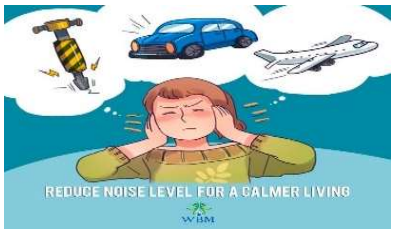
Cosmos Multidisciplinary Research E-Journal
Online Available at www.cmrj.in
Recognized International Peer Reviewed Journal
Impact Factor 4.94
ISSN No. 2456-1665

Effects of Noise Pollution on the Environment and Human Health



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Abstract:

Noise pollution is a major problem in cities around the world. Noise is defined as unwanted sound. Environmental noise consists of all the unwanted sounds in our communities except that which originates in the workplace. Environmental noise pollution, a form of air pollution, is a threat to health and well-being. It is more severe and widespread than ever before, and it will continue to increase in magnitude and severity because of population growth, urbanization, and the associated growth in the use of increasingly powerful, varied, and highly mobile sources of noise. In factory workplace workers are exposed to high noise due to machinery in routine. The potential health effects of noise pollution are numerous, pervasive, persistent, medically and socially significant. Noise produces direct and cumulative adverse effects that impair health and that degrade residential, social and working environment with corresponding real (economic) and intangible (well-being) losses. Noise represents an important public health problem that can lead to hearing loss, sleep disruption, cardiovascular disease, social handicaps, reduced productivity, negative social behaviour, annoyance reactions, absenteeism and accidents. It adversely affects future generations by degrading residential, social, and learning environments with corresponding economic losses. The aim of enlightened governmental controls should be to protect citizens from the adverse effects of airborne pollution, including those produced by noise. People have the right to choose the nature of their acoustical environment; it should not be imposed by others.

Keywords: Hearing loss; Noise; Public Health; Effects on Animals, Urbanization

Introduction:-

All types of pollution- noise, air, water, soil and radioactive have an impact on all living organisms and their environment. Pollutants in the environment are responsible for environmental degradation. The effects of pollution range from mild discomfort to long term effects such as cancer and physical deformities. Increased pollution in the environment also causes psychological and behavioural disorders in human beings.

Noise pollution; an urban territorial phenomenon is assuming serious proportions in every city. The frequency and intensity of pollution has been increasing day by day. Noise pollution is an annoyance to human beings. The noise is usually machine-created sound that disrupts activity or balance of human's way of life. It is a growing environmental problem that is increasingly becoming an omnipresent, yet unnoticed form of pollution not only in developed countries but also in the developing countries.

The word noise is derived from Latin word ''Nausea'' implying ''unwanted sound'' or sound that is loud, unpleasant or unexpected. It can be defined as wrong sound, in the wrong place and at the wrong time. The noise problems of the past pale in significance When compared with those experienced by modern city dwellers; noise pollution continues to grow in extent, frequency, and severity as a result sof population growth, urbanization, and technological developments. Due to exposure of noise people are suffering from difference kinds of diseases like Hearing Impairment, Interference with spoken communication, Sleep disturbances, cardiovascular disturbances, Annoyance etc.

Effects Of Noise Pollution :-

The effects of noise pollution are multifaceted and interrelated. Noise pollution has ill effects not only on the human beings but also on the environment.

Effects of High Intensity Noise on Human Beings

Frequency of noise (dB A)	*Effects observed (Health)*
80	Irritations ended
90	Hearing
110	Skin stimulation and rustle, stimulation of reception in skin
120	Pain threshold
130–135	Vomiting, decrease in tactile experience, nausea, vomiting dizziness, interference with touch and muscle sense.
140	Pain in ear, prolonged exposure cause insanity
150	Skin irritation, threshold of audibility, significant change in pulse rate
160–180	Sensitive membranes rupture, minor permanent damage if prolonged
190	Major permanent damage in short time

(*Source*: Chhatwal, 1989)

Effects on Environment :-

The noise booms cause cracks in national and archaeological monuments Very high levels of noise are the cause of cracks in hills. High intensity explosions can break glass panes and cause vibrations in the buildings.

Effects on Human Health :-

1. Effect on hearing or Deafness: Continuous exposure to noise levels above 100 dB has an adverse effect on nearing ability within a fairly short time. Many workers who are exposed to the noise of jet aircraft or very noisy workshops for even moderate periods soon develop detectable hearing defects.

2. Effect on Communication: External sounds can interfere with conversation and use of the telephone, as well as the enjoyment of radio and television programmes. It can thus, affect the efficiency of offices, schools and other places where communication is of vital importance.

3. Interference with sleep: Different people have different depths of sleep and they can adjust to natural sounds. However, noisy conditions near residential areas at night causes difficulties in sleeping.

4. Mental or Physiological Effects: Many people complain that noise makes them mentally ill. Experiments have been performed to confirm or disprove these

claims. Doctors and scientists have now medically confirmed that noise disturbs the biological organisms and their respective functions. Fire crackers and other excessive and continuous explosives become physically painful giving rise to neurosis, mental illness, cardiovascular diseases, stomach ulcers and respiratory disorders, thereby, reducing human life. Recent researches have concluded that short exposures to noise (in excess of about 100 dB) can lead to adverse effects on the foetus and cause headache, dizziness and stomach problems.

5. Effects on Physical health and Psychological problems: Noise has little physical effect on the biological performance provided that the noise level is below about 90 dB Damage to the inner ear may result if continuous noise levels exceed about 100 dB and can lead to physical illness. Psychiatrists and psychologists have in recent researches made observations that noise has certain relation with physical health causing tension resulting in problems such as speech interference annoyance, fatigue sleep interference and emotional distress, Noise levels in industries cause interference in efficiency and communication and raises possibilities of accidents.

6. Disturbances in Mental Health : Noise pollution is not believed to be a cause of mental illness, but it is assumed to accelerate and

intensify the development of latent mental disorders. Noise pollution may cause or contribute to the following adverse effects: anxiety, stress, nervousness, nausea, headache, emotional instability, argumentativeness, sexual impotence, changes in mood, increase in social conflicts, neurosis, hysteria, and psychosis. Population studies have suggested associations between noise and mental-health indicators, such as rating of well-being, symptom profiles, the use of psychoactive drugs and sleeping pills, and mental-hospital admission rates. Those with underlying depression may be particularly vulnerable to these effects because they may lack adequate coping mechanisms. Children in noisy environments find the noise annoying and report a diminished quality of life Noise levels above 80 dB are associated with both an increase in aggressive behaviour and a decrease in behaviour helpful to others.

The news media regularly report violent behaviour arising out of disputes over noise; in many cases these disputes ended in injury or death. The aforementioned effects of noise may help explain some of the dehumanization seen in the modern,

congested, and noisy urban environment.

Effects on animals:

Noise from industries, railways, crackers, explosions and commotion in the cities and aircraft, affect animals, birds, mice, fishes and domestic animals. Birds avoid migrating to places where noise level is above 100 dB. The noise emissions caused by supersonic aircraft and railways may cause miscarriage in mammals and fishes as well. Some of the birds have been found to have stopped laying eggs due to noise pollution.

Conclusions

In conclusion, the study has shown that noise levels, sources and effects vary with neighbourhood type. The level of noise in high density areas is significantly different from that of low-density area. However, the levels in both medium and high-density areas were similar. Generally, action to reduce environmental noise has had a lower priority than that taken to address other environmental problems such as air and water pollution. Therefore, in order to tame the invisible pollutant of environmental noise and improve quality of life of people in Ibadan metropolis, there is a need to pay adequate attention to noise management in the residential neighbourhoods because of its adverse effect on the populace. This will require formulation and enforcement of permissible noise levels/standards for residential neighbourhoods by the Ministry of Environment as against the current 8-hour standard of 90dB which is for industrial settings. The World Health Organization (WHO) standards were used as limits for noise assessment. The research carried out in the various land use reveals that 80% of the commercial area is exposed to the highest risk of noise pollution. Hence, results records that the highest noise was recorded in the morning and afternoon.

The ultimate goal should be to identify ways to improve the acoustic environment, but generally only rudimentary measures (dBA) have been reported. These acoustic metrics may be overly simplistic for hospital environments. Additionally, a number of “mechanism” studies evaluating changes in the acoustic environment are needed in order to optimize the effectiveness of acoustic or behavioural alterations. We should prevent exposure of noise in working environment to save our precious life

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