

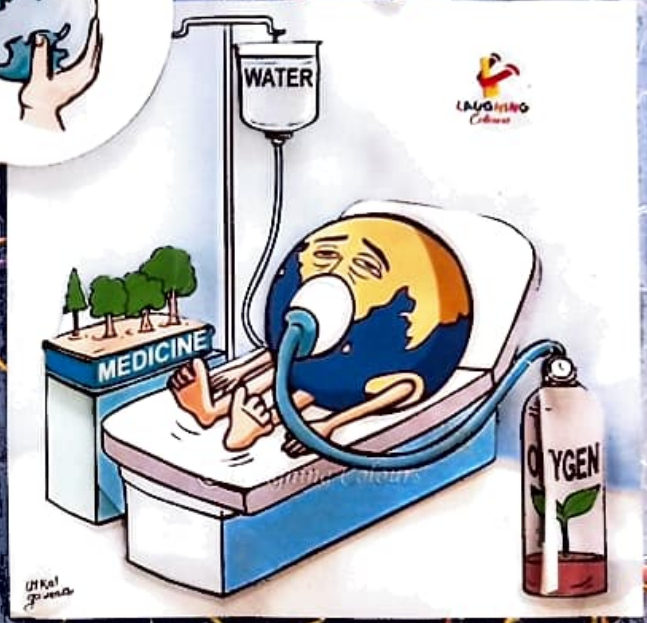


Nature is our Bestfriend!



But we have hurt our Bestfriend!

SAVE EARTH



Otherwise Repent!



A

PROJECT REPORT ON  
**“WATER POLLUTION”**

SUBMITTED TO  
**VIVEKANAND COLLEGE KOLHAPUR (AUTONOMOUS)**  
FOR THE PARTIAL FULFILMENT OF THE

S.Y. B.Com. DEGREE COURSE IN  
**Environment Studies**

UNDER THE GUIDANCE OF  
**Prof. Mr. A. S. Kadam**

THROUGH THE PRINCIPAL  
**VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)**

YEAR : 2022-2023

SUBMITTED BY

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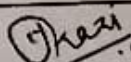
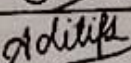
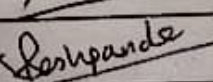
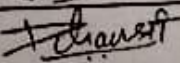
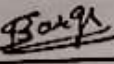
## DECLARATION

We the undersigned hereby declare that the project entitled **WATER POLLUTION** is an original work prepared by us under the guidance of **Prof. Mr. A. S. Kadam** for the degree course in Environmental studies and submitted to Vivekanand College, Kolhapur (AUTONOMOUS). The findings in this report are based on the data collected by us. The matter included in this report is not a reproduction from any other sources.

We undersigned that any such copying is liable to be punished as the authority deem fit.

**Date:** 6/4/2023

**Place :** Kolhapur

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## **CERTIFICATE**

This is to certify that the project entitled **WATER POLLUTION** submitted by **Tanaaz Kazi, Aditi Sahal, Shruti Deshpande, Dhanashree Deshmukh, Shrutika Barge** in partial fulfillment for the B degree course in environmental studies to the Vivekanand College, Kolhapur (AUTONOMOUS) has been completed under our guidance and supervision. To the best of our knowledge and belief the matter presented in the project report is original and based on their own work.

**Date:** 6/1/2023

**Place :** Kolhapur



**Prof. Mr. A. S. Kadam**

**(Project Guide)**

**Vivekanand College, Kolhapur(Autonomous)**

## ACKNOWLEDGEMENT

We owe a great many thanks to people who helped and supported us during every stage of this project.

We extremely thankful to our project guide **Prof. Mr. A. S. Kadam** for his valuable guidance and encouragement throughout this project work.

He has given his valuable time to go through the project and make necessary correction as and when needed.

Also, we sincerely thankful to our parents for helping us in all aspects to complete the project work. Finally we would like to appreciate to our friends, colleagues for their direct and indirect contribution.

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# CH-1 INTRODUCTION.



## **What is Environment ?**

*Environment can be defined as a sum total of all the living and non-living elements and their effects that influence human life. While all living or biotic elements are animals, plants, forests, fisheries, and birds, non-living or abiotic elements include water, land, sunlight, rocks, and air.*

*In psychology and medicine, a person's environment is the people, physical things and places that the person lives with. The environment affects the growth and development of the person. It affects the person's behaviour, body, mind and heart.*

*The living conditions of living organisms in an environment are affected by the weather or climate changes in the environment.*



# Water Pollution

Introduction about Selected Topic :-



**Water pollution** (or aquatic pollution) is the contamination of water bodies, usually as a result of human activities, so that it negatively affects its uses. Water bodies include lakes, rivers, oceans, aquifers, reservoirs and groundwater. Water pollution results when contaminants mix with these water bodies. Contaminants can come from one of four main sources: sewage discharges, industrial activities, agricultural activities, and urban runoff including stormwater.





Rivers and lakes are heavily affected by pollution, especially by the excess nutrients that come from the use of fertilisers in agriculture, one of the most pervasive water quality issues on a global scale, interfering with many human water uses and causing major shifts of species in ecosystems and loss of biodiversity.

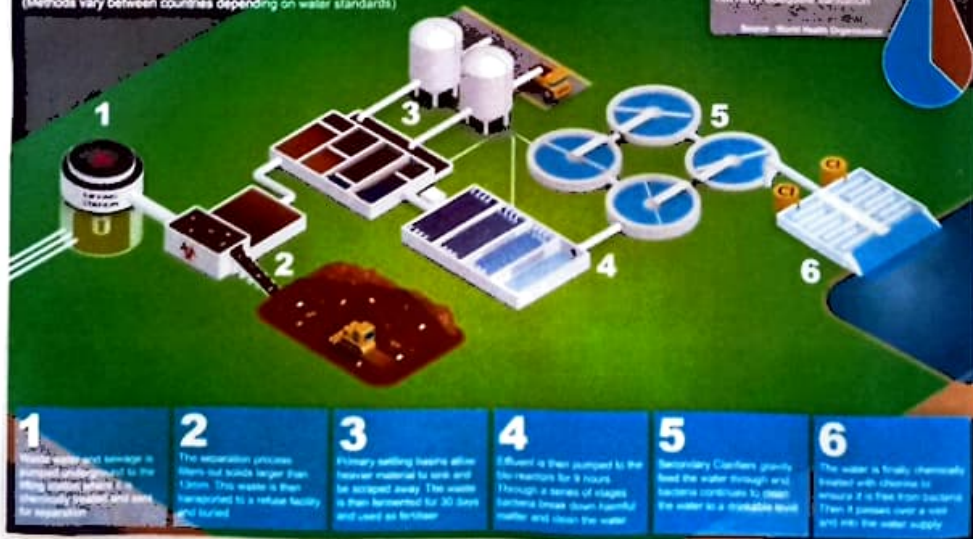
Over 80 per cent of the world's wastewater is released to the environment without treatment creating a pollution from pathogens as well as from chemicals such as heavy metals from mining and industrial waste. These lead to a loss of biodiversity and to water that is improper for human consumption.



## WASTE WATER TREATMENT PROCESS

An overview of how waste water is cleaned and treated before returning to the water supply.

(Methods vary between countries depending on water standards)



# OBJECTIVES :-



## OBJECTIVES :

*To study the concept of Water Pollution.*

*To study the sources, factors affecting the quality of water, factors causing water pollution and it's adverse effects on the environment.*

*To expand our knowledge regarding the various factors affecting the quality of river Panchaganga.*

*To bring into attention the factors affecting the Aquatic life of river Panchaganga.*

*To spread awareness among the society to reduce and ultimately stop water pollution.*

*To suggest control or remedial measures to avoid water pollution in river Panchaganga.*



# CH-2 RESEARCH METHODOLOGY.

## A) AREA MAP.

*The Panchaganga River of Maharashtra flows through the borders of Kolhapur. It starts from Prayag Sangam. The Panchaganga is formed, as has been noted already, by four streams, the Kesari, the Kumbhi, the Tulsi and the Bhogawati. Local tradition believes in an underground stream Saraswati which together with the other four streams make the Panchaganga.*

*The Prayag Sangam confluence marks the beginning of the Panchaganga river proper which after receiving the waters of the four tributaries continues in a larger pattern with the flow of waters received from the rivers. From North of Kolhapur it has a wide alluvial plain. After developing this plain the river resumes its course eastwards.*



*Pollution is a significant issue since it is a moderately ongoing improvement in the planet's history. Before the nineteenth century industrial evolution, individuals lived more in unity with their immediate environment. As industrialization has spread in immense quantity, the issue of pollution has spread with it. Water is normally referred to as contaminated when it is hindered by anthropogenic contaminants. Because of these contaminants it either doesn't useful for a human use, for example, drinking water, or experiences a stamped move in its capacity to help its biotic networks, for example, fish.*

The Panchganga River moves through the border of Kolhapur. It originates from Prayag Sangam (Town:Chikhli, Taluka: Karveer, Dist: Kolhapur, Maharashtra). The Panchganga River has four tributaries which are Kumbhi, Kasari, Tulsi and Bhogawati. The release of the effluents and industrial waste from the nearby industries has resulted into the pollution of the Panchganga River which has turned the water green, primarily near Ichalkaranji where there are numerous textile and seizing. Industries which are releasing their effluents without treatment. Elchhornia crassipes has developed on the river close by Ichalkaranji. Very little endeavors were taken by the neighbourhood Government Bodies to control its development. In a rainstorm the water level ascents, and clean out and seen no place until November, in December it begins to develop again, and by April the river is secured by it.

## B) AREA MAP.





# C) METHODS USED :-

**Methods used :**  
 We have collected information through secondary sources. We browsed a few websites such as [www.toppr.com](http://www.toppr.com), [en.wikipedia.org](http://en.wikipedia.org), [www.shaalaa.com](http://www.shaalaa.com), [byjus.com](http://byjus.com), [www.iberdrola.com](http://www.iberdrola.com) and a few more.

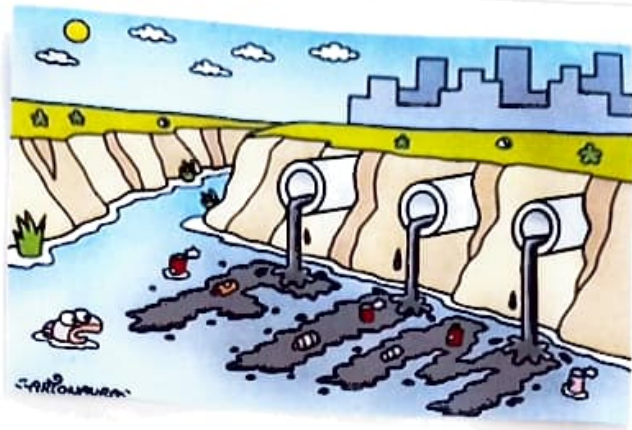


<p><b>1. REDUCE AND PREVENT POLLUTION</b></p>	<p><b>2. PROTECT ECOSYSTEMS</b></p>
<p><b>3. END OVERTFISHING AND ILLEGAL FISHING</b></p>	<p><b>4. HELP FISHING COMMUNITIES TO DEVELOP SUSTAINABLE FISHING PRACTICES</b></p>
<p><b>5. SCIENTIFIC COOPERATION</b></p> <ul style="list-style-type: none"> <li>- TO INCREASE KNOWLEDGE</li> <li>- TO IMPROVE TECHNOLOGIES</li> <li>- TO MINIMIZE OCEAN ACIDIFICATION</li> </ul>	<p><b>6. MAKE AND MAINTAIN INTERNATIONAL LAWS AGREEMENTS</b></p>



# CH-3 REPORTING.

## CAUSES :-



### CAUSES :

There are many factors which are responsible for the current condition of Panchganga River. Industrialization near the rivers especially sugar industries, textile and sizing industries and many others which discharge the effluents into river which contains harmful chemicals and acts as a hazardous when mixed with water. At the same time human tendencies like dumping garbage into river or on the banks of river in rural areas are also contributing for pollution. Along with this, laundering clothes on river banks is common problem due to which detergents containing harmful chemicals are mixed with water and pollute the river water.



Farmers are using chemical fertilizers, pesticides, fungicides, herbicides for agriculture which contains strong chemicals joins to river slowly by running along with surface runoff water and it leads to pollution river water. This is happening near Panchganga River to harvest the cash crops rapidly. One of the most important reason of pollution of this river is water is stagnant many a times. Water is not continuously flowing. Water is discharged from the dam as and when required. Therefore pollutants are get deposited in the river bed only.



## EFFECTS:

### EFFECTS :

**Impact on aquatic life** Due to chemicals, effluents, sewage as well as detergents from laundering clothes containing strong compounds affects the several species of aquatic life. Due to pollutants the life of flora and fauna became endangered. Loss of livelihood.

Fishermen and fish farms that one's flourished on banks of Panchganga River are finding it increasingly difficult to find sufficient catch of edible fish. Such aquatic life forms have moved away from the river. Due to polluted water in Panchganga River thousands of fishes had died.

**Agriculture :** Generally agricultural lands on the banks of river are irrigated by water from river directly through small canals or by lift irrigation. Due to pollutants with high chemical contents adversely affects on agriculture. When this polluted water comes in contact with pesticides it become more hazardous for the crops and led to reduction in yield.

**Loss of export revenue :** Freshwater fish like Katla, Hilsa and Rohu once had high demand in other regions of India as well as foreign countries. But due to highly polluted river water these varieties of fishes are contaminated with diseases due to which demand from other sources is rapidly reduced. This resulted into loss of export revenue.

## CORRECTIVE MEASURES :-



### CORRECTIVE MEASURES :

The most serious source of pollution of Panchganga River is discharge of large quantity of untreated wastewater and effluents from industries. There are number of textile, sizing and sugar industries on banks of river which are contributing to the pollution. Hence it is essential to treat the waste water and effluent by proper treatment processes at the industry only to bring the contaminants to safe level and then discharge into the river. For this every industry should have their own Effluent Treatment Plants (ETP). All the industries should obey the rules and regulations laid down by Maharashtra Pollution Control Board (MPCB) to minimize the pollution. There should be proper system with MPCB of surprise visit and inspection of ETP and check the quality effluent which is discharged from industries. The two big cities situated on banks of Panchganga River viz. Kolhapur and Ichalkaranji should have their efficiently working waste water treatment plants. At the same time they should have their solid waste treatment plant. The working of all the plants should be checked regularly and the quality of the effluent. There should be sudden inspection of MPCB to check the working of these plants. On the other hand it is necessary to have eco-friendly crops and efficient irrigation that reduces the need for water and energy efficient food production, especially in the sugarcane farming on the banks of Panchganga River. For fast growth of sugarcane and revenue, there is trend in the farmers to use chemical fertilizers, pesticides and insecticides which can contaminate the river water during runoff. Hence there should be limiting use of modern pesticides and insecticides in agriculture to minimize pollution.





## Small Steps to Help Protect the Environment



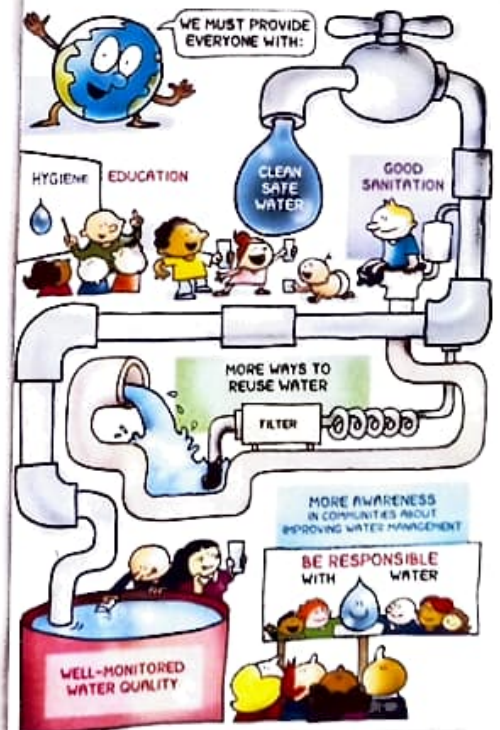
Perform #PlasticFree Lifestyle, use recyclable bag for your shopping.

Try walking or biking, for long trip, use Public Transportation.



Buy from local market because it's more fresh and less packaging.

Make your home to be environmentally sustainable.



# CH-4 SUMMARY AND CONCLUSION.

Sr.No.	Description	Quantity
1.	East-West Length of River	108 Km
2.	North-South Length of River	67 Km
3.	Total Area	2730.40 sq. m.
4.	Average width	110 m
5.	Average Minimum Depth	3 m
6.	Average Maximum Depth	14 m
7.	Average Rainfall	2501.9 mm
8.	Average Min. Temperature	28°C to 1.2°C
9.	Average Max. Temperature	14°C to 22°C

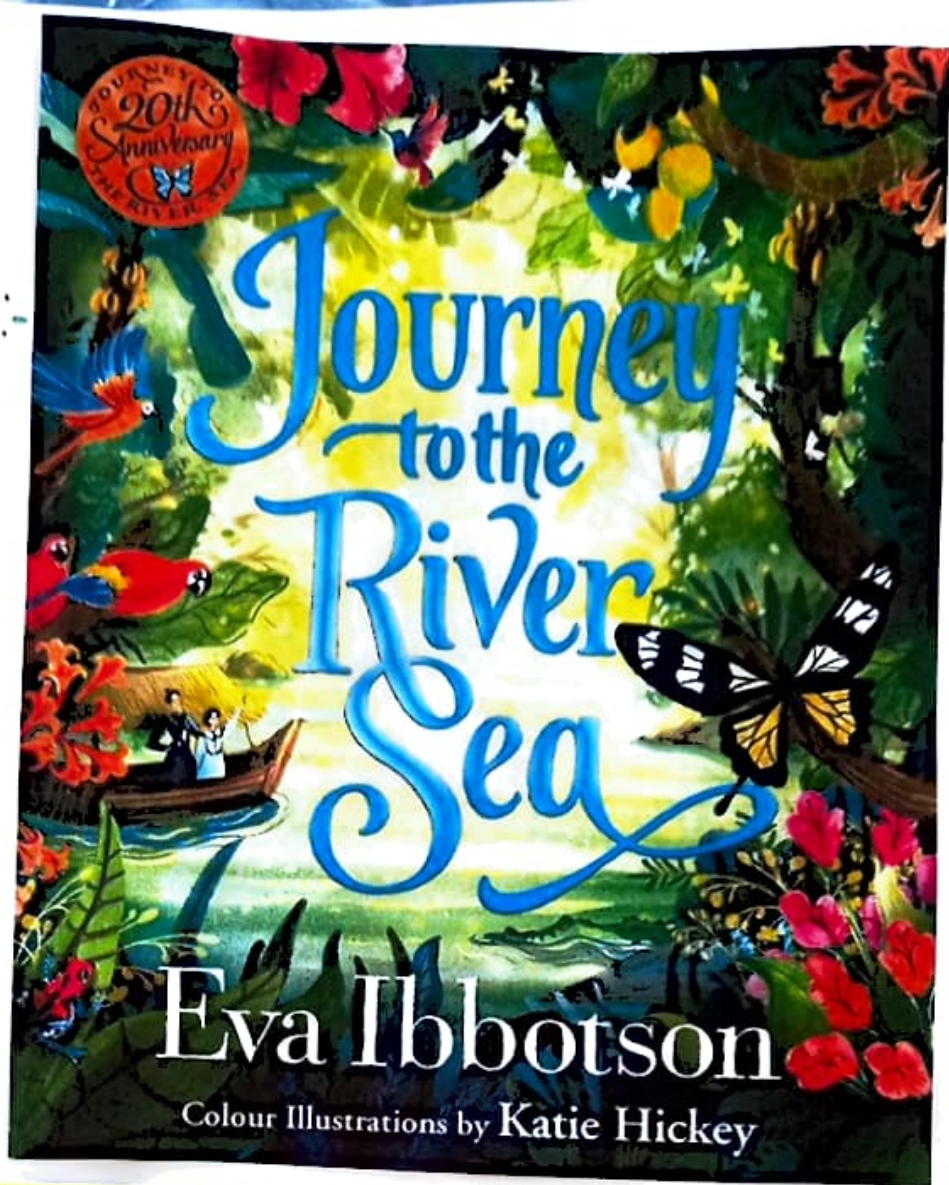


SAVE   
 RESCUE   
 PLANT   
 CLEAN   
 LOVE 

The Panchganga River is the primary source of drinking water and irrigation for villages along the river's banks. River water has grown significantly contaminated in numerous areas over time. The water at Panchganga has exceptionally high BOD, COD, Turbidity, TDS, and Coliform levels, as well as changing DO levels. The pollution induced by manmade activity is the primary source of these indicators' high values. Textile effluents, insufficient sewage treatment and discharge, agricultural runoff, and other factors have resulted in point sources in Kolhapur, Ichalkranji, and Shirol. A few enterprises, primarily textile and chemical companies, are located along the river's banks and contribute to river pollution, which has negative health consequences for humans. For many people, the Panchganga provides a source of drinking water, and there are still places where people drink untreated water directly from the river. The DO was 0.6 to 8 mg/L, the BOD was 0.1 to 48 mg/L, the COD was 6 to 124 mg/L, and the Coliform content was 70 to 350 mg/L, all of which were greater than the standards. BOD levels in drinking water should be less than one; coliform bacteria contain E. coli bacteria, which are extremely dangerous if swallowed. The temporal investigation revealed that B.O.D, Faecal Coliform, Total Coliform, and COD levels in river water have risen dramatically in recent years when compared to other metrics. The main cause for this is that as the population grows, so does the amount of sewage produced, which ends up in the river polluted.

CH-5

## BIBLIOGRAPHY :-



### Book Review :

The story begins with Maia living in London at a boarding school for girls. She had been orphaned two years earlier when her parents died in a train crash in Egypt. In the first chapter of the book, her guardian and lawyer, Mr Murray, arrives at the school to tell her that he has finally located some relatives who will take Maia in. They live on the River Amazon on the outskirts of the city of Manaus. The family have hired a governess called Miss Minton, who will accompany Maia on the long journey by boat to her new home.

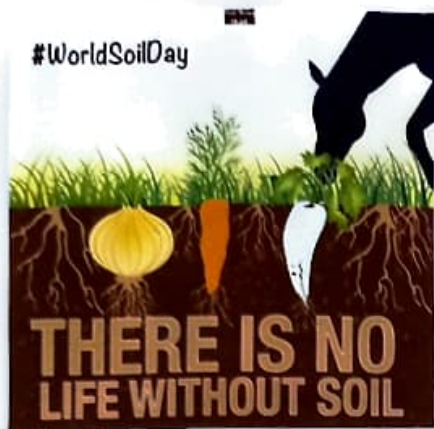
Although Maia is looking forward to the adventures she is going to have, she is a little bit apprehensive. Before she travels she spends a lot of time researching in the school library and imagining what her exotic new life will be like. On the long sea voyage she meets Clovis, a boy actor with a travelling theatre troupe who are due to perform in the grand opera house in Manaus. She also gets to know Miss Minton who insists on teaching her some Portuguese to prepare her for living in Brazil.

Unfortunately, when they finally arrive in Manaus she doesn't get the warm welcome that she has been anticipating. The Carter family clearly do not like the Amazon and try to live an English life in the middle of the rainforest. The twin girls are spoilt and spiteful and are especially malicious to Maia. Fortunately, Maia meets a mysterious boy who seems to live on the river and befriends other people outside the Carter family.

The story gets very exciting but I don't want to give away the plot.

Eva Ibbotson's style of writing about her characters, where she often seems to leave things unsaid, somehow makes the characters seem even more real because you use your own imagination to fill out some of the details. This was a very original book, the setting, the characters and the plot were all unusual but incredibly engaging. I highly recommend this book to anyone, I would give it 10 out of 10.

# Soil Pollution



*Soil pollution refers to the contamination of soil with anomalous concentrations of toxic substances. It is a serious environmental concern since it harbours many health hazards. For example, exposure to soil containing high concentrations of benzene increases the risk of contracting leukaemia.*

## CAUSES :-

*It is typically caused by industrial activity, agricultural chemicals or improper disposal of waste. The most common chemicals involved are petroleum hydrocarbons, polynuclear aromatic hydrocarbons (such as naphthalene and benzo(a)pyrene), solvents, pesticides, lead, and other heavy metals.*

**unlock the secrets in the soil**  
www.nrcs.usda.gov

"We know more about the movement of celestial bodies than about the soil underfoot."  
-Leonardo da Vinci

**Living in the soil** are plant roots, bacteria, fungi, protozoa, algae, mites, nematodes, worms, ants, maggots, insects and grubs, and larger animals.

**science of soil**  
**soil is** made of about **45% mineral**, **25% water**, **5% organic matter**, and **25% air**.

**what's underneath**  
Healthy soil has amazing water-retention capacity. Every **1% increase in organic matter** results in as much as **25,000 gal** of available soil water per acre.

One teaspoon of healthy soil contains **100 million-1 billion individual bacteria**.

Earthworm populations consume **2 tons** of dry matter per acre per year, partly digesting and mixing it with soil.

All of the soil microbes in **1 ac/ft** of soil weigh more than **2 cows**.

**what it does**  
Healthy soil is key to feeding **9 billion** people by **2050**.

# EFFECTS :-



## Damage to health

Soil pollutants enter our body through the food chain, causing illnesses to appear. Moreover, the spread of antibiotics in the environment increases the pathogens' resistance to these drugs.

## Food security

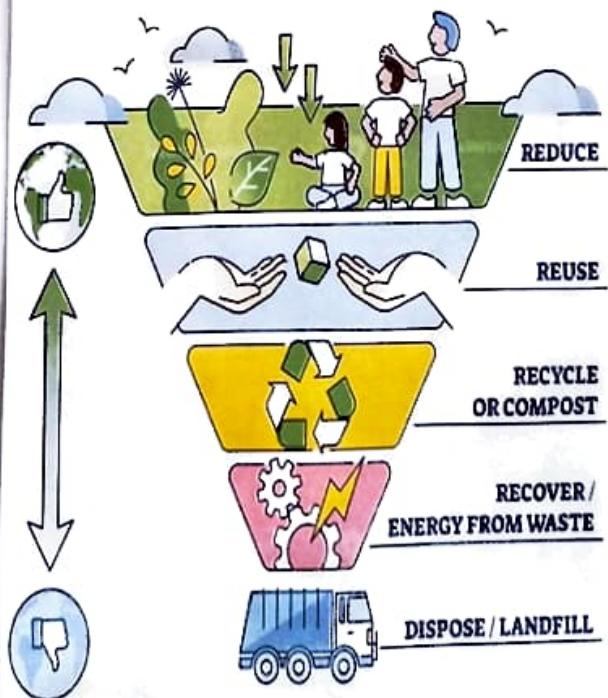
Soil pollution agents jeopardise world food security by reducing the amount and quality of harvests.

In the first decade of the 21st century, soil degradation released between 3.6 and 4.4 billion tonnes of CO<sub>2</sub> into the atmosphere.

Soil degradation affects the quality of air and water, particularly in developing countries.

Soil degradation and climate change will have driven between 50 and 700 million people to emigrate by 2050.

## SOURCE REDUCTION



# Noise Pollution



*is an invisible danger. It cannot be seen, but it is present nonetheless, both on land and under the sea. Noise pollution is considered to be any unwanted or disturbing sound that affects the health and well-being of humans and other organisms. Sound is measured in decibels.*



## CAUSES :-

Traffic noise accounts for most polluting noise in cities. For example, a car horn produces 90 dB and a bus produces 100 dB.

There are fewer aircraft flying over cities than there are cars on the roads, but the impact is greater: a single aircraft produces 130 dB.

Building and car park construction and road and pavement resurfacing works are very noisy. For example, a pneumatic drill produces 110 dB.

Bars, restaurants and terraces that spill outside when the weather good can produce more than 100 dB. This includes noise from pubs and clubs



Respiratory agitation, racing pulse, high blood pressure, headaches and, in case of extremely loud, constant noise, gastritis, colitis and even heart attacks.

Noise can cause attacks of stress, fatigue, depression, anxiety and hysteria in both humans and animals.

Noise above 45 dB stops you from falling asleep or sleeping properly. Remember that according to the World Health Organization it should be no more than 30 dB. Loud noise can have latent effects on our behaviour, causing aggressive behaviour and irritability.

## EFFECTS :-

# Solid Waste

refers to any unwanted product in our environment or from our daily items that is not a liquid or gas.

is the presence or excessive presence of solid wastes in the environment (air, water, soil), making it less fit or unfit for living beings.

## SORTING AND RECYCLING GARBAGE





# CAUSES :-

Commercial establishments  
Residential houses  
Debris from construction and demolition  
Debris from roads (such as asphalt and scrap metal)  
Scrap from vehicles  
Agriculture



# EFFECTS :-

They lead to air and water pollution. The fumes which are generated from industries are highly poisonous and directly affect the respiratory systems of animals, humans and birds. The industrial waste materials are rich in toxic substances and heavy metals such as mercury, lead, copper, and cadmium.



# Air Pollution

Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution.



## CAUSES :-

### Burning of Fossil Fuels

The combustion of fossil fuels emits a large amount of sulphur dioxide. Carbon monoxide released by incomplete combustion of fossil fuels also results in air pollution.

### Automobiles

The gases emitted from vehicles such as jeeps, trucks, cars, buses, etc. pollute the environment. These are the major sources of greenhouse gases and also result in diseases among individuals.

### Agricultural Activities

Ammonia is one of the most hazardous gases emitted during agricultural activities. The insecticides, pesticides and fertilisers emit harmful chemicals in the atmosphere and contaminate it.

# CAUSES OF AIR POLLUTION



INDUSTRY AND ENERGY SUPPLY



DUST



AGRICULTURAL PRACTICES



TRANSPORT



WASTE MANAGEMENT



HOUSEHOLD ENERGY



OXERA

## KEEP SOURCES OF POLLUTION OUT OF YOUR HOME



Avoid indoor smoking



Avoid burning woods



Test for radon gas



Keep humidity levels under 50%



Cover the trash



Avoid scented candles or fragrances



Put away food



Store hazardous chemicals outdoor

## EFFECTS :-

### Global Warming

Due to the emission of greenhouse gases, there is an imbalance in the gaseous composition of the air. This has led to an increase in the temperature of the earth. This increase in earth's temperature is known as global warming. This has resulted in the melting of glaciers and an increase in sea levels. Many areas are submerged underwater.

### Acid Rain

The burning of fossil fuels releases harmful gases such as nitrogen oxides and sulphur oxides in the air. The water droplets combine with these pollutants, become acidic and fall as acid rain which damages human, animal and plant life.

### Ozone Layer Depletion

The release of chlorofluorocarbons, halons, and hydrochlorofluorocarbons in the atmosphere is the major cause of depletion of the ozone layer. The depleting ozone layer does not prevent the harmful ultraviolet rays coming from the sun and causes skin diseases and eye problems among individuals.

# Nuclear Pollution

*Radioactive contamination is defined as the deposition or introduction of radioactive substances into the environment, where their presence is unintended, or the levels of radioactivity are undesirable. Such type of pollution is harmful to life due to the emission of ionizing radiation.*



*Nuclear accidents from nuclear energy generation plants.*

*The use of nuclear weapons as weapons of mass destruction (WMD).*

*Use of radioisotopes.*

*Mining.*

*Spillage of Radioactive Chemicals.*

*Tests on Radiation.*

*Cosmic Rays and Other Natural Sources.*

*Nuclear Waste Handling and Disposal.*

*Defensive Weapon Production.*

← CAUSES

*Development of Diseases due to Radioactive Pollution Exposure:*

*The most common disease that arises in people that have been exposed to radioactive pollution is cancer. Other dangerous diseases that might be brought on by exposure to radioactive waste include anaemia, leukaemia, haemorrhages, and cardiovascular diseases.*

*oil Infertility due to the Improper Disposal of Radioactive Waste*

*Improper disposal of radioactive waste can severely contaminate the soil and result in soil pollution.*

EFFECTS →