



SNS COLLEGE OF TECHNOLOGY

Vazhiampalayam, Coimbatore-35

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DEPARTMENT OF PHYSICS

COURSE NAME : 19HST102- ENVIRONMENTAL SCIENCE

I YEAR / II SEMESTER

UNIT : 3. ENVIRONMENTAL POLLUTION

TOPIC : 3. WATER POLLUTION



BRAINSTORMING WITH RECAP



INTRO



- The contamination of a stream, river, lake, ocean or any other stretch of water, depleting water quality and making it toxic for the environment and humans.



- Any physical or chemical change in water that adversely affects the health of humans and other organisms





SOURCES

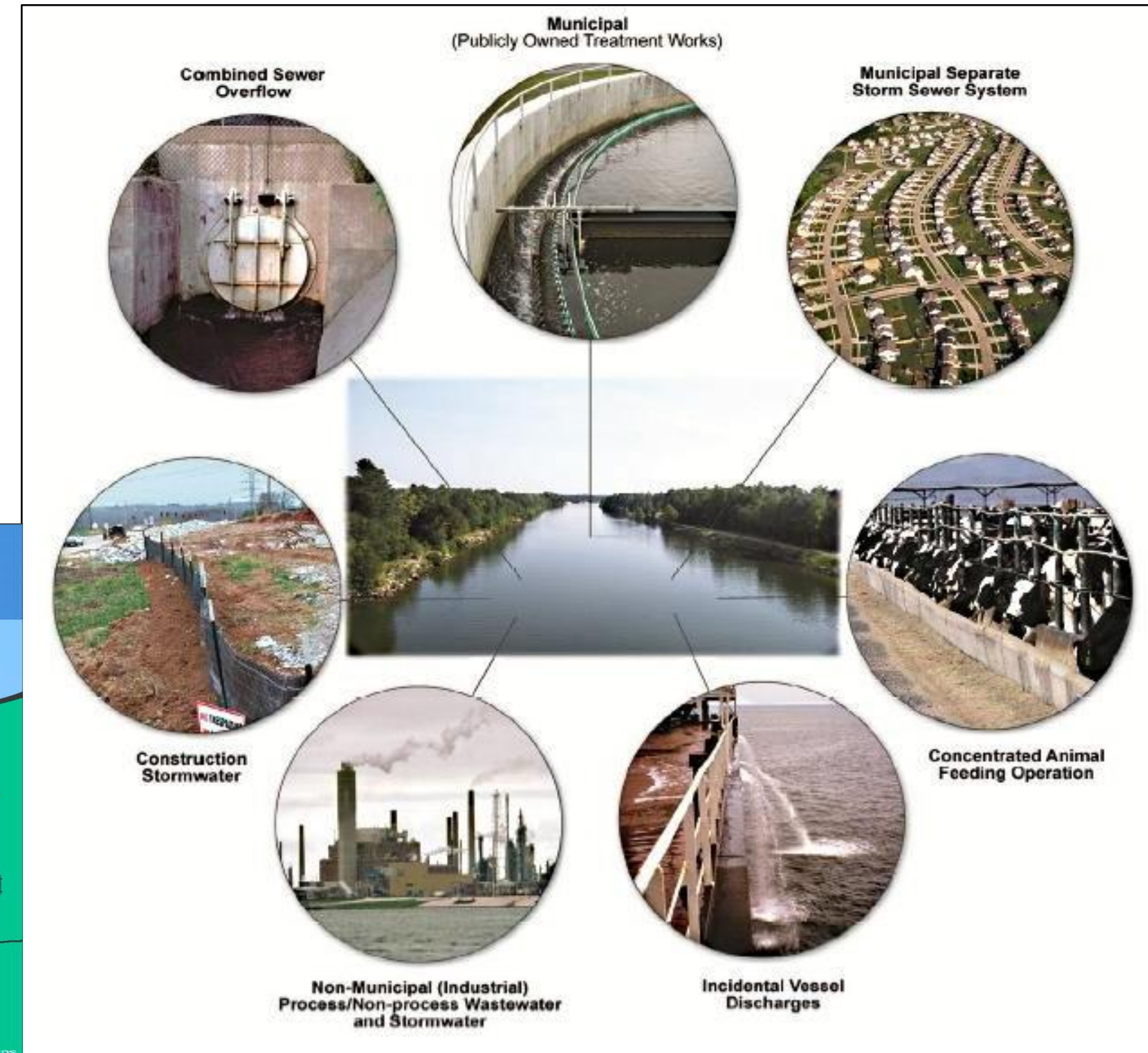


1. Point sources

Specific sites which directly discharge the effluents to water bodies

2. Non-Point sources

Non-Specific sites which are scattered





SOURCES



3.Industrial waste- Organic & Inorganic waste

4.Domestic / community waste

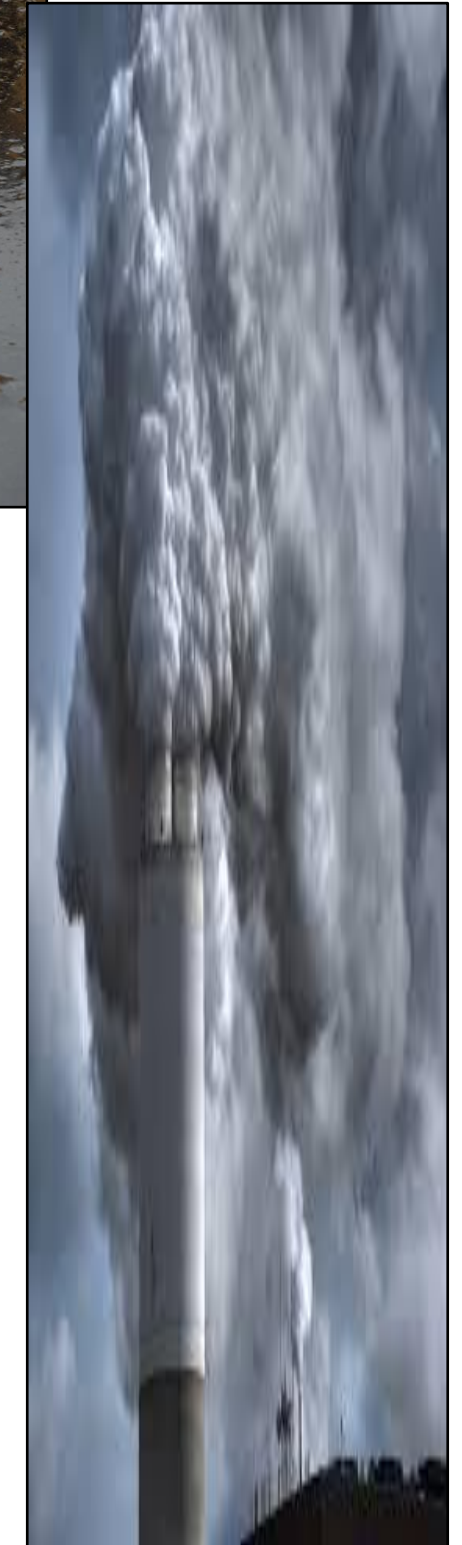




SOURCES



5. Agricultural waste



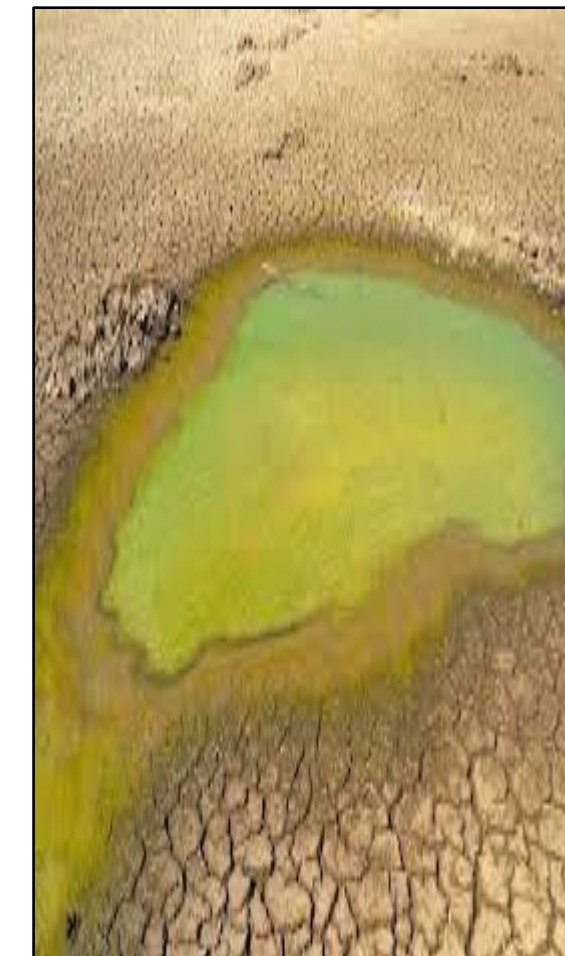
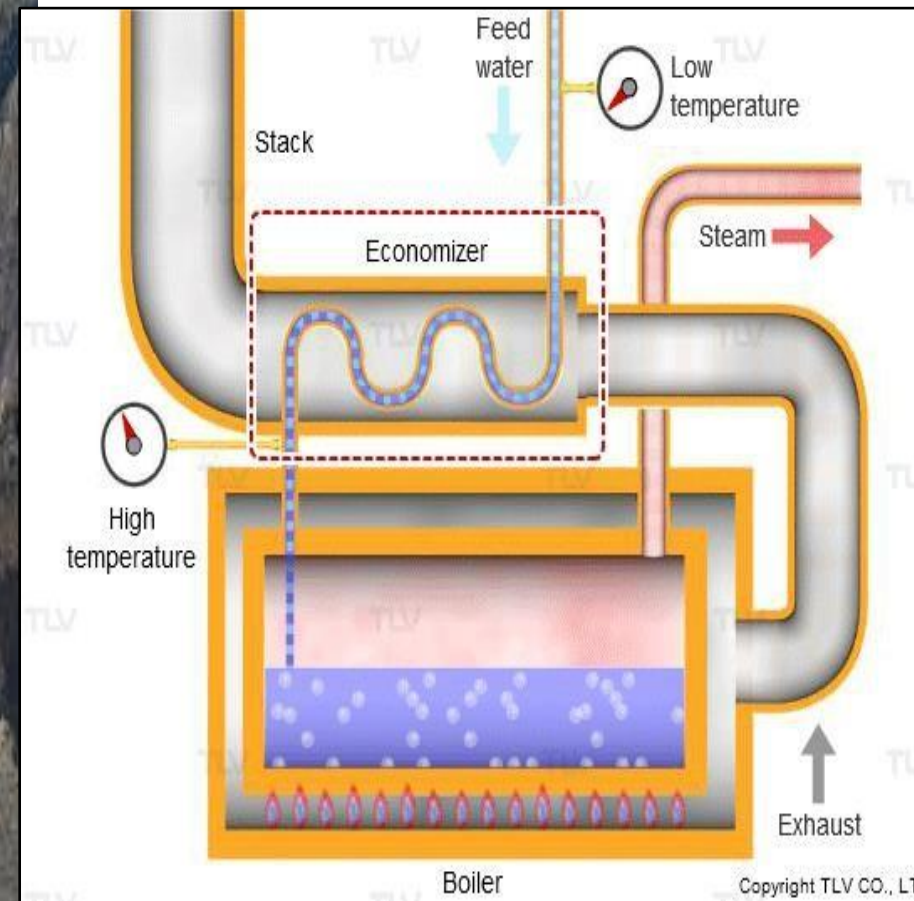
6. Oil spillage

7. mining

8. Ground water pollution

9. Waste heat

10. Air pollution





EFFECTS

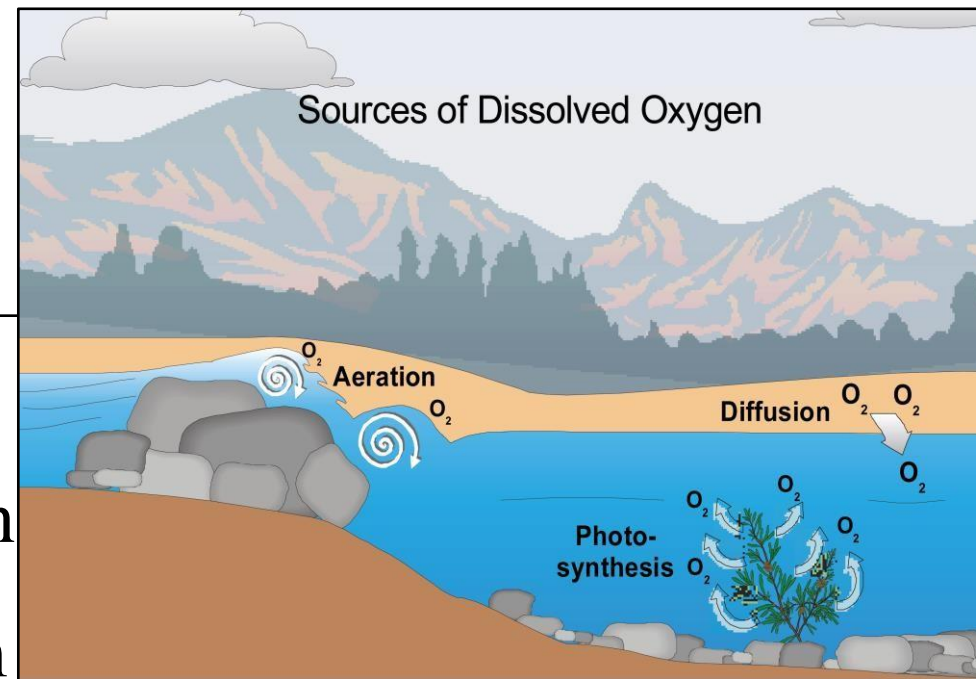


1. Pathogens

Spreading water born diseases like--

2. O₂ demanding waste

- **DO** – The amount of O₂ dissolved in a given quantity of water at a particular temperature & atm
- **DO varies – 8-15 mg/l**
- **BOD**
- The amount of O₂ required for microorganisms to decompose the aerobic decomposers for biochemical degradation of organic matters in water





EFFECTS



- **COD**
- The amount of O₂ required for chemical oxidation of organic matters in water using oxidizing agents like K₂Cr₂O₇/KMnO₄



3. N/P compounds

Causes eutrophication

4. Toxic compounds

Bio accumulation



5. Effect of sediments

6. Effect of metals like Pb, Ar, etc



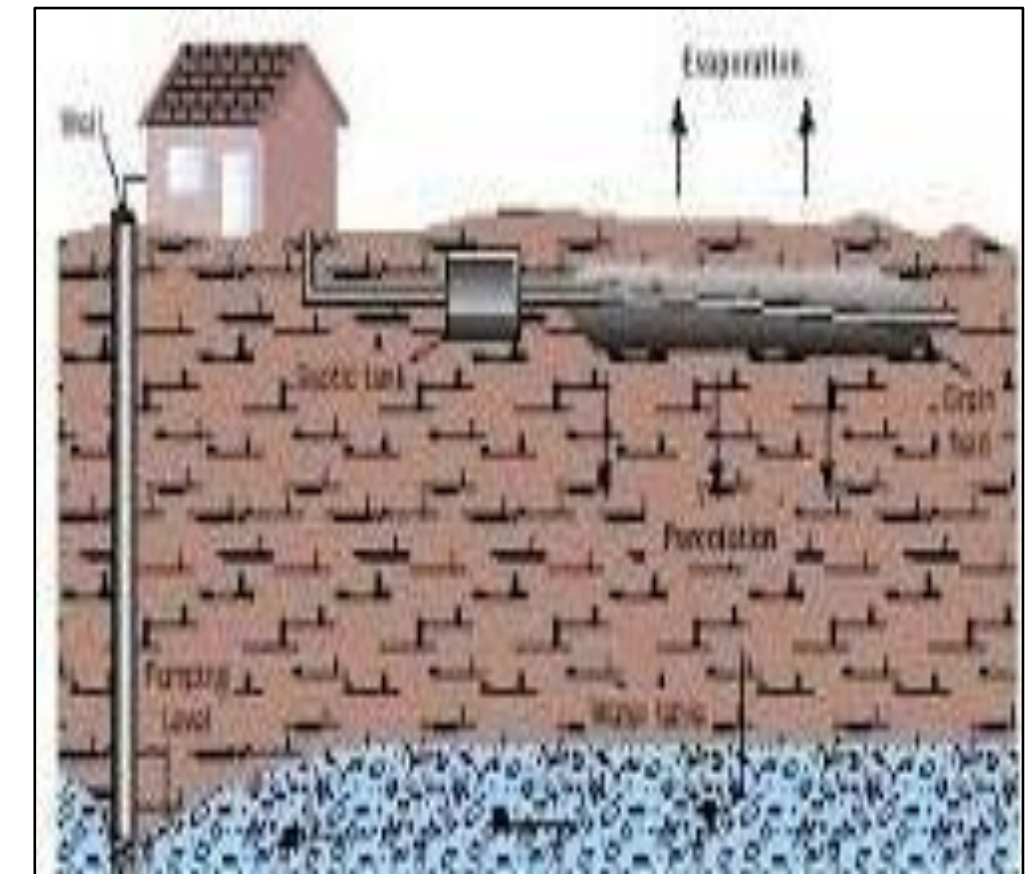


CONTROL MEASURES



1. Source control

- Waste water treatment- before discharge
- Plant more trees- avoid surface runoff
- Integrated usage of pest management
- N fixing plants
- Limits the usage of pesticides & fertilizers
- Proper drainage system
- Maintenance of water bodies
- monitoring





Activity



WATER QUALITY PARAMETERS



Parameters	Water quality standard	Assigned weight (AW)	Relative weight (RW)
pH (pH unit)	6.5-8.5 (8.0)	2.1	0.095023
DO (mg/L)	5.0	4.0	0.180995
Turbidity (NTU)	5.0	2.4	0.108597
Conductivity ($\mu\text{S}/\text{cm}$)	250.0	2.7	0.122172
Hardness (mg/L)	100.0	1.1	0.049774
Alkalinity (mg/L)	100.0	1.6	0.072398
Na (mg/L)	200.0	1.0	0.045249
BOD (mg/L)	5.0	3.0	0.135747
NO ₃ ($\mu\text{g}/\text{L}$)	50.0	2.2	0.099548
NO ₂ ($\mu\text{g}/\text{L}$)	3.0	2.0	0.090498
Total		22.1	1.0



ASSESSMENT



List out the various sources & effects of water pollutants



SUMMARY



REFERENCES



1. Dr. A.Ravikrishnan, Environmental science & Engineering” Srikrishna hitech Pub. Co. Ltd,2013.
2. G.Tayer Miller :Environmental Science”, Cenage Learning India Pvt Ltd, 2011.
3. Benny joseph, “Environmental science & engineering” Tata McGraw-Hill.Pub.Co.Ltd. New Delhi.2009.