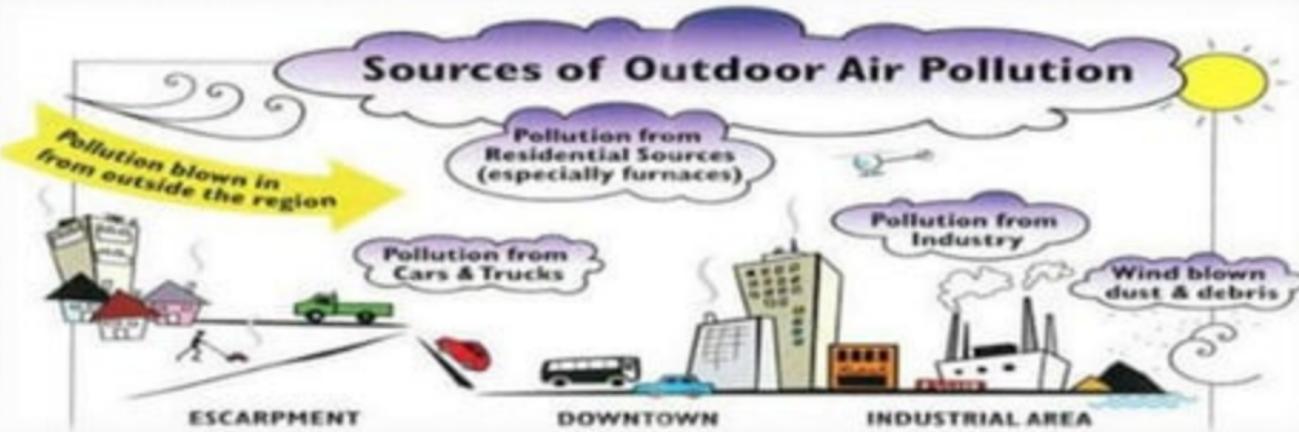




# Air pollution

# What is air pollution?

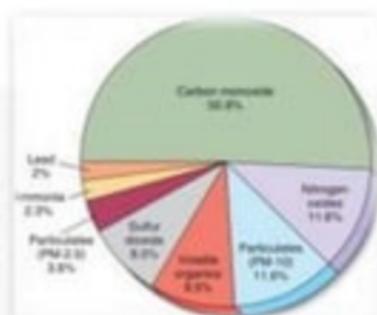
- ❖ Air supplies us with oxygen which is essential for our bodies to live.
- ❖ There are several main types of pollution. These include smog, acid rains, the greenhouse effect, and "hole" in the ozone layer.
- ❖ Another type of pollution is the release of noxious gases.
- ❖ Pollution also needs to be considered inside our homes, offices, and schools.



- ❖ Natural
- ❖ volcanoes, fumaroles and hot springs
- ❖ decay from marshes, bogs
- ❖ increase ozone due to thunderstorms, fires.

## The main categories of air pollutants

- ❖ Primary: those emitted directly into the air; e.g. sulfur dioxide ( $\text{SO}_2$ ), carbon monoxide (CO), nitric oxide (NO), nitrogen dioxide ( $\text{NO}_2$ ) .
- ❖ Secondary: those that form as a result of a chemical reaction of the primary pollutant with a natural component of the environment.; e.g. some ozone, sulfuric and nitric acids.

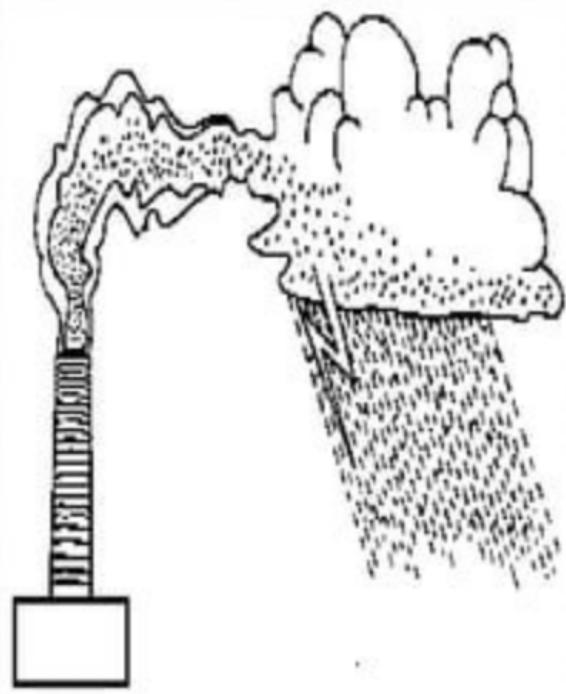


# Outdoor air pollution



## Smog

Smog is a type of large-scale outdoor pollution. It is caused by chemical reactions between pollutants derived from different sources. -Cities are often centers of these types of activities.



## Acid rains

It's caused when a pollutant combines with droplets of water in the air. -The effects of acid rain on the environment can be very serious.

# Greenhouse effect

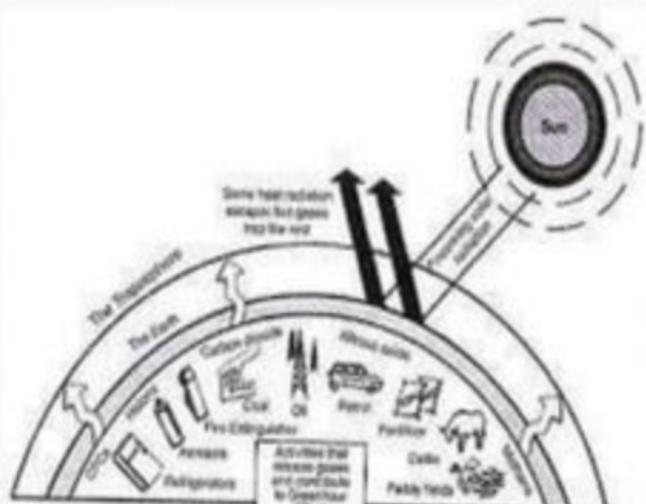
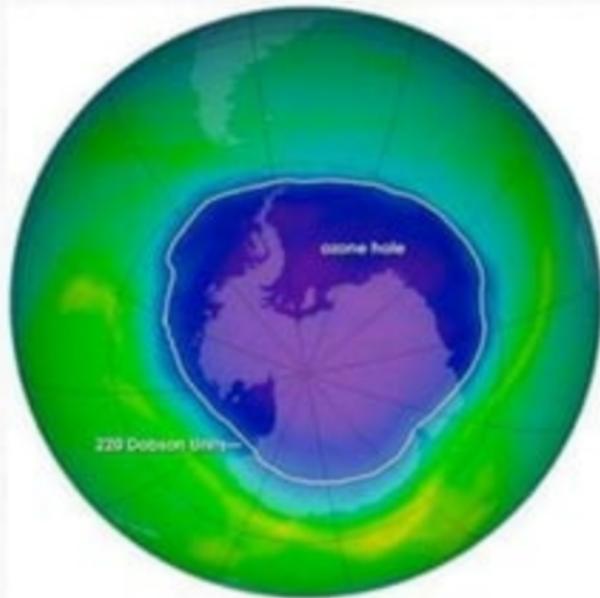


Fig. 6.6 Greenhouse effect

- It generally comes from the build up of carbon dioxide gas in the atmosphere. Carbon dioxide is produced when fuels are burned.
- In this type of pollution sun rays go into the atmosphere and they are trapped by greenhouse gasses. So the temperature on the earth raise.

# Hole in the ozone layer



- It is another result of pollution. Chemicals released by our activities affect the stratosphere.
- Releases of CFC from heating, aerosol cans, refrigerator equipment removes some of the ozone, causing "holes".

# Indoor air pollution



- It's more dangerous than the outdoor pollution, because we do everything in enclosed environments where air circulation may be restricted.
- There are many sources of indoor air pollution: smoke, cooking and heating appliances, and vapors from building materials.

# Health effect



- Some individuals are much more sensitive to pollutants than are others.
- Air pollution can affect our health in many ways with both short-term and long-term effects.

## General solution

- switch from coal to cleaner fuels - use natural gas
- reduce energy use, improve energy efficiency
- burn less coal, use lower sulfur coals. Coal gasification
- After burning the SO<sub>2</sub> can be cleaned out by scrubbing

## General solution to indoor air pollution

- source removal: no smoking
- source modification: more efficient stove design.
- pollutant removal: filters
- education

## *prevention*

- discourage auto use, reduce number of cars
- require electric cars
- improve public transport
- mandatory carpools
- industrial & household controls
- reduce emissions- burn less fuel, be energy efficient
- Do not smoke



- Air pollution prevention efforts of companies have generally focused on waste reduction, reuse and recycling.
- So to solve these problems and to get over them we can change our lifestyles.
- If we do these simple things we could have a better world and we could live in a better way.

Thank you  
for  
watching

- Pankaj  
IX