
NOISE POLLUTION

Introduction

Noise pollution is often misinterpreted by majority of people as sound pollution. Sound is a pure tone, having fixed frequencies and amplitudes, occurring at regular intervals, is useful for meaningful communication and is a pleasure to hear musical operas, preaching by saints are examples of sound on the other hand 'unwanted sound' is termed as noise.

Definition

Noise Pollution can be defined as the unwanted or unpleasant and annoying sound that intrudes into our daily activities.

Sources of Noise Pollution

Major sources noise pollution are:

- **Transport Vehicles:** Modes of transport of road traffic are the most offensive source of noise pollution. cars, scooters, taxis, buses, trams, etc all contribute to noise pollution. With increase in vehicles, the problem of noise pollution has also aggravated to unbearable levels.
- **Railways:** Railways are the major contributors of noise pollution. Level of noise associated with rails is related to the type of engine used.
- **Air Traffic:** Since the rapid and increased use of planes, helicopters as a mode of transport these sources have also started playing a big role in contributing to noise pollution. Not only the passengers, crew but people living in close vicinity of airports bear the consequences of noise pollution caused due to increased use of ets.
- **Household Sources:** Domestic gadgets like pressure cookers, mixers, grinders, exhaust fans, A.C., vacuum cleaners.
- **Entertainment:** Video games, radios, decks, recorders.
- **Industrial Sources:** Rapid progress in industrialisation has enhanced the nuisance of noise pollution. In metro cities small units are also built in residential societies thus exposing more and more and more people to the menace of noise pollution.
Textile mills printing press, metallurgical its, tool making workshops are some of the industrial sources generating noise pollution.
- **Agricultural Sector:** Food production has increased since the era of green revolution but use of HYV to have increased crop yield requires big machines like tractors, tube wells, harvesters, tillers which have increased the decibels of sound generated by agricultural sector.
- **Public Address System Source:** use of amplifiers at public rallys by leaders, use of mics at festivals, marriage processions and religious ceremonies.
- **Construction Sources:** Constructional activity is a major source of noise pollution. Various constructional activities like bull dozers use, stone crushing, construction work generate noise.
- **Defence Equipment:** Various military exercise also contribute to noise pollution. Shooting practice and drilling exercises of military air planes contribute to noise pollution.

Unit of Niose Pollution Measurement

The unit of noise pollution measurement is decibel (db), i.e. the logarithmic ratio of noise intensity (I) to the reference value (I). The minimum intensity of sound which can be heard by humans is termed reference value (I).

Decibels can also be expressed as:

$$db = 10 \log_{10} \frac{I}{I_0}$$

Threshold intensity of sound required for human hearing is zero db. 30 db sound is generated at pillow talk. 40 db sound is in library. 60 db in normal conversation.

Traffic on a busy road generates 70 db noise. While small scale factory generates sound of 80 db.

Effects of Noise Pollution

Noise pollution has a negative effect on hearing of noise pollution are:

- **Physical Effects:** Physical effect of noise pollution is the effect on hearing capacity.
- Repeated, regular sounds of high intensity can result in damage of sensory cells of ears meant for hearing.
- Noise level above 80 db during intermittent exposure can bring a change in breathing pattern and can also lead to loss of hearing.
- Tympanic membrane of can also get ruptured leading to permanent loss of hearing.

- **Physiological Effects:**

Certain major physiological effects caused due to noise pollution are:

- Increase in heart beat rate.
- Strain in eye.
- Narrowing of arteries.
- Headache by dilating the blood vessels of brain.
- Decrease in rate of Colour Perception.
- Reduced Night Vision.
- Reduced Concentration of mind.
- Muscular Strain.
- Nervous Breakdown.

- **Psychological Effects:**

Psychological effects of noise pollution are:

- Depression and lack of well being in person.
- Emotionally drained person.
- Reduced efficiency to do work.
- Irritation and loss of interest in other .
- Insomnia due to lack of undisturbed sleep.

Control of Noise Pollution

Noise pollution can be controlled by adopting techniques at there different levels – reduction of noise at source, reduction of noise at receivers end and reduction of noise during transmission or (Acoustic Zoning)

Reduction of Noise at Source:

Noise at the producing source can be controlled by:

- Better design, fabrication and use of quieter machines.
- Proper lubrication and maintenance of machines.
- Making sound proof chambers for noisy machinery.

- Using silencers to control noise pollution from automobiles
- Tightening the loose nuts of machines
- Noise producing machinery should be covered with suitable insulating device like glass wool to reduce the noise.

Reduction of Noise at Receivers End

- Persons working in noisy conditions should be provided protective devices like ear plugs, ear muffs or head phones.
- Buying least noisy gadgets like quieter AC or vacuum cleaners
- Avoiding the use of horns without reason.

Reducing of Noise During Transmission

- Distance between source and receiver should be increased for example noise producing industries, railway stations, aero domes should be situated away from residential areas.
- Sound proof the building by using heavy curtains on windows, acoustical files on ceiling and walls.
- Use of double or triple glass panes and filling the gaps with sound absorbing materials.
- Silence zone should be created around a distance of 1 km near educational institutes, religious places and hospitals.

Plantation

Green belt vegetation and open space at regular intervals, within the densely populated areas of big towns must be developed. Border planting of trees like Ashok, Neem along highways can very effectively control the noise pollution.

A strip of 20 feet wide plantation inside the compound wall, effectively protect the houses from noise pollution contributed by traffic.