

Noise pollution

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Noise pollution, is the propagation of noise with harmful impact on the activity of human or animal life. **Noise pollution** or sound **pollution** is defined as any sound that is unwanted, or a level of environmental sound that is likely to irritate nearby individuals, cause distraction, cause hearing damage, or disrupts normal activities and lowers quality of life.

Noise pollution is more in urban areas due to higher population, industries and transportation.

Sources of Noise Pollution

- Indoor sources: noise produced by television, radio, electric fans, air coolers, generators, air conditioners, diverse home appliances.
- Outdoor sources: loudspeakers, automobiles, industrial activities, rail traffic, air planes and chaotic activities such as those market place, religious, social, cultural functions etc.

Causes of Noise Pollution

1. Social events
2. Transportation
3. Different construction activities
4. Household appliances
5. Industrialization
6. Poor urban planning
7. Agricultural machines
8. Miscellaneous sources like stone crushing

Measurement of noise: Noise intensity is measured in **decibel unit (dB)**.

Effects of Noise pollution

On humans:

- Hearing Problems:

Temporary hearing loss is often called a '**temporary threshold shift**' (TSS). According to the World Health Organization, **sound** levels less than 70 dB are not damaging to living organisms, regardless of how long or consistent the exposure is. However, temporary effects are noticed at sound levels between 80-130 dB. In this case hearing ability is usually recovered within a month exposure.

Permanent hearing loss is also known as **noise induced permanent threshold** shift (NIPTS). A sound level above 150 dB or more can physically rupture the human eardrum. The degree of

hearing loss depends on the duration as well as intensity of the noise. For e.g. an exposure to 95 dB for 8 hours everyday for over 10 years may cause about 15 dB of NIPTS.

- In addition to hearing loss, noise pollution sound can damage physiological health. Noise pollution is associated with several health conditions, including cardiovascular disorders, hypertension, high stress levels, sleep disturbances, and other harmful and disturbing effects.

On Wildlife

Noise can have a detrimental effect on animals, increasing the risk of death by changing the delicate balance in predator or prey detection and avoidance, and interfering the use of the sounds in communication, especially in relation to reproduction and in navigation. Species which depend on mating calls to reproduce are unable to hear these calls because of noise pollution. It leads to dwindling population of those species. In other cases, noise can act as barrier to eco-locate and find their way in migration.

Effect on marine animals: Underwater noise pollution due to human activities is also prevalent in the sea. Cargo ships generate high levels of noise due to propellers and diesel engines Noise pollution may have caused the death of certain species of whales that stranded themselves after being exposed to the loud sound of military sonar. Whales that depend on sound for communication can be affected by this noise in various ways. Even marine invertebrates, such as crabs (*Carcinus maenas*), have been shown to be negatively affected by ship noise

Nuisance in communicating: High noise can trouble two persons/ more to communicate freely.

Prevention and Control of Noise Pollution

1. Reduce noise at the source

- a) Designing, fabricating and using quieter machines to replace the noisy ones.
- (b) Proper lubrication and better maintenance of machines.
- (c) Installing noisy machines in sound proof chambers.
- (d) Covering noise-producing machine parts with sound-absorbing materials to check noise production.
- e) Reducing the noise produced from a vibrating machine by vibration damping i.e. making a layer of damping material (rubber, neoprene, cork or plastic) beneath the machine.

(f) Using silencers to control noise from automobiles, ducts, exhausts etc. and convey systems with ends opening into the atmosphere.

(g) Using glass wool or mineral wool covered with a sheet of perforated metal for the purpose of mechanical protection.

2) Control at Receiver's End:

For people working in noisy installations, ear-protection aids like ear-plugs, ear-muffs, noise helmets, headphones etc. must be provided to reduce occupational exposure.

(3) Acoustic Zoning:

Increased distance between source and receiver by zoning of noisy industrial areas, bus terminals and railway stations, aerodromes etc. away from the residential areas would go a long way in minimising noise pollution. There should be silence zones near the residential areas, educational institutions and above all, near hospitals.

(4) Sound Insulation at Construction Stages:

(a) Sound travels through the cracks that get left between the door and the wall. For reducing noise, this space (jamb frame gap) should be packed with sound absorbing material.

(b) Sound insulation can be done by constructing windows with double or triple panes of glass and filling the gaps with sound absorbing materials.

(c) Acoustical tiles, hair felt, perforated plywood etc. can be fixed on walls, ceilings, floors etc. to reduce noise (especially for sound proof recording rooms etc.)

(5) Planting of Trees:

Planting green trees and shrubs along roads, hospitals, educational institutions etc. help in noise reduction to a considerable extent.

(6) Legislative Measures:

Strict legislative measures need to be enforced to curb the menace of noise pollution. Some of these measures could be:

(a) Minimum use of loudspeakers and amplifiers especially near silence zones.

(b) Banning pressure horns in automobiles.

(c) Framing a separate Noise Pollution Act.

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