

### **Eutrophication**

1. Due to excess accumulation of agrochemicals, waste materials from industries, detergents and faecal matter, the concentration of nitrates ( $\text{NO}_3^-$ ) and phosphates ( $\text{PO}_4^-$ ) in reservoirs will increase.
2. Therefore algae grows rapidly
3. There will be a green coloured foamy layer on the surface of the water.
4. Therefore sunlight cannot go under water through the algae layer
5. Therefore the aquatic plants will die
6. Therefore the small fish who eat aquatic plants will die
7. Therefore the big fish who eat small fish will die
8. Therefore there will be dead plants & fish in the reservoir.
9. Bacteria acts on this dead plants and dead fish and produce gases such as  $\text{NH}_3$  (ammonia),  $\text{H}_2\text{S}$  (hydrogen sulphide),  $\text{CH}_4$  (methane) and produce an unpleasant smell

### **Ill effects of eutrofication**

- (i) Reduction of bio diversity due to death of plants & animals
- (ii) Unable to utilize water
- (iii) Loss of beauty of reservoirs
- (iv) Bad smell in the area

### **Domestic wastes**

- i) spoiled food
- ii) garden wastes
- iii) human excretory matter
- iv) polythene wastes
- v) discarded cloths
- vi) glass and porcelain items

**Materials released as e-wastes**

- 1) Pb – batteries, cathode ray tubes of Tvs and computers
- 2) Hg – Thermometers, florescent lamps
- 3) Cd – Batteries
- 4) As – Light emitting diodes
- 5) PVC – wires, computer casings

**Nuclear wastes**

- 1) Nuclear fuels – Uranium, plutonium
- 2) Deposited in deep sea or ground after covering by a thick concrete or metal casing

**Domestic chemical wastes**

- 1) Food scrap, spoilt food & garden wastes
- 2) Plastic & polythene
- 3) Glass & porcelain
- 4) Discarded cloths
- 5) Excreta

**Domestic chemical wastes**

- (i) Food additives (ii) cleaning agents (iii) medicine (iv) paints & cosmetics

**Food additives are used to enhance the**

- (i) Taste (ii) odour (iii) appearance (iv) nutrification (v) shelf life

**e-number**

The code given by the European community to indicate that the food additives are safe for human consumption.

**Diseases caused by food additives**

- (i) Wheezing (ii) kidney disorders (iii) diabetes (iv) cardiac diseases  
(v) Cancers (vi) allergies (vii) Diseases associated with digestive track

**Cleaning agents**

- 1) Examples for detergents are (i) Soap (ii) Shampoo (iii) detergents
- 2) Soap is made up of plant oil or animal fat with strong bases - NaOH or KOH
- 3) Reduce of bio – diversity & coral reefs getting destroyed

**Medicines**

1. Pain killers (anodynes)
2. Creams for pains & itching,
3. Antacids for gastritis,
4. Antiseptics such as iodine, surgical spirits, boric acid
5. Disinfectants such as Finol, chlorine

**Cosmetics**

- 1) Examples – perfumes, hair colourants & bleachers, deodorants, lipstick,

**Paints**

1. Contain 3 components –  
(i) pigment (ii) binder or volatile substance (iii) vehicle or solvent

**Combustion of fossil fuel**

- 1) Produce – (i) CO<sub>2</sub>      (ii) CO      (iii) SO<sub>2</sub>

#### **Indirect effect of environmental pollution**

1. Loss of habitats
2. Desertification due to deforestation, green house effect, irregular monsoon rains
3. Reduction of plant yield
4. Health issues

#### **Factors affecting the life style of humans**

1. Industrialization
2. Urbanization
3. Commercial agriculture
4. Irrigation systems

#### **Problems that arise due to changes in life style**

1. Growth of non-contagious diseases – cancer, pulmonary diseases, diabetes
2. They are due to excessive consumption of tobacco & liquor, wrong food habits, lack of physical exercise
3. Chronic renal failures are due to – diabetes, HBP, constant urine infections, intoxication due to snake, wasps, agrochemicals, allergies
4. Symptoms of renal failure – urinary urgency frequently occur at night, little or no urine output, swellings of ankle, urine contains proteins

#### **Factors contributing to chronic renal diseases – CRD**

1. Drinking water with fluoride
2. Dehydration
3. Excess consumption of liquor,
4. Heavy metals such as Cd, Pb, As
5. Come into contact with agrochemicals

**How to avoid CKD**

1. Drink adequate water (3.5 liters to 4.5 liters of clean water per day)
2. Control and prevent diabetes & high blood pressure.
3. Refrain from liquor
4. Refrain from improper use of pain killers
5. Refrain from using agrochemicals and food which had used agrochemicals

**Diabetes**

1. Insulin converts excess blood glucose into glycogen and store in the liver
2. Insulin is produced by the beta cells in the islets of Langerhan in pancrease.
3. If insulin is not secreted adequately, the level of blood glucose will increase.
4. Diabetes will result weakening of kidney and blindness.
5. Less exercise, mental stress, consumption of food made out of wheat flour may cause diabetes

**Cancer**

1. A feature of cancer is uncontrollable division of abnormal cells
2. Harmful radiation and heavy metals can cause cancer

**Heart disease**

1. Narrowing of coronary blood vessels due to deposition of cholesterol on the inner side of the walls of blood vessels, weakening of heart muscles, malfunctioning of heart valves are the common heart diseases.
2. Lack of physical exercise, excessive smoking, high intake of fats, mental stress could cause heart attacks

**Gastritis**

1. Inflammation in the lining of the stomach is called gastritis
2. Not taking meals on time, mental stress, frequent consumption of spicy and oily food and excessive intake of alcohol and smoking causes gastritis.

**Sustainable agricultural uses**

1. Multiple cropping
2. Biological pest control
3. Use of organic fertilizer will improve the soil structure, porosity activity of soil organisms
4. Reforestation – forests were destroyed to do paddy cultivation, vegetable cultivation, tea cultivation, rubber cultivation, large scale development projects.

**Carbon foot print** - Amount of CO<sub>2</sub> released to the atmosphere as a result of the activity of individual, organization or community

**Water foot print** – the amount of fresh water utilized in the production or supply of goods and services by a person or a group.

**Food mile** – the distance over which a food item is transported from the producer to the consumer.

- **Food mile depends according to the quantity of food and the place it is produced**

**Waste management**

1. Consumption of substances has increased due to increase of population.
2. Non deteriorative substances are – polythene, plastics, electrical cells, electronic wastes, electric bulbs.
3. Due to the above substances, heavy metals get collected to the soil.

**4 R –**

Reuse – Use many times. Eg – polythene

Reduce – Unnecessary items should be avoided or minimized.

Eg - Avoid taking antibiotics & vitamins unnecessarily

Replace – Use of eco friendly substances instead of incompatible materials.

Eg – use of organic fertilizer instead of chemical fertilizer.

Recycle – Process to convert different raw materials into new products

Eg- production of biogas using animal excreta.

Recycle polythene and plastic to produce fuel