

An underwater scene with sunlight rays filtering through the water. The background is a deep blue, and the foreground shows silhouettes of coral and seaweed. The text "WATER POLLUTION" is centered in the middle of the image in a large, white, sans-serif font.

WATER POLLUTION

Water Pollution



Contents

- Introduction
- Definition of water pollution
- Causes of water pollution
- Effects of water pollution
- Measures of control
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INTRODUCTION

- Water is a precious resource and without it life is not possible on earth.
- Water is getting polluted day by day due to excessive and careless use so the percent of available drinking water is reducing.
- There are many ways which causes water pollution and the effects of it are very harmful for all living and non living objects.

Water Pollution

- **Water pollution can be defined as presence of solid, liquid or gaseous contaminants in such concentration that may alter the quality of water.**
- **Water pollution is defined as the addition to water of an excess material or heat that is harmful to the living organism or which impairs the beneficial use of water.**

Pure form of water

Precipitation- rain that comes in all different forms, depending on the temperature of the atmosphere. - by m.g. and o.t. ☀



Causes of Water Pollution

The principal sources of water pollution resulting from exploration and production operations are:

1. Domestic waste
2. Sewage System
3. Solid Waste
4. Industrial Waste
5. Acid Rain
6. Oil Industry
7. Aquatic Plants

Causes of water pollution

1. Domestic waste

Dumping of household waste into water.



Causes of water pollution

2. Sewage waste



Causes of water pollution

3. Solid waste



- Solid waste causes blockage in flow of water.
- It causes water as well as air pollution.
- Polythene is the main solid waste.

Causes of water pollution

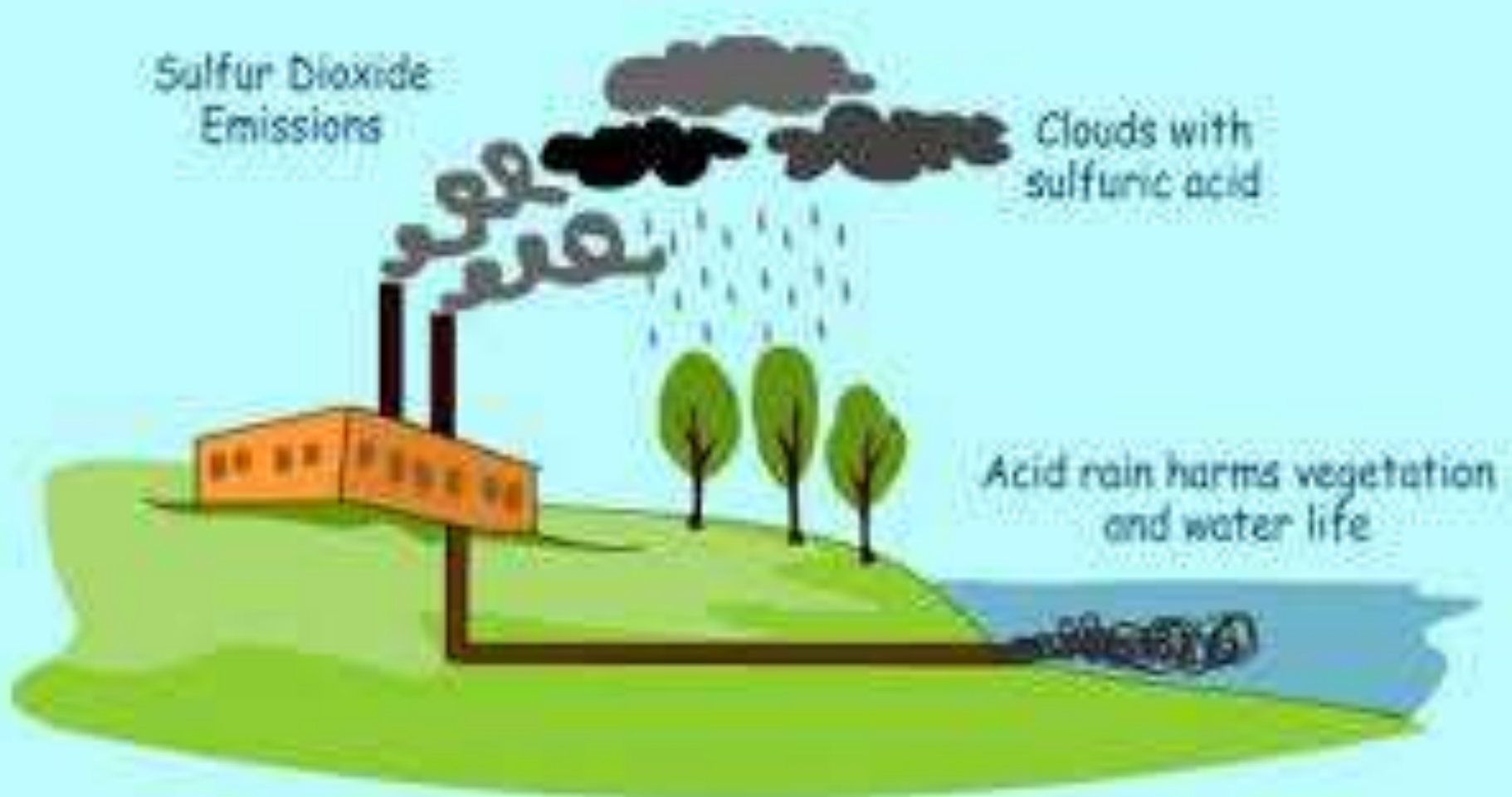
4. Industrial waste



- Industrial waste containing paper waste, rubber, metallic, aluminium waste etc. is drawn directly into water which pollutes water.

Causes of water pollution

5. ACID RAIN



Causes of water pollution

6. Oil Industry







Causes of water pollution

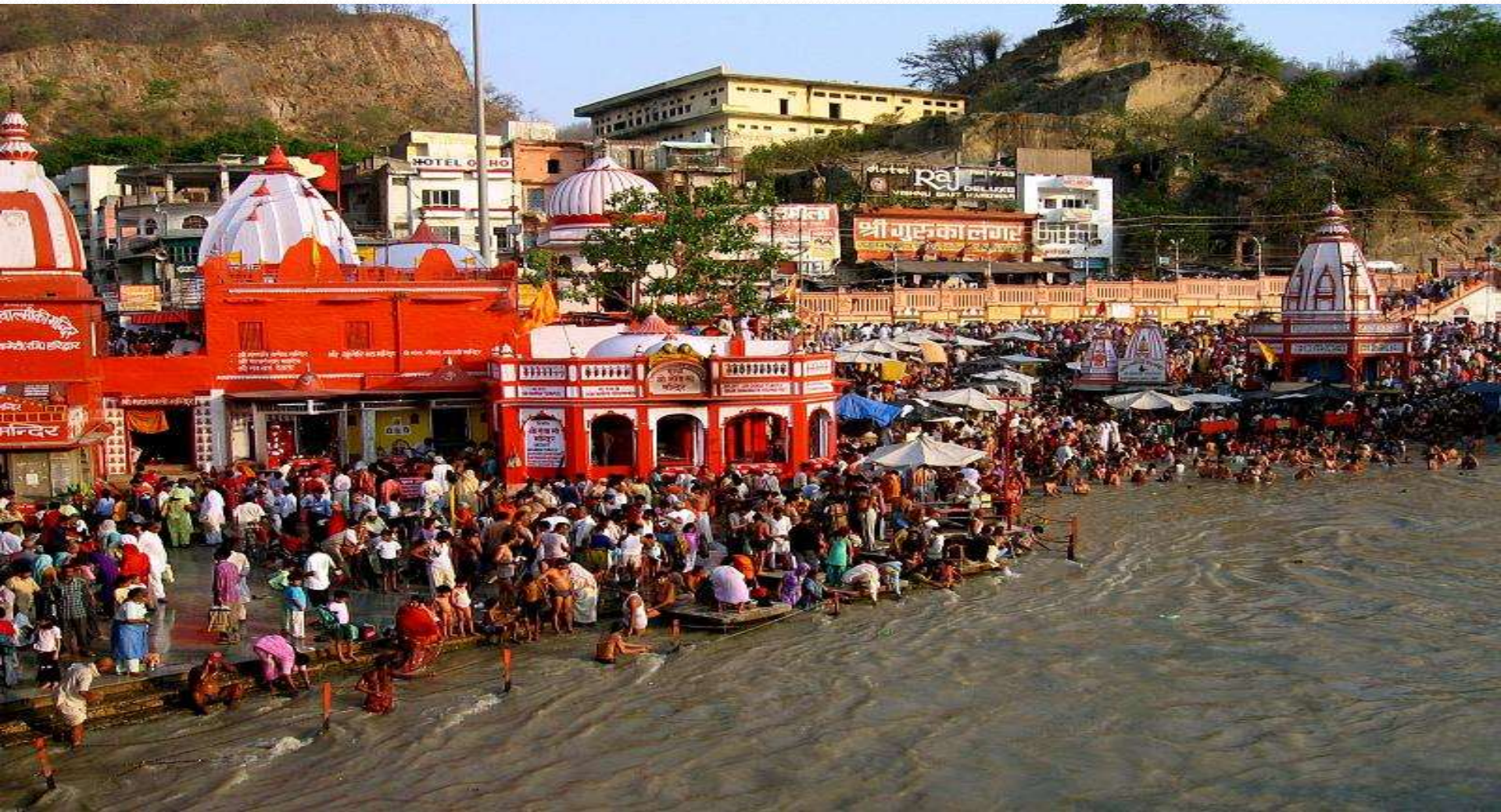
5. Aquatic Plants

- Water hyacinth, an aquatic plant causes pollution in water.
- It is long leaved plant which grows faster in water bodies and absorbs all essential nutrients from water which is fatal for marine organisms.
- It is also known as 'Terror of Bengal' due to its abundance.



Causes of Water Pollution

6. Religious means



Effects of Water Pollution

1. Death of aquatic organisms



Effects of Water Pollution

2. Rivers are changed into dustbin



Effects of Water Pollution

3. Shortage of drinking water



Effects of Water Pollution

4. Increase in BOD

BOD



The biochemical oxygen demand is defined as the 'measure of dissolve oxygen require to decompose the organic matter in water biologically.

Pure water has < 1ppm
Polluted water >5ppm



CONTROL OF WATER POLLUTION

➔ Stabilization of ecosystem

➔ Using water hyacinth to remove water pollutants

➔ Using chemical methods

- a. Ion exchange
- b. Reverse osmosis
- c. Precipitation
- d. Coagulation

➔ Cooling methods

➔ Recycling , Renovation , Recharge and Reuse of waste water.

Control measures

1. Stabilisation of ecosystem

- Reduction of waste at source
- Burying of organic waste
- Fish management
- Proper use of water

2. Sewage Treatment Plant

Pipes take water to treatment center

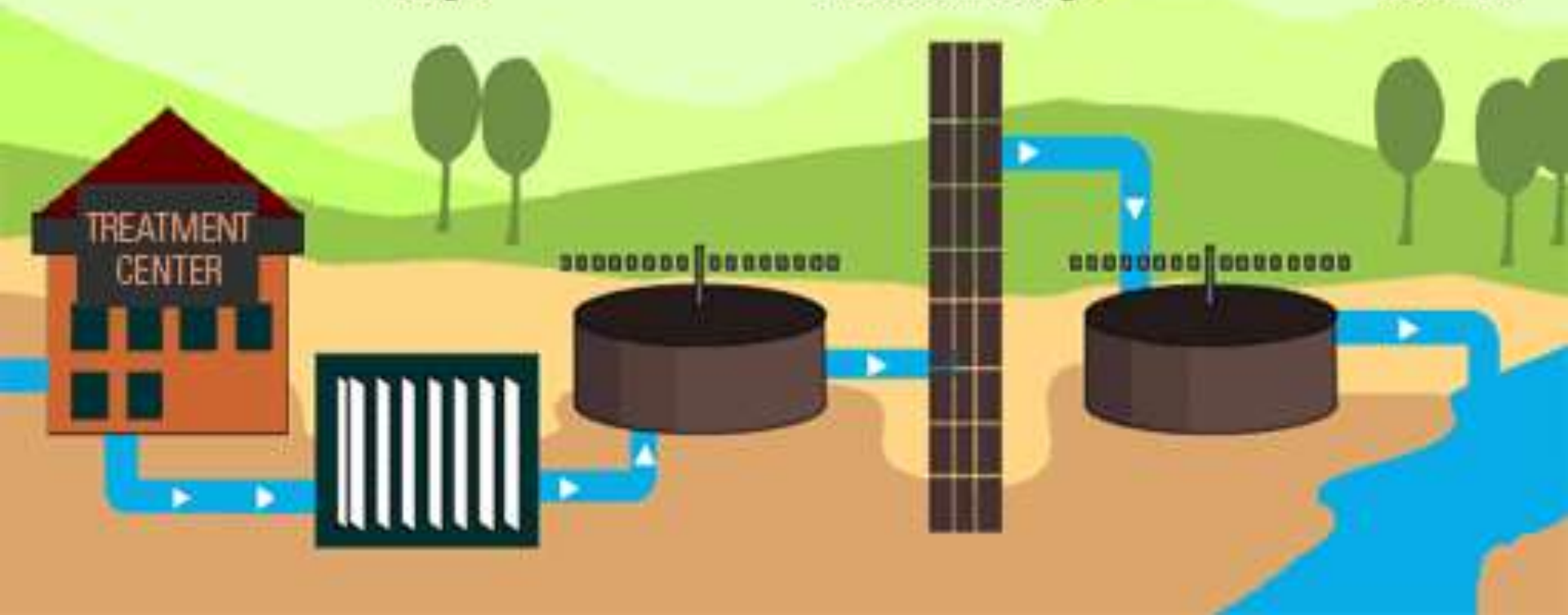
Screening stage

Primary treatment stage

Secondary treatment stage

Final treatment stage

Filtered into river



3. Ion Exchange Method

Tertiary treatment

- Ion exchange: all nitrates are soluble and are thus more difficult to remove. Resins or zeolites can be used to exchange the nitrate ions in polluted water with hydroxide ions. Positive ions can also be exchanged with H^+ ions. The resulting OH^- and H^+ will then combine to form water.

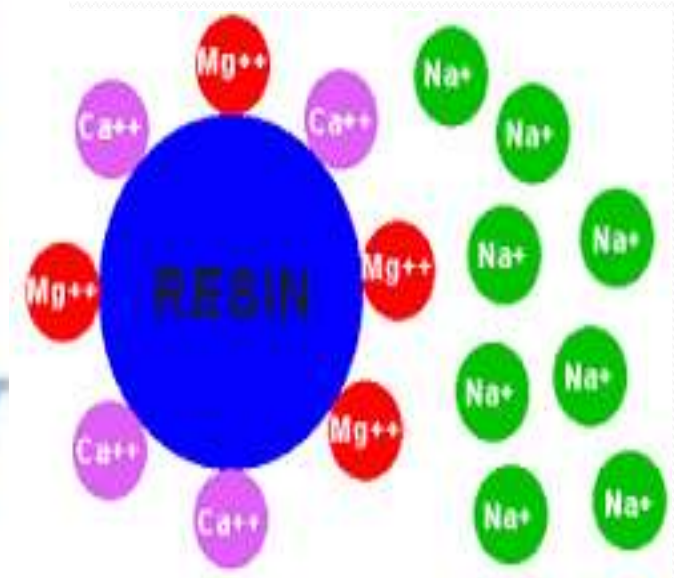
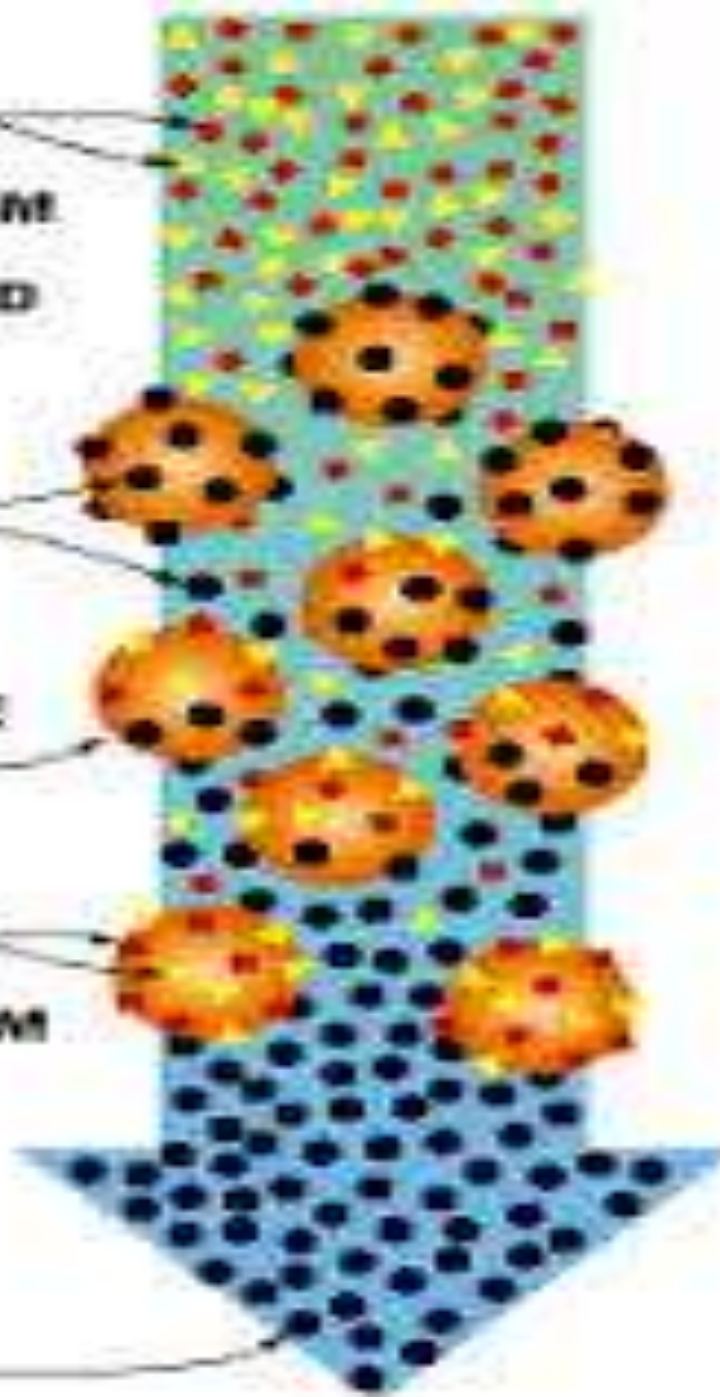
CALCIUM AND MAGNESIUM IONS IN UNTREATED WATER

SODIUM IONS

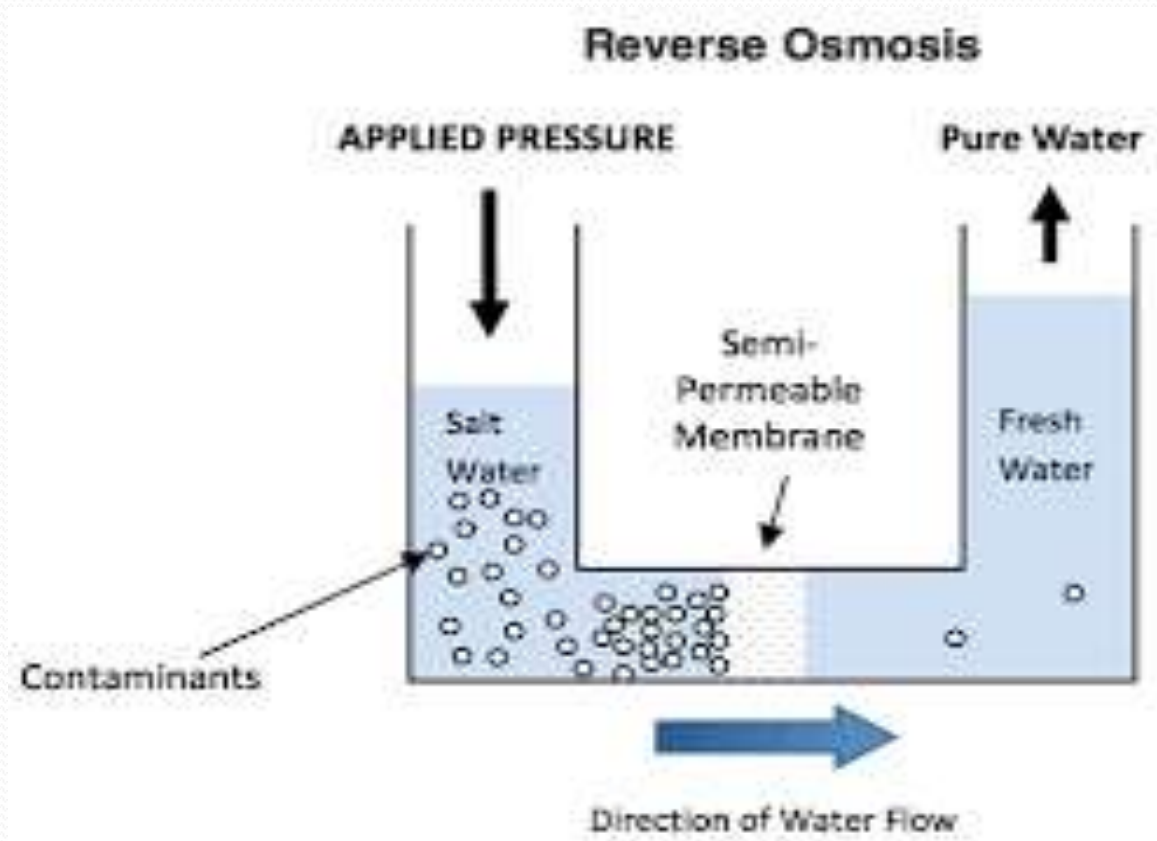
ION EXCHANGE RESIN

CALCIUM AND MAGNESIUM IONS

SODIUM IONS IN TREATED WATER



4. Reverse Osmosis



Reference

- Environmental Chemistry, Dr. Parveen Bhairo, Pradeep's Publications.
- https://en.wikipedia.org/wiki/Water_pollution
- Environmental Chemistry, Samir K. Banerji, PHI Learning Pvt. Ltd.



THANKS

A globe of Earth is shown, partially obscured by a bright, fiery ring of fire that appears to be burning around its right side. The background is dark, suggesting space. The text "THE END" is written across the center of the globe in a serif font.

THE END

QUESTION

