earthquakes that interferes with the water supply stems, water supply system and waste lines may mix thus contaminating drinking water causing waterborne diseases.

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 will advice the villagers to protect the spring from possible contamination sources such as flood and dust using concrete protection rings, and to have a proper fetching system e.g. a connection of taps to reduce chances of contamination at source during fetching and to ensure that no latrines or defecation is done upslope or upstream.

1. The following are pollution sources. Give two specific pollutants for each source.
2. A residential area: These includes food leftovers, non-biodegradable pollutants like polyethene bags and human waste(dung) if proper sanitation facilities are not provided
3. A metal plating plant: Non-biodegradable heavy metal particles such as lead, mercury, zinc etc.
4. Agricultural activities: Poisonous pesticide runoff and fertilizers that can cause harm.
5. An uncontrolled landfill site: Plastic non-biodegradable pollutants.
6. Urban surface water run-off : Plastic materials e.g. empty bottles and bags, leftover food,