



**WEL COME  
TO  
ENVIRONMENT MANAGEMENT**



# **Air Pollution Causes Control and Prevention**

# Preface

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- Measurement of Air Pollution
- Effect of Air Pollution on Environment
- Control and prevention of Air Pollution
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# I Care



# 1 Introduction



- Air pollution can happen on every scale,
- Local to the global. sometimes the effects are immediate and happen very near to the thing that caused them

## ● Definition of Air Pollution

- The Air pollution is defined as the Content of Air colluded with the *liquid or solid dispersed through ordinary air and* substances beyond its natural existence which has the tangible impact on living world.
- It has the potential to affect us all. So what is the exact causes this major environmental issue.

# *Air pollution*

*Is there reasons for Concern?*



*India has unhealthiest air in the world, a new study says, confirming the fear that air quality was getting worse because of urbanization.*

# **Electromagnetic pollution**

**Is there Reasons for Concern ?**

**“Sensitivity to electromagnetic radiation is the emerging health problem of the 21st century. It is imperative health practitioners, governments, schools and parents learn more about it. The human health stakes are significant”.**



**William Rea, MD**



- **Air** lets our living planet breathe—it's the mixture of gases that fills the atmosphere, giving life to the plants and animals that make Earth such a vibrant place.
- Broadly speaking, air is almost entirely made up of two gases (78 percent nitrogen and 21 percent oxygen), with a few other gases (such as carbon dioxide and argon) present in absolutely minute quantities.
- We can breathe ordinary air all day long with no ill effects,

## 2. Sources of Air Pollution



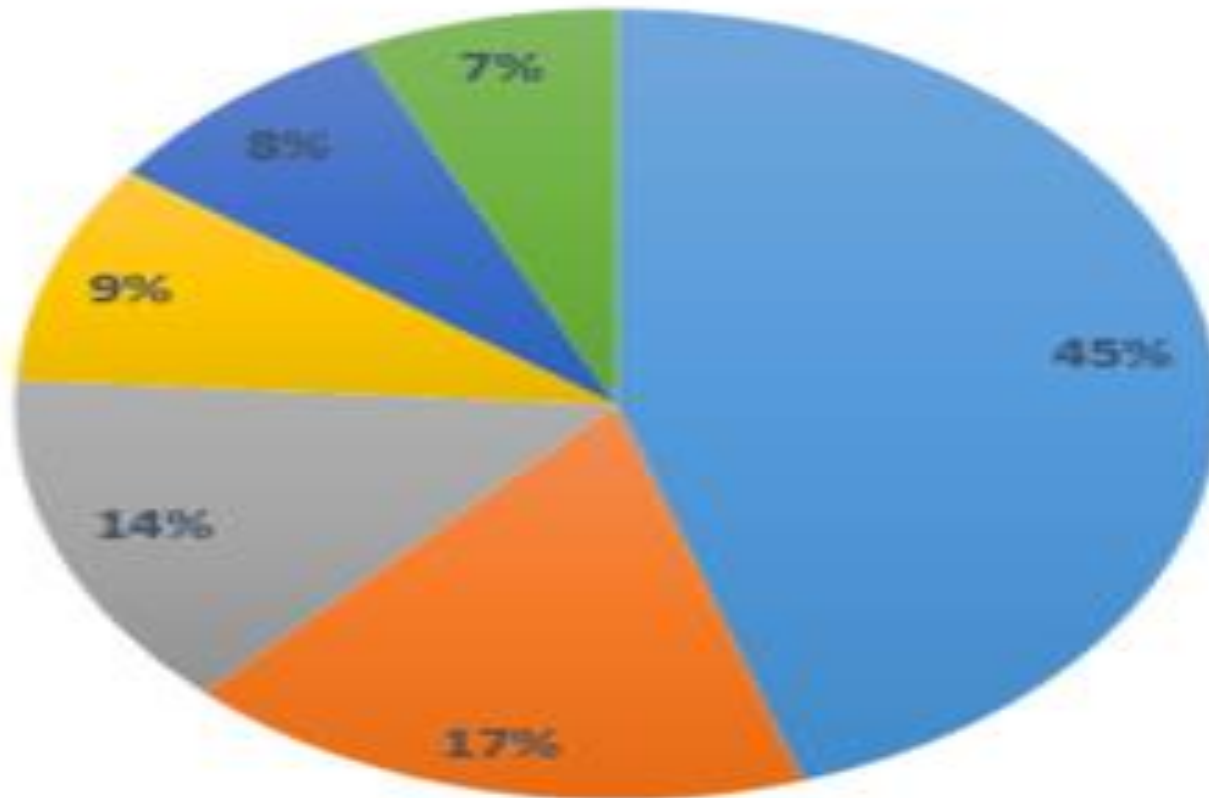
*Forest fires are one completely natural cause of air pollution*

# Additives in Air Causes Pollution

- Sulfur dioxide
- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides
- Volatile organic compounds (VOCs)
- Particulates
- Ozone
- Chlorofluorocarbons (CFCs)
- Unburned hydrocarbons
- Lead and heavy metals

# The Major Contributor for Air Pollution

Sources of Air Pollution



Dust & Construction Waste Burning Transport  
Diesel Generator Industries Domestic Cooking

Vehicular Traffic using Hydrocarbon Fuels	14%	
Power plants, industrial and chemical plants produce the majority of Earth's man made air pollution.-	45%	
In some parts of the world, people still rely on burning wood fuel for their cooking and heating, and that produces indoor air pollution that can seriously harm their health-	7%	
A large chemical plant run by the Union Carbide company released a poisonous gas (methyl isocyanate) and other chemical Industries -	8%	
Diesel Generating Set-	9%	
In some areas, garbage is incinerated instead of being Recycled	17%	

### 3. Measurement of Air Pollution

- The Measurement of Air Quality done as per CPCB norms.
  - 1. National Ambient Air Quality Standards**
    - a. By Manual Monitoring
    - b. By Automatic Analyzer
  - 2. Site Physical Parametric Selection & Sampling.**

## 4. Effect of Air Pollution on Bio- Mass

- Exposure to air pollution is associated with numerous effects on human health, including pulmonary, cardiac, vascular, and neurological impairments.
- The health effects vary greatly from person to person. High-risk groups such as the elderly, infants, pregnant women, and sufferers from chronic heart and lung diseases are more susceptible to air pollution.
- Children are at greater risk because they are generally more active outdoors and their lungs are still developing.

- Exposure to air pollution can cause both acute (short-term) and chronic (long-term) health effects.
- **Acute effects** are usually immediate and often reversible when exposure to the pollutant ends. Some acute health effects include eye irritation, headaches, and nausea.
- **Chronic effects** are usually not immediate and tend not to be reversible when exposure to the pollutant ends.
- Some chronic health effects include decreased lung capacity and lung cancer resulting from long-term exposure to toxic air pollutants.



# 4. Air Pollution Control

## Principles of controls, source control

- Air quality management sets the tools to control air pollutant emissions.
- Control measurements describes the equipment, processes or actions used to reduce air pollution.
- The extent of pollution reduction varies with technologies and measures.
- The selection of control technologies depends on environmental engineering, economic factors and pollutant type.
- Installing devices which reduce release of pollutant, devices like filters, electrostatic precipitators , inertial collectors etc.

## 5. Control and Prevention of Air Pollution

- The most common method for controlling gaseous pollutants is the addition of add-on control devices to recover or destroy a pollutant.
- Management Commitment for Solid Waste Handling
- Management Commitment for use of Environment Friendly Material
- Environment Policy Awareness Generation among the People of the Organization.
- There are four commonly used control technologies for gaseous pollutants
  - Absorption,
  - Adsorption,
  - Condensation, and
  - Incineration ( controlled combustion)

- *Pollution solution: an electrostatic smoke precipitator helps to prevent air pollution from this smokestack*



## 6. Contribution of Indian Railways towards prevention of Air Pollution

- Railways transportation system using low emission locomotives(EMD/GM locomotives)
- Manufacturing modern design rolling stock with Bio Friendly Materials (LHB Coaches ), complying with norms of Pollution Control Boards.
- Railways will be further Greener by adopting Renewable Energy as a major source of Energy for Railways.
- Introducing Energy Efficient Rolling Stock.
- Railways have adopted the Waste Management system so that Air Quality does not gets affected.

- Railways have been adopting the energy efficient 3<sup>\*\*\*</sup> BEE Rating equipments like window/Split Air conditioners, Installing Carbon sensors,
- Ducted Air conditioning System etc.
- Railways Refurbishing the Coaches with Bio-Toilets to reduce Impact on Soil and Air.
- Railways have adopted Quality Circle policy on Integrated Management System (ISO 9001:2015, EMS-14000:2014, OHS & AS-18000) Energy Conservation 50001, IGBC.

- Indian Railways is plying the Road vehicle BS-IV and likely to switch over to BS-V and BS-VI by 2020.
- Indian Railway are installing the Public Toilet and Lavatories in Railway premises with proper sewerage system.
- Green Initiatives has been placed in all establishment of Indian Railways.(Like plantation, Waste management, Energy Management)
- Enforcing National laws in letter and spirit. on Rail user like prohibition of Smoking in Railway Premises, Spitting ,throwing garbage in station premises etc

# 7. Compliances of Various Legislation of Pollution Control Board and NGT .

- Environmental Impact Assessment (EIA) is a statutory requirement for most developmental and industrial activities in our country.
- Under the provisions of the Air (Prevention & Control of Pollution) Act, 1981,
- CPCB has notified fourth version of National Ambient Air Quality Standards (NAAQS) in 2009.
- Enforcing National laws in letter and spirit. on Rail user like prohibition of Smoking in Railway Premises, Spitting , littering garbage in station premises etc.