

### 5.3 NOISE POLLUTION

- Noise Pollution takes place when there is either an excessive amount of noise or an unpleasant sound that causes a temporary disruption in the natural balance.
- This definition is usually applicable to sounds or noises that are unnatural in either their volume or their production.
- Our environment is such that it has become difficult to escape the noise. Even electrical appliances at home have a constant hum or beeping sound.
- By and large, lack of urban planning increases the exposure to unwanted sounds. This is why understanding noise pollution is necessary to curb it in time.



**Figure 5.3.1 Noise Pollution**

[Source:<http://cpcbenviis.nic.in/noisepollution/noise.png>]

#### **Definition:**

Noise pollution is generally defined as regular exposure to elevated sound levels that may lead to adverse effects in humans or other living organisms.

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.

- Exposure for more than 8 hours to constant noise beyond 85 dB may be hazardous.

- If you work for 8 hours daily in close proximity to a busy road or highway, you are very likely exposed to traffic noise pollution around 85dB

## **Types of Noise Pollution**

There are two primary types of noise.

### ➤ **Man-Made Noise :**

This refers to the noise created due to man-made activities. It can be anything from construction work, noise from the air, vehicular traffic, household noise, noise from pubs and bars, to name a few. Ranging from 30 to a whopping 140 dB, this form of noise is extremely harmful to humans.

### ➤ **Environmental Noise :**

Environmental Noise refers to the kind of noise occurring from a range of environmental activities. This can be anything from the mating call of animals to the sound of thunderstorms that often go up to 140 dB.

## **Source of Noise Pollution:**

Multiple causes may attribute to noise pollution. Some of the most popular causes are listed below.

### **1. Industrialization**

- Most of the industries use big machines which are capable of producing a large amount of noise.
- Apart from that, various equipment like compressors, generators, exhaust fans, grinding mills also participates in producing big noise.
- You're probably familiar with the sight of workers in these factories and industries wearing earplugs to minimize the effect of noise.
- However, even after taking precautionary measures like these, extensive exposure to high levels of noise might damage their hearing abilities in the long run.

## 2. Poor Urban Planning

- In most of the developing countries, poor urban planning also plays a vital role.
- Congested houses, large families sharing small space, fight over parking, frequent fights over basic amenities lead to noise pollution, which may disrupt the environment of society.
- Noise pollution in urban settings may also be caused when residential properties and industrial buildings are in proximity. In situations like these, the noise from the nearby industrial property might hinder the basic well-being of the individuals living in residential properties.
- It doesn't just affect their sleep and hours of rest but also has an adverse effect on the development and well-being of children.

## 3. Social Events

- Noise is at its peak in most of the social events.
- Whether it is marriage, parties, pub, disc or place of worship, people normally flout rules set by the local administration and create a nuisance in the area.
- People play songs on full volume and dance till midnight, which makes the condition of people living nearby pretty worse.
- In markets, you can see people selling clothes via making a loud noise to attract the attention of people.
- While this may not seem like much at the outset, over time, it affects the hearing abilities of the individuals who are constantly exposed to these sounds.

## 4. Transportation

- A large number of vehicles on roads, airplanes flying over houses, underground trains produce heavy noise, and people find it difficult to get accustomed to that.
- The high noise leads to a situation where in a normal person loses the ability to hear properly.

## 5. Construction Activities

- Under construction activities like mining, construction of bridges, dams, buildings, stations, roads, flyovers takes place in almost every part of the world.
- These construction activities take place every day as we need more buildings, bridges to accommodate more people.
- However, while this does help us to some degree, in the long run, the noise from construction activities hinders the hearing abilities of individuals exposed to this sound.
- A part of it includes construction workers who participate in these activities, while another part of it consists of people who encounter these noise either from their homes or while traveling.

## 6. Household Chores

- People are surrounded by gadgets and use them extensively in our daily life.
- Gadgets like TV, mobile, mixer grinder, pressure cooker, vacuum cleaners, washing machine and dryer, cooler, air conditioners are minor contributors to the amount of noise that is produced. Still, it affects the quality of life of your neighborhood in a bad way.
- This form of pollution may seem harmless, it, in fact, has far-reaching consequences.
- The adverse effects on the health of the environment are quite severe. Not only is the local wildlife affected by pollution, but humans also face a number of problems due to it.

## 7. Noise from Air Traffic

- While many find it difficult to believe, air traffic too contributes to significant levels of noise pollution. Noise from a single aircraft may produce sounds of up to 130 dB.
- Now, imagine the amount of noise produced by the numerous aircraft traveling our airspace.

## 8. Catering and Nightlife

- When the weather is good, restaurants, bars, and terraces spill outside.
- Late night parties continue with loud music and unnecessary noise made by the party mongers. These can produce more than 100 dB.
- The noise from pubs and clubs are also included.

## 9. Animals' Sound

- The noise made by animals cannot go unnoticed, particularly a howling or barking dog. These can produce noise around 60-80 dB.

### Effects of Noise Pollution on human health

#### 1. Hearing Problems

- Any unwanted sound that our ears have not been built to filter can cause problems within the body. Our ears can take in a certain range of sounds without getting damaged.
- Man-made noises such as jackhammers, horns, machinery, airplanes, and even vehicles can be too loud for our hearing range.
- Constant exposure to loud levels of noise can easily result in the damage of our eardrums and loss of hearing, causing tinnitus or deafness.
- It also reduces our sensitivity to sounds that our ears pick up unconsciously to regulate our body's rhythm.

#### 2. Psychological Issues

- Excessive noise pollution in working areas such as offices, construction sites, bars and even in our homes can influence psychological health.
- Studies show that the occurrence of aggressive behavior, disturbance of sleep, constant stress, fatigue, depression, anxiety, hysteria and hypertension in humans as well as animals can be linked to excessive noise levels.

- The level of irritation increases with increased noise, and people tend to become less and less patient. These, in turn, can cause more severe and chronic health issues later in life.

### **3. Physical Problems**

- Noise pollution can cause headaches, high blood pressure, respiratory agitation, racing pulse, and, in exposure to extremely loud, constant noise, gastritis, colitis and even heart attacks may occur.

### **4. Cognitive Issues & Behavioral Changes**

- Noise affects brain responses and people's ability to focus, which can lead to low-performance levels over time. Like other sound waves, too much noise when it goes to the brain leads to lower response rates as well as making the mind dull.
- It is also poor for memory, making it hard to study. The studies have shown that school children living near railway stations or airports have problems in learning.
- Research has shown that people who live near airports or busy roads, usually have a higher incidence of headaches, take more sleeping pills and sedatives, are more prone to minor accidents, and are more likely to seek psychiatric treatment.

### **5. Sleeping Disorders**

- While it may not seem like much at this point, excessively high levels of noise are likely to hamper your sleeping pattern, thereby leading to irritation and uncomfortable situations.
- Without a good night's sleep, you might experience multiple problems related to fatigue. This will affect your performance in the office as well as at home.
- It is therefore recommended to take a sound sleep to give your body proper rest.
- If a certain noise is disturbing your sleep, take an actionable measure to reduce it. While in some instances, it is completely unavoidable; there are other instances (like noise from TV or gadgets) that can be easily avoided by making good lifestyle changes.

- Interestingly, our ears need rest for 16 hours and even more to make up for two hours of exposure to 100 dB.

## 6. Cardiovascular Issues

- Blood pressure levels, cardiovascular disease, and stress-related heart problems are on the rise.
- Studies suggest that high-intensity noise causes high blood pressure and increases heartbeat rate as it disrupts the normal blood flow.
- Since bringing these rates to a manageable level depends on our understanding of noise pollution, we need to be wary of the ill-effects and tackle these situations mindfully.

## 7. Trouble Communicating

- High decibel noise can put trouble and affect free communication between people.
- This may lead to misunderstanding, and you may get difficult understanding the other person.
- Constant sharp noise can give you a severe headache and disturb your emotional balance.

## Effects of noise pollution on Wildlife

- Wildlife faces far more problems than humans because of noise pollution since they are more dependent on sound.
- Animals develop a better sense of hearing than us since their survival depends on it.
- A recent study published in Biology Letters found that human-created noise affects a wide range of animals.
- The ill-effects of excessive noise begin at home.
- Pets react more aggressively in households where there is constant noise.

- They become disoriented more easily and face many behavioral problems. In nature, animals may suffer from hearing loss, which makes them easy prey and leads to dwindling populations. Others become inefficient at hunting, disturbing the balance of the eco-system.
- Other than marine life, land animals are also affected by noise pollution in the form of traffic, firecrackers etc., and birds are especially affected by the increased air traffic.

### **Effects of Noise Pollution on Marine Life**

- Our oceans are no longer quiet.
- Thousands of oil drills, sonars, seismic survey devices, coastal recreational watercraft and shipping vessels are now populating our waters, and that is a serious cause of noise pollution for marine life.
- Whales are among the most affected, as their hearing helps them orient themselves, feed and communicate.
- Noise pollution thus interferes with cetaceans' (whales and dolphins) feeding habits, reproductive patterns and migration routes, and can even cause hemorrhage and death.

### **Solutions for Noise Pollution:**

- Planting bushes and trees in and around sound generating sources is an effective solution for noise pollution.
  - Regular servicing and tuning of automobiles can effectively reduce the noise pollution.
  - Buildings can be designed with suitable noise absorbing material for the walls, windows, and ceilings.
  - Workers should be provided with equipments such as ear plugs and earmuffs for hearing protection.
- Solutions for Noise Pollution



- Similar to automobiles, lubrication of the machinery and servicing should be done to minimize noise generation
  - Soundproof doors and windows can be installed to block unwanted noise from outside.
  - Regulations should be imposed to restrict the usage of play loudspeakers in crowded areas and public places.
  - Factories and industries should be located far from the residential areas.
- Solutions for Noise Pollution

- Community development or urban management should be done with long- term planning, along with an aim to reduce noise pollution.
- Social awareness programs should be taken up to educate the public about the causes and effects of noise pollution.

