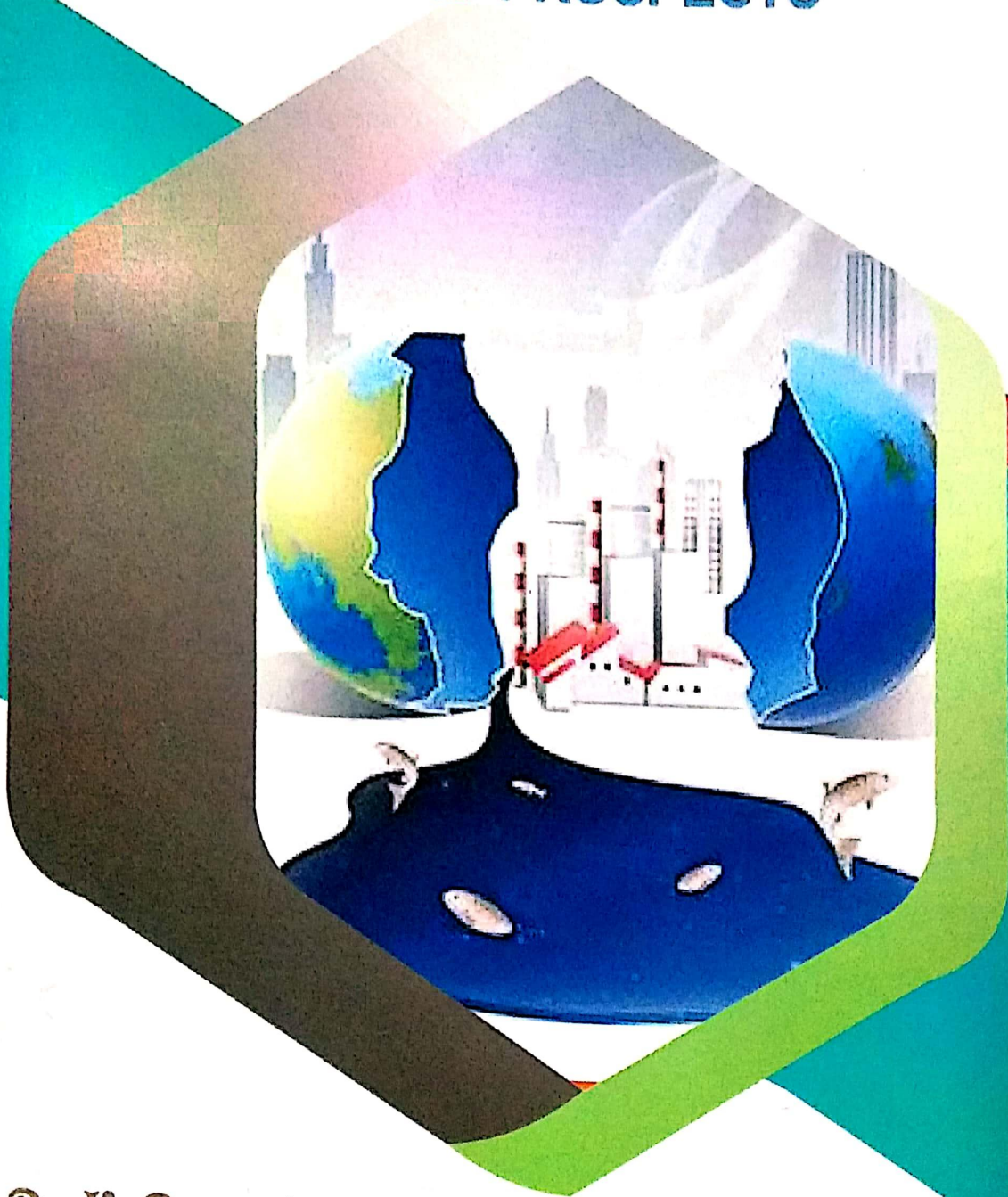


ENVIRONMENTAL MANAGEMENT ISSUES AND PROSPECTS



Dr. K. Damodaran

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NOISE POLLUTION - EFFECTS AND REMEDIES

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Introduction

Sound that is unwanted or disrupts one's quality of life is called as noise. When there is a lot of noise in the environment beyond certain limit, it is termed as noise pollution. Sound becomes undesirable when it disturbs the normal activities such as working, sleeping, and during conversations. It is an underrated environmental problem because of the fact that it can't be seen, smelt, or tasted. World Health Organization (Report 2001) stated that "Noise must be recognized as a major threat to human wellbeing" Noise is normally defined as 'unwanted sound'. A more precise definition could be: noise is audible sound that causes disturbance, impairment or health damage. The terms 'noise' and 'sound' are often synonymously used when purely acoustical dimension is meant (e.g., noise level, noise indicator, noise regulation, noise limit, noise standard, noise action plan, aircraft noise, road traffic noise, occupational noise, etc.). The link between exposure and outcome (other terms: endpoint, reaction, response) is given by reasonably well-established exposure-response. Managing noise is crucial for enhancing the living condition of a dwelling. Noise can be generated internally within a building (e.g., noise from surrounding neighbors' voices, music or appliances) or externally (e.g., traffic noise from automobiles, buses, trains, aircraft, industrial activities or surrounding construction activities). Noises (or impact of sounds) are transmitted through building materials from sound sources such as vehicular or foot traffic, banging, or objects being dropped to the floor and can also be associated with vibrations.

Sources of noise pollution

- Transportation systems are the main source of noise pollution in urban areas.
- Construction of buildings, highways, and roads cause a lot of noise, due to the usage of air compressors, bulldozers, loaders, dump trucks, and pavement breakers.

- Industrial noise also adds to the already unfavorable state of noise pollution.
- Loud speakers, plumbing, boilers, generators, air conditioners, fans, and vacuum cleaners add to the existing noise pollution as per environmental protection bureau.

Effects of noise pollution

1. Noise pollution affects both human and animal health. It leads to:
 - contraction of blood vessels
 - making skin pale
 - excessive adrenalin in the blood stream which is responsible for high blood pressure.
 - Blaring sounds are known to cause mental distress
 - Heart attacks, neurological problems, birth defects and abortion
2. Muscle contraction leading to nervous breakdown, tension, etc
3. The adverse reactions are coupled with a change in hormone content of blood, which in-turn increases heartbeat, constriction of blood vessels, digestive spasms and dilation of the pupil of the eye.
4. Adverse effects health, work efficiency and behaviour. Noise pollution may cause damage to the heart, brain, kidneys, liver and may produce emotional disturbance.
5. The most immediate and acute effect of noise is impairment of hearing that diminishes some part of the auditory system. Prolonged exposure to noise of certain frequency pattern leads to chronic damage to the inner ear.
6. Impulsive noise may cause psychological and pathological disorders
7. Ultrasonic sound can affect the digestive, respiratory, cardiovascular system and semicircular canals of the internal ear.
8. The brain is adversely affected by loud and sudden noise by jets and airplanes. People are subjected to psychiatric illness.
9. Recent reports suggest that blood is thickened by excessive noise.

10. The optical system of human beings is also affected by noise pollution. Severe noise pollution causes:
 - Pupillary dilation
 - Impairment of night vision and
 - Decrease in rate of colour perception

Present scenario in the Indian context

In India, the problem of noise pollution is wide spread. Several studies report that noise level in metropolitan cities exceeds specified standard limits. Road traffic is a major source of noise in urban areas with far-reaching and wide range effect to human. India as a developing country, traffic noise pollution is serious enough in its urban and suburban areas. From the observed noise level in various studies carried out in different parts of India it was found that, all other urban areas faced similar trend of noise pollution. Thus, there is a need to create awareness among the people and educate the citizens about the rising noise pollution; health effects, etc. Therefore a key message that has to be disseminated is that control of noise at individual's level will control noise pollution. There are many legal provisions to control or check the noise pollution. Many laws and acts have been amended to prevent the noise pollution but serious implementation of these laws has not yet taken shape.

Objectives of this research

The objectives of this research are to measure the noise pollution levels generated due to vehicles and machinery and also to devise a cost effective, viable simple solution for noise attenuation.

Noise reduction

It is frequently necessary to use techniques that lower the level of noise on the road side or at source. A variety of methods are available for noise reduction but they can be basically grouped as follows: passive and active medium. Active medium differ from passive mediums in that it is necessary to apply external energy in the noise reducing process. The absorbing materials, as such, are passive mediums that lower noise by disseminating energy and turning it into heat given by Environmental Protection Department Hong Kong (Anon. 2006a). The techniques employed for noise control can be broadly classified as

- Control at source
- Control in the transmission path
- Using protective equipment.

Out of all the three techniques noise control using transmission path is employed here to reduce noise against traffic. The control measure is by providing noise barrier in the form of cubicles and noise reduction is observed. An attempt has been made to find the noise levels reduction at OMR section; two sensitive places selected along OMR. It was observed that the noise levels were above the standards prescribed by the CPCB standards at open stream whereas inside barrier reduction was considerable by about 3% to 20%.

Control measures

Source Control: This includes source modification such as acoustic treatment to machine surface, design changes, limiting operational timings, etc

Transmission Path Intervention: This includes containing the source inside a sound insulating enclosure, constructing a noise barrier or provision of sound absorbing materials along the path.

Receptor Control: This includes protection of the receiver by altering the work schedule or provision of personal protection devices such as ear plugs for operating noisy machinery. The measure may include dissipation and deflection methods.

Oiling: Proper oiling will reduce noise from the machine.

Preventive measures

- Prescribing noise limits for vehicular traffic.
- Ban on honking (usage of horns) in certain areas.
- Creation of silence zones near schools and hospitals.
- Redesigning buildings to make them noise proof.
- Reduction of traffic density in residential areas.
- Giving preference to mass public transport system.

Suggestions to avoid noise pollution

- Public awareness is essential for prevent and control the noise pollution. Not only the government but we should also be aware of the harmful consequences of noise pollution.

- Which cause to the certain deafness people should aware of that excessive noise
- Such transport terminals, Industries, Airport, and railway terminals sight should be far from living spaces.
- Avoid the maximum uses of sound processing instruments and make proper regulations for the utilize of a loudspeaker and other devices.
- Construction of some soundproof machines in industrial and manufacturing installation must be encouraged. Also necessary for residential building.
- Anti-pollution laws should make strict rules and regulation which enacted and forced
- Ban all type of fire crackers which is very harmful for pollution and replace with the bulb horns.
- In the law of community must have a real and silence zone like Schools, Colleges, and Hospitals.
- Make in the residential area the plantation (Trees) it absorbs the sound and reduces the pollution and also healthier for breathing of body.

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