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Air Pollution

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Introduction to Air Pollution

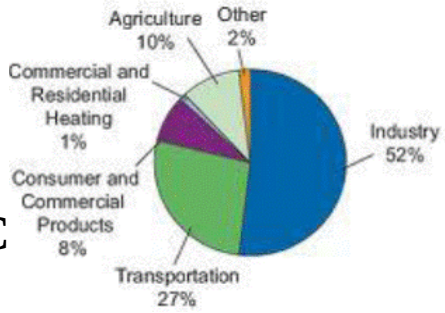
Based on the part of the environment polluted, pollution is of three types: (i) Air Pollution, (ii) Water Pollution and (iii) Soil Pollution.

Though pollution at times, occurs naturally due to volcanic eruptions, forest fires, etc., it is mainly man-made due to the enormous growth in the human population size.



Air Pollution- Definition

The introduction ofchemicals,particulate matter, orbiological materials that cause harm or discomfort to humans or other living organisms, or cause damage to thenatural environment orbuilt environment, into theatmosphere.



What are the C auses of air pollution?

Undesirable change in the physical, chemical and biological characteristics of air adversely affects the living organisms.

- Smoke from forest fires, volcanic eruptions, etc.
- Burning of fossil fuel in automobiles, industries and household.
- Smokestacks of thermal power plants, smelters and other industries.
- Decomposition of garbage resulting in release of unwanted gases into the atmosphere.
- Residential heat like use of air conditions, refrigerator, microwave etc.

Air Pollutants

The air pollutants deleteriously affect therespiratory system of animals. In plants, they cause injury, premature death and reduced growth and yield. It can be in the form of solid particles, liquid droplets, or gases and they may be natural or man-made.

Primary pollutants:

- Directly emitted from a process, such as ash from a volcanic eruption.

Secondary pollutants:

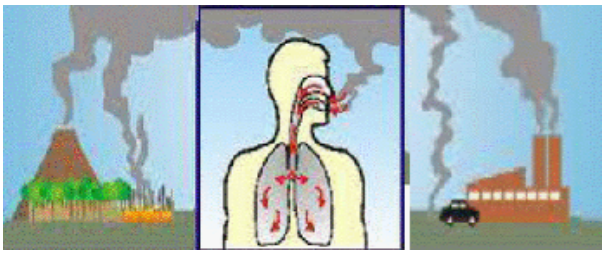
- Not emitted directly
- Form in the air when primary pollutants react or interact. Example, ground level ozone

• Particulate pollutants:

metallic particles, dust particles, soot, aerosol etc.

• Gaseous pollutants:

carbon monoxide (CO), sulphur dioxide (SO_2) and nitrogen oxide (NO_2).

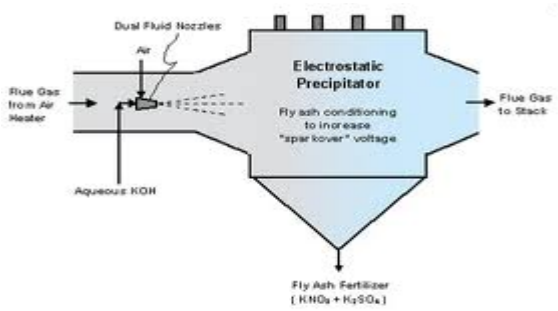


When humans get polluted?

- More concentration of pollutants
- Longer duration of exposure to the pollutants
- Weak body with less resistant capacity.

How to control Air pollution?

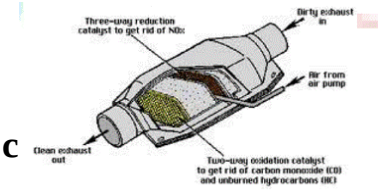
Electrostatic precipitator:



- Most widely used method for removal of particulate matter; about 99% of particulate pollutants are removed from the exhaust of thermal power plant.
- Have electrode wires and collecting plates. The wires are maintained at several thousand volts.
- These electrons get attached to the dust particles and give them a net negative charge within a second.
- The collecting plates attract the charged particles.
- The velocity of air between the plates must be low enough to allow the particles to fall on them.

Scrubber

- Used to remove gases like sulfur dioxide from the industrial exhaust.

Catalytic c  onverters.

- Used in automobiles for reducing of harmful gases.
- Have expensive metals like platinum, palladium and rhodium as catalysts.
- Vehicles fitted with catalytic converter should use unleaded petrol as leaded petrol inactivates the catalyst.



Control of vehicular air pollution:

- Use of catalytic converters in vehicles.
- The switching over of public transport
- Phasing out of old vehicles.
- Use of unleaded petrol and low sulfur petrol and diesel.

Do you know? Air pollution not only occurs in outside like acid rain, CFC, it also can exist inside homes.

Want to know more about air pollutions?click here to schedule live online session with e Tutor!

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Reference Links:

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- http://www.lbl.gov/Education/ELSI/pollution-main.html
- http://environment.nationalgeographic.com/environment/global-warming/pollution-overview.html
- http://edugreen.teri.res.in/explore/air/airintro.htm
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