

Land Pollution:

- *Land uses*
- *Land degradation:
causes, effects and
control,*
- *soil erosion*

- Land pollution is degradation or destruction of earth's surface and soil, directly or indirectly as a result of human activities.

Air pollution

Water pollution

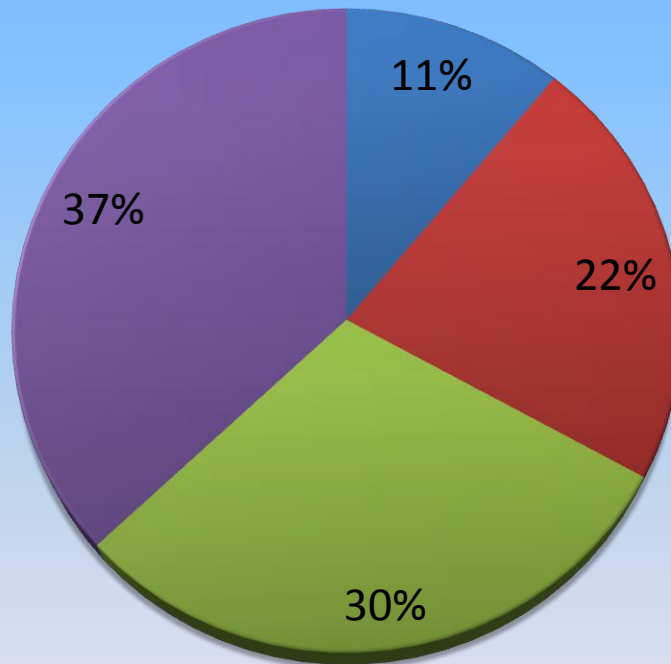
Land pollution

Land uses

- Food production(Agri.)
- For arrangement of resources (i.e water, food, materials)
- Industrial purpose
- Residential purpose
- Commercial Purpose
- Waste disposal
- Energy purpose

Land uses on Earth

Sales



■ Agricultural Land 11%

■ Grass lands 22%

■ Forest Land 30%

■ Urban and Non
Agriculture. 37%

Land degradation

- *causes, effects and control,*

Causes & Effects of Land degradation

1. Deforestation and soil Erosion:

Deforestation is one of the major concerns.

Land that is once converted into a dry or barren land, can never be made fertile again

Land conversion, (modification of the properties of the land to make it for a specific purpose is another major cause)

i.e. Agriculture to Non agriculture.

Unused available land over the years turns barren; this land then cannot be used.



farming in the state of Rondônia, western Brazil



Soil Erosion





Soil Erosion is one form of [soil degradation](#).

- Soil erosion is a naturally occurring process on all land.
- Main responsible parameters are
Water & Wind
- Soil erosion is a slow process that's Why its relatively unnoticed,
- Because of Soil erosion lands loses their topsoil, which reflects as **reduced crop production potential, lower surface water quality, Desertification.**
- While [erosion](#) is a natural process, human activities have increased by **10-40 times** in compare to natural process.
- Humans Role

[Intensive agriculture, deforestation, roads, anthropogenic climate change and Population growth in Urban areas.](#)

Causes & Effects of Land degradation

2. Agricultural activities:

Cause of higher population growth demand for food has increased high.

Farmers often use highly toxic fertilizers and pesticides to get rid off insects, fungi and bacteria from their crops.

Which results in contamination and poisoning of soil.

- **3. Mining activities**
- During extraction and mining activities, several land spaces are created beneath the surface.
- Problem of land caving in mining sites.





USGS picture found at approximate location of maximum subsidence in the United States identified by research efforts of Dr. Joseph F. Poland (pictured). Signs on pole show approximate altitude of land surface in 1925, 1955, and 1977. The site is in the San Joaquin Valley southwest of Mendota, California

- **4. Solid waste**
- We produce tones of garbage each year. Garbage like aluminum, plastic, paper, cloth, wood is collected and sent to the local recycling unit.
- Items can be recycled and not-recycled causes Land pollution.



- 5. Industrialization & 6. Construction activities



Effects of Land Pollution

- ✓ **Soil pollution**
- ✓ **Change in climate patterns**
- ✓ **Environmental Impact (Global warming,
Acid rain, Greenhouse effect)**
- ✓ **Effect on human health**
- ✓ **Cause Air pollution**
- ✓ **Distraction for Tourist**
- ✓ **Effect on wildlife**

- Solutions for Land Pollution

1. Awareness about the concept of 3R

Reduce, Recycle and Reuse.

2. Reduce the use of pesticides and fertilizers in agricultural activities.
3. Avoid buying packages items as they will lead to garbage and end up in garbage site.
4. Buy biodegradable products.
5. Do [Organic gardening](#) and eat organic food that will be grown without the use of pesticides.
6. Create dumping ground away from residential areas.

Noise Pollution

- **Noise Pollution:**

Introduction, Sound and Noise,

Noise measurements,

Causes and Effects

What is music and noise

- Music : one can enjoy for a longer period
- Noise: Not able to enjoy for a longer period

- **Noise pollution** or **noise disturbance** is the disturbing or excessive noise that may harm the activity or balance of human or animal life

Sources:

Machines and

Transportation systems,

Motor vehicles,

Aircraft, and trains and many more.....

Story of Rockers



Lars Ulrich “METALLICA”



Many Rockers suffer from permanent hearing damage like .
Ted Nugent, Peter Townshend

Problem of hearing,

Problem of continues ringing sensation
(Tinnitus)

- dB Decibel
- The **decibel (dB)** is a logarithmic unit used to express the ratio of two values of a physical quantity

- dBA Decibel A

“dBA” is an expression of the relative loudness of sounds in air as perceived by the human ear. In the A-weighted system

Environmental Noise

Weakest sound heard	0dB
Whisper Quiet Library at 6'	30dB
Normal conversation at 3'	60-65dB
Telephone dial tone	80dB
City Traffic (inside car)	85dB
Train whistle at 500', Truck Traffic	90dB
Jackhammer at 50'	95dB
Subway train at 200'	95dB
<i>Level at which sustained exposure may result in hearing loss</i>	<i>90 - 95dB</i>
Hand Drill	98dB
Power mower at 3'	107dB
Snowmobile, Motorcycle	100dB
Power saw at 3'	110dB
Sandblasting, Loud Rock Concert	115dB
<i>Pain begins</i>	<i>125dB</i>
Pneumatic riveter at 4'	125dB
<i>Even short term exposure can cause permanent damage - Loudest recommended exposure <u>WITH</u> hearing protection</i>	<i>140dB</i>
Jet engine at 100'	140dB
12 Gauge Shotgun Blast	165dB
Death of hearing tissue	180dB
Loudest sound possible	194dB

Noise pollution affects both health and behavior.

Unwanted sound (noise) can damage psychological health.

Noise pollution can cause

- [hypertension](#),
- high stress levels,
- [tinnitus](#),
- hearing loss,
- sleep disturbances,
- [cardiovascular](#) effects

exposure to moderately high levels during a single eight-hour period causes a statistical rise in [blood pressure](#) of five to ten points and an increase in [stress](#),^[6]

[increased blood pressure](#)
[coronary artery disease](#).

India

Noise pollution is a major problem in India.

The government of India has rules & regulations against firecrackers and loudspeakers, but enforcement is extremely relax.

[Awaaz Foundation](#) is an Indian NGO working to control noise pollution from various sources through advocacy, public interest litigation, awareness, and educational campaigns since 2003.

Thermal Pollution

- *Thermal pollution is the degradation of water quality by any process that changes ambient water temperature.*
- *Thermal pollution is a temperature change in natural water bodies caused by human influence.*
- *The temperature change can be upwards or downwards.*
- *A common cause of thermal pollution is the use of water as a coolant by power plants and industrial manufacturers.*

MAJOR SOURCES

- Electric power plants
- Industrial factories and manufactures



Effects

-
- **Increase in toxicity:**
- **Interference in biological activity:** Temperature is considered to be of vital significance to physiology, metabolism and biochemical processes that control respiratory rates, digestion, excretion, and overall development of aquatic organisms. Temperature changes cause total disruption to the entire ecosystem.
- **Interference in reproduction:** In fishes, several activities like nest building, spawning, hatching, migration and reproduction depend on optimum temperature.
- **Direct mortality:** Thermal pollution is directly responsible for mortality of aquatic organisms. Increase in temperature of water leads to exhaustion of microorganisms thereby shortening the life span of fish. Above a certain temperature, fish die due to failure of respiratory system and nervous system failure.
- **Food storage for fish:** Abrupt changes in temperature alters the seasonal variation in the type and abundance of lower organisms leading to shortage of right food for fish at the right time.

- *IMAPACT*
- *When water used as a coolant is returned to the natural environment at a higher temperature, the change in temperature decreases oxygen supply, and affects ecosystem composition.*
- *Urban runoff–storm water discharged to surface waters from roads and parking lots–can also be a source of elevated water temperatures.*
- *When a power plant first opens or shuts down for repair or other causes, fish and other organisms adapted to particular temperature range can be killed by the abrupt change in water temperature known as “Thermal shock.”*

**Reduction in dissolved oxygen:
Increase in toxicity:
Interference in reproduction**

**Direct mortality
Food storage for fish**

CONTROL

- *Thermal pollution from power plants and factories is relatively easy to control.*
- *Instead of discharging heated water into lakes and streams, power plants and factories can pass the heated water through **cooling towers or cooling ponds**, where evaporation cools the water before it is discharged.*
- *Alternatively, power plants can be designed or refitted to be more efficient and to produce less waste heat in the first place.*
- *In a process called cogeneration, the excess heat energy from generating electricity can be used in another manufacturing process that needs such energy.*