



# **SNS COLLEGE OF TECHNOLOGY**

Vazhiampalayam, Coimbatore-35

**(An Autonomous institution)**

Accredited by **NBA-AICTE** and Re-Accredited by **NAAC-UGC with A+ Grade**

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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

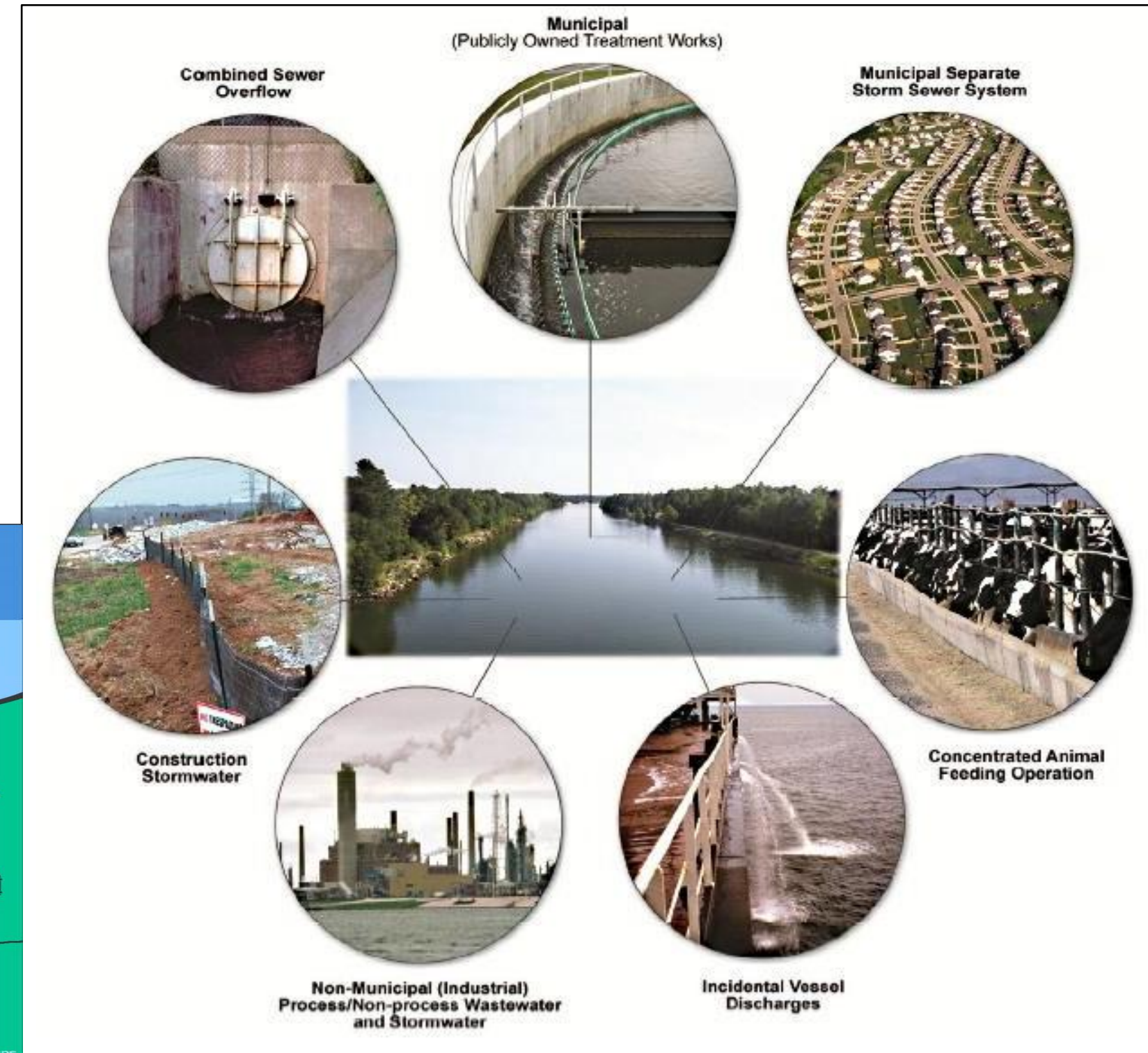


## 1. Point sources

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**



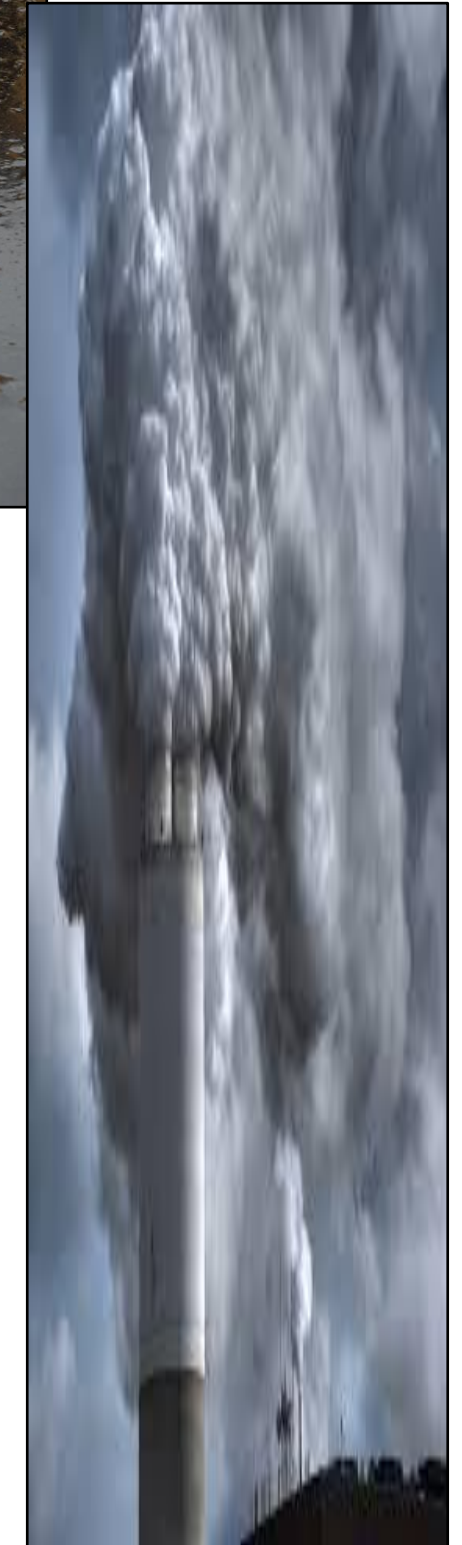




# SOURCES



5. Agricultural waste



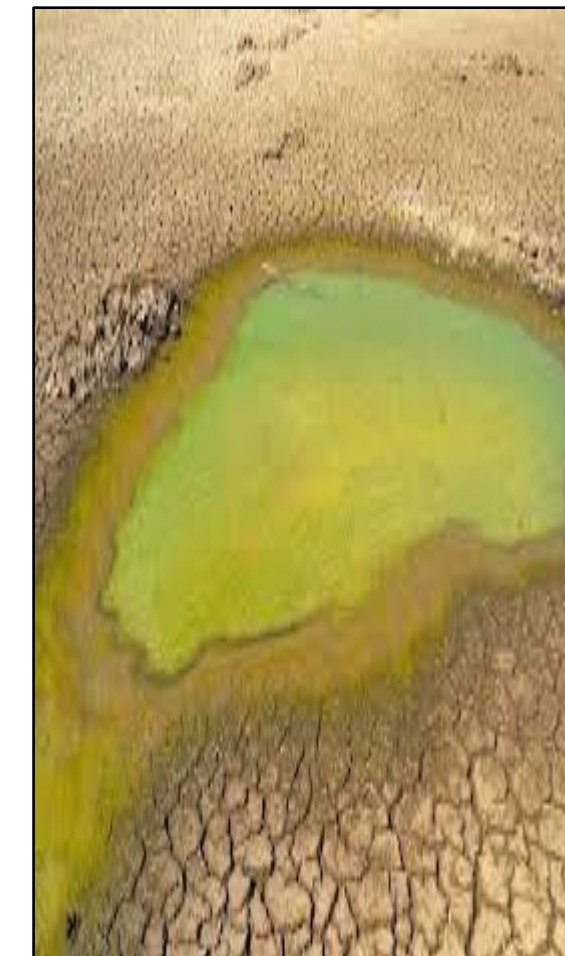
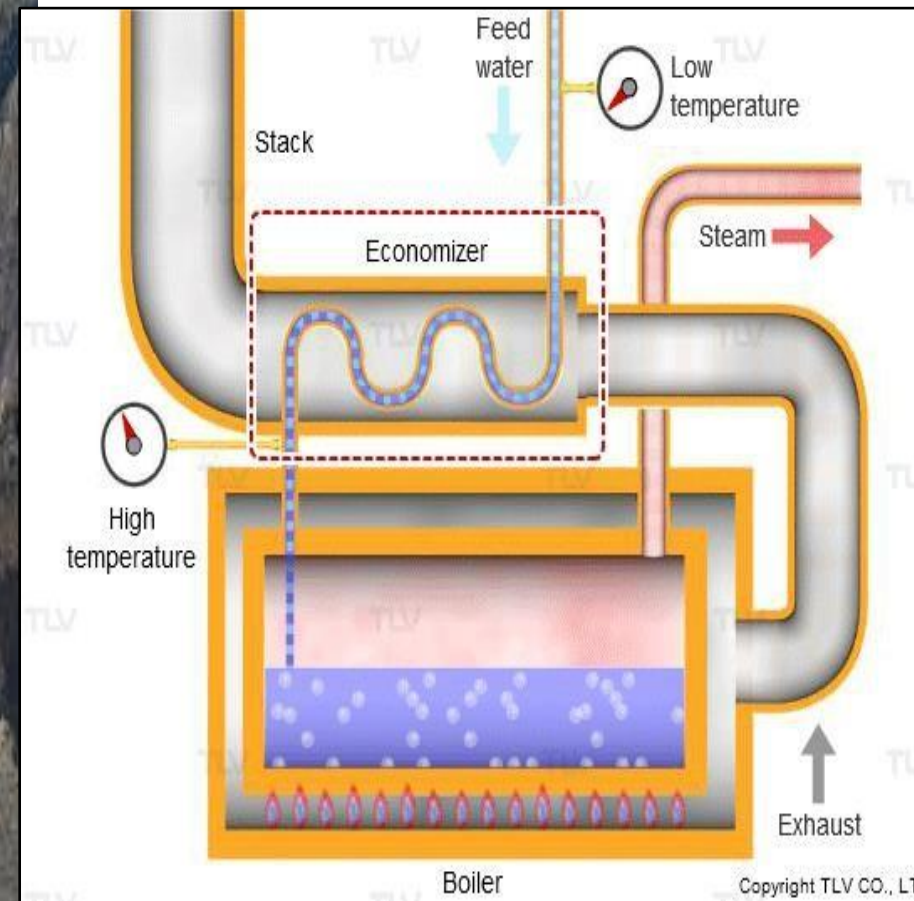
6. Oil spillage

7. mining

8. Ground water pollution

9. Waste heat

10. Air pollution







# EFFECTS

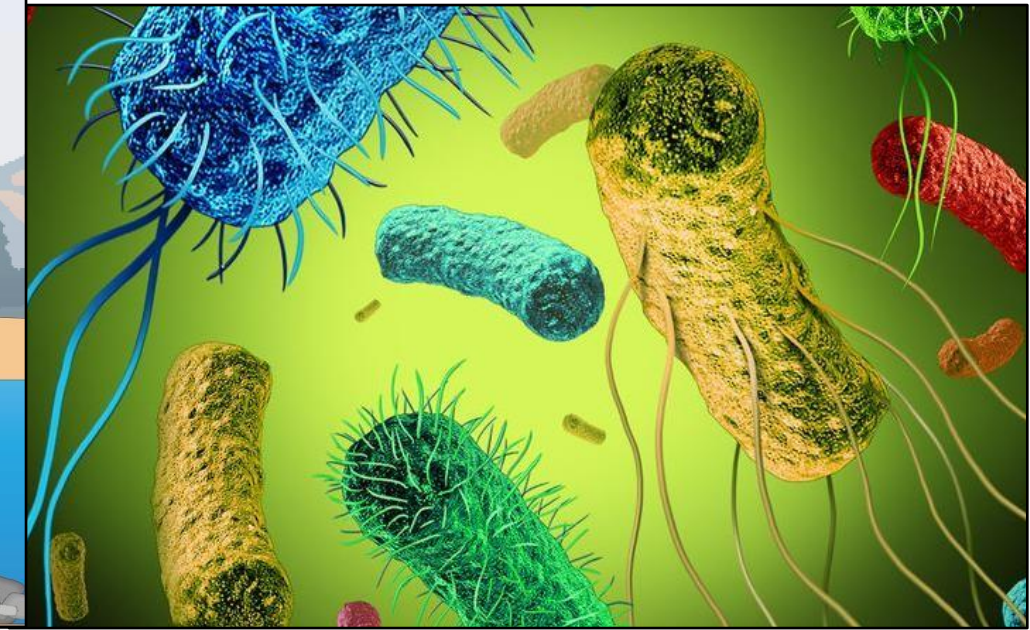
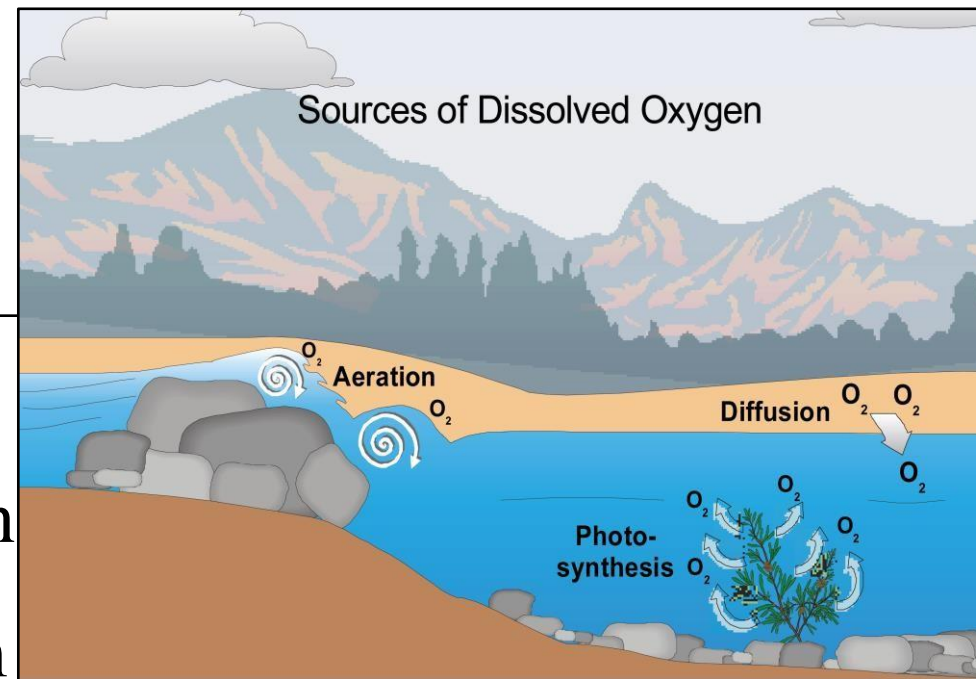


## 1. Pathogens

Spreading water born diseases like--

## 2. O<sub>2</sub> demanding waste

- **DO** – The amount of O<sub>2</sub> dissolved in a given quantity of water at a particular temperature & atm
- **DO varies – 8-15 mg/l**
- **BOD**
- The amount of O<sub>2</sub> required for microorganisms to decompose the aerobic decomposers for biochemical degradation of organic matters in water







# EFFECTS



- **COD**
- The amount of O<sub>2</sub> required for chemical oxidation of organic matters in water using oxidizing agents like K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>/KMnO<sub>4</sub>



## 3. N/P compounds

Causes eutrophication

## 4. Toxic compounds

Bio accumulation



## 5. Effect of sediments

## 6. Effect of metals like Pb, Ar, etc





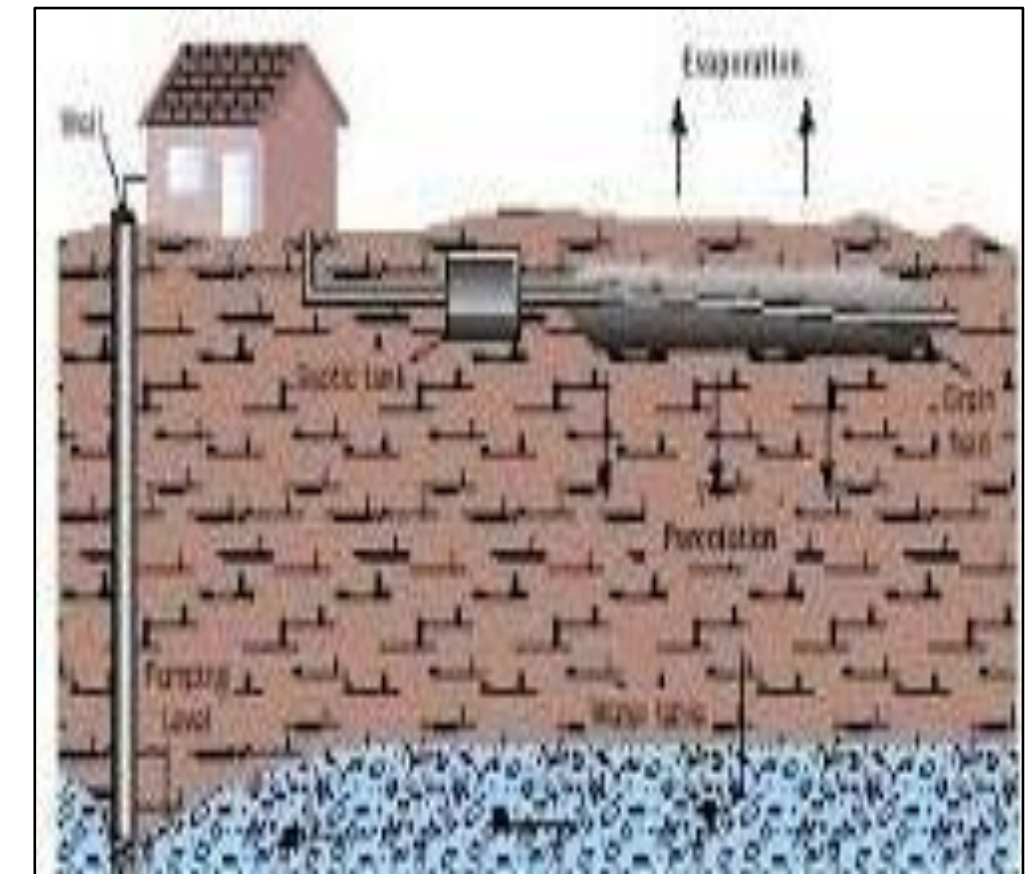


# CONTROL MEASURES



## 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 <sub>3</sub> ( $\mu\text{g}/\text{L}$ )	50.0	2.2	0.099548
NO <sub>2</sub> ( $\mu\text{g}/\text{L}$ )	3.0	2.0	0.090498
<b>Total</b>		<b>22.1</b>	<b>1.0</b>





# 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.